United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued February 11, 2025 Decided August 1, 2025

No. 23-5285

CENTER FOR BIOLOGICAL DIVERSITY,
APPELLANT

v.

UNITED STATES FISH AND WILDLIFE SERVICE, ET AL.,
APPELLEES

Appeal from the United States District Court
for the District of Columbia
(No. 1:21-cv-00791)

Kristine M. Akland argued the cause for appellant. With her on the briefs was *Eric R. Glitzenstein*.

Nirva Patel was on the brief for *amici curiae* Scientific Experts in support of appellant.

Christopher Anderson, Attorney, U.S. Department of Justice, argued the cause for appellees. With him on the briefs were *Todd Kim*, Assistant Attorney General at the time the brief was filed, and *Kevin W. McArdle*, Attorney.

Before: SRINIVASAN, *Chief Judge*, MILLETT and PAN, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* MILLETT.

Opinion concurring in part and dissenting in part filed by *Circuit Judge* PAN.

MILLETT, *Circuit Judge*: The American Burying Beetle is the largest carrion beetle in North America. In 1989, the Fish and Wildlife Service listed the Beetle as an endangered species. Since then, the Service has continued to study and evaluate the Beetle's status. In 2015, prompted by a petition from private entities, the Service began a reevaluation of the Beetle that resulted in the rules at issue in this case. After completing a Species Status Assessment Report, the Service determined that the Beetle's current range is larger than thought when the Beetle was listed as endangered, and that there are currently several large, resilient Beetle populations in different locations across the United States. In light of that new information, the Service concluded the Beetle faces relatively low near-term risk of extinction. At the same time, the Service explained that future land-use changes and climate change are likely to impact the resiliency of most populations and the overall viability of the species in the coming decades. The Service therefore determined that the Beetle is likely to become an endangered species in the foreseeable future. Accordingly, in 2020, the Service promulgated a Downlisting Rule, changing the Beetle's status from "endangered" to "threatened," as well as a Section 4(d) Rule establishing protections for the conservation of the Beetle based on that downlisting.

The Center for Biological Diversity challenges both the Service's downlisting of the Beetle from endangered status and the sufficiency of the protections put in place for the Beetle as

a threatened species. Given the timeframe of the Service's decision, the Downlisting Rule does not violate the Endangered Species Act, is supported by the administrative record, and was reasonably explained. As for the challenges to the Section 4(d) Rule, the Center failed to establish standing. We accordingly affirm the district court's judgment.

I

A

The Endangered Species Act of 1973, 16 U.S.C. § 1531 *et seq*., is "the most comprehensive legislation for the preservation of endangered species ever enacted by any nation." *Tennessee Valley Auth. v. Hill*, 437 U.S. 153, 180 (1978). It covers all "member[s] of the animal kingdom, including * * * arthropod[s]," a category that includes insects. 16 U.S.C. § 1532(8), (16). The Act requires the Secretaries of Interior and Commerce "to promulgate regulations listing those species of animals that are 'threatened' or 'endangered' under specified criteria, and to designate their 'critical habitat.'" *Bennett v. Spear*, 520 U.S. 154, 157–158 (1997) (citing 16 U.S.C. § 1533). As relevant here, the Secretary of the Interior has delegated this authority to the Fish and Wildlife Service. *See* 50 C.F.R. § 402.01(b); *see also id.* § 17.11.

The Act defines an "endangered" species as one that "is in danger of extinction throughout all or a significant portion of its range[.]" 16 U.S.C. § 1532(6). A "threatened" species, by comparison, is one that "is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." *Id.* § 1532(20).

The Act, however, does not define the term ''foreseeable future." In 2019, the Service set forth a framework for

evaluating the foreseeability of extinction on a case-by-case basis. *See* 50 C.F.R. § 424.11(d); *Endangered and Threatened Wildlife and Plants Regulations for Listing Species and Designating Critical Habitat*, 84 Fed. Reg. 45,020, 45,020–45,021 (Aug. 27, 2019). Although this regulation was not in place when the Downlisting Rule was first proposed, the Service explained that the regulation codified its long-standing approach. *Endangered and Threatened Wildlife and Plants; Reclassification of the American Burying Beetle from Endangered to Threatened with a Section 4(d) Rule*, 85 Fed. Reg. 65,241, 65,243–65,244 (Oct. 15, 2020).

Under the regulation, "[t]he foreseeable future extends as far into the future as the Service[] can make reasonably reliable predictions about the threats to the species and the species' responses to those threats." 50 C.F.R. § 424.11(d). The Service "will describe the foreseeable future on a case-by-case basis, using the best available data and taking into account considerations such as the species' life-history characteristics, threat-projection timeframes, and environmental variability." *Id.* The Service "need not identify the foreseeable future in terms of a specific period of time." *Id.*

The Center does not challenge the regulation or dispute that its test captures the foreseeability inquiry applied at the time the Beetle rules issued.

The decision to designate a species as endangered or threatened carries important consequences. When a species is listed as endangered, a suite of statutory protections automatically attaches. Among other things, the Act makes it unlawful to possess, sell, deliver, receive, import, export, or take the species within the United States or its territorial waters. 16 U.S.C. § 1538(a)(1). To "take" an endangered species is "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or

collect" the species. *Id.* § 1532(19). This includes a prohibition on incidental take. *See Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 697–703 (1995).

By contrast, the Act does not automatically impose specific protections for threatened species. Instead, Section 4(d) of the Act, 16 U.S.C. § 1533(d), provides that the Service "shall issue such regulations as [it] deems necessary and advisable to provide for the conservation" of each threatened species. 16 U.S.C. § 1533(d). In fashioning appropriate protections for the species, the Service can pick from among and tailor the statutory protections afforded endangered species. *Id.*

The Act empowers the Service, on its own initiative or on petition from an "interested person," to list a species as endangered or threatened. The Service "determine[s] whether [the] species is an endangered species or a threatened species" based on the following factors: "(A) the present or threatened destruction, modification, or curtailment of [the 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 its continued existence." 16 U.S.C. § 1533(a)(1), (b)(1)(A), (b)(3)(A). The Service then makes a listing determination "on the basis of the best scientific and commercial data available to [it] after conducting a review of the status of the species and after taking into account" efforts by local, state, and foreign governments to protect the species. *Id.* § 1533(b)(1)(A).

Once a species has been listed, the Service reviews that designation every five years and determines whether the species should be uplisted from threatened to endangered,

downlisted from endangered to threatened, or removed from the list altogether. 16 U.S.C. § 1533(c)(2)(A)–(B).

B

Historically, the American Burying Beetle could be found in thirty-five states and along the southern borders of three Canadian provinces. But between the early 1900s and the 1970s, the Beetle lost 90% of its range. The Service first listed the Beetle as an endangered species in 1989. *See Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the American Burying Beetle*, 54 Fed. Reg. 29,652 (July 13, 1989). At the time, there were only two known Beetle populations, which were in Oklahoma and Block Island, Rhode Island.

In 2008, the Service undertook a review of the Beetle's status pursuant to 16 U.S.C. § 1533(c)(2). *See American Burying Beetle (Nicrophorus americanus) 5-Year Review: Summary and Evaluation*, U.S. Fish and Wildlife Service (March 2008). At that time, the Service determined the Beetle remained endangered.

Since the Beetle's initial listing, additional population surveys have revealed Beetle populations inhabiting portions of Arkansas, Kansas, Oklahoma, Nebraska, South Dakota, and Rhode Island. Reintroduced populations have also taken root in Nantucket Island, Massachusetts and in Missouri.

In 2015, private entities submitted a petition asking the Service to delist the Beetle, pursuant to 16 U.S.C. § 1533(b)(3)(A). In response to that petition, the Service reviewed the Beetle's status. In doing so, the Service used its Species Status Assessment Framework, which sets forth a methodology that informs all of the Service's decisions under

the Endangered Species Act. *See Species Status Assessment Framework*, U.S. Fish & Wildlife Service (Aug. 2016), https://perma.cc/FUM4-43MJ.

As set out in the Species Status Assessment Framework, the Service applied the conservation biology principles of "resiliency," "redundancy," and "representation" in evaluating the current and future condition of the Beetle. 85 Fed. Reg. at 65,244; *Species Status Assessment Framework* at 4. "Resiliency" measures the species' ability to withstand ordinary environmental and demographic variations, like warm or cold years and wet or dry years. 85 Fed. Reg. at 65,244. The primary indicators of resiliency are geographic distribution and the relative abundance of available habitat within localized areas. J.A. 313. "Redundancy," in turn, measures the species' ability to withstand catastrophic events, like a drought or hurricane. 85 Fed. Reg. at 65,244. The number of populations and their geographic dispersion can affect a species' redundancy. J.A. 313. Lastly, "representation" measures the species' ability to adapt over time to long-term changes in the environment, like climate change or urbanization. 85 Fed. Reg. at 65,244. Representation depends on the species' genetic and ecological diversity. J.A. 313. Therefore, "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." 85 Fed. Reg. at 65,244.

The Service then issued a Species Status Assessment Report ("Species Report"), which is a peer-reviewed scientific report that "represents a compilation of the best scientific and commercial data available concerning the status of the species, including the impacts of past, present, and future factors (both negative and beneficial) affecting the species." 85 Fed. Reg. at 65,242.

The Species Report grouped the known Beetle populations into three regions: (i) the "Northern Plains" in Nebraska and South Dakota, (ii) the "Southern Plains" in Texas, Oklahoma, Kansas, and Arkansas, and (iii) the "New England" region, which comprises populations in Nantucket, Massachusetts and Block Island, Rhode Island. 85 Fed. Reg. at 65,245. The Northern Plains and Southern Plains regions are each further divided into three "analysis areas." In the Northern Plains, those are the Loess Canyons, Sand Hills, and Niobrara River analysis areas. *Id.* In the Southern Plains, they are the Red River, Arkansas River, and Flint Hills analysis areas. *Id.* The New England region is a single analysis area. *Id.*

The Species Report first evaluated the Beetle's current status based on its resiliency, redundancy, and representation at the time of the study. To do so, the Species Report analyzed the Beetle's current and historical range, current habitat availability and land protections, and current population status including the status of reintroduction and experimental populations. The Species Report also considered the effects that climate change has had on the Beetle's current condition.

Based on that information, the Species Report found that six of the seven analysis areas had moderate or high resiliency, but that the Red River analysis area had low resiliency. As for redundancy, the Species Report found that the number of populations ranges from at least five to as high as nine, including reintroduced populations. These populations provide redundancy "due to [their] separation by considerable distances, differences in habitat makeup, behavior, existing threats, land use patterns, and climate[.]" J.A. 416. Lastly, the Species Report concluded that overall representation is moderate. It found that, while current genetic diversity is

relatively high, ecological diversity has been reduced given the loss of the Beetle's historical range.

The Species Report then gauged the Beetle's future status based on the Beetle's projected future resiliency, redundancy, and representation. The Species Report identified two "primary risk factors" that could impact the Beetle's status in the foreseeable future: (i) land-use changes, such as conversion of grassland to cropland, high utilization of vegetation through grazing and mowing activities, and urbanization, and (ii) climate change. J.A. 418. The Service modeled the combined effects of those two risk factors.

To predict the effects of future land-use changes, the Service modeled two scenarios. J.A. 425–461. The first scenario assumed that land-use changes continued at the current rate, existing land management continued, and additional managed lands were established. J.A. 425. The second scenario assumed that land-use changes accelerated, and that there was no intentional management of the Beetle. J.A. 425. The Service found that under the second scenario, resiliency would change from moderate to low in the Loess Canyons analysis area and in New England. J.A. 461. In addition, representation and redundancy would both be "reduced" under the second scenario "with potential losses of populations in New England, Loess Canyons, Red River, and the reintroduction site in Missouri." J.A. 461.

To estimate the impacts of climate change on the future conditions of the Beetle, the Species Report relied on two projections—a moderate greenhouse gas emissions scenario and a high greenhouse gas emissions scenario—from the Intergovernmental Panel on Climate Change's Fifth Assessment Report. *See* Intergovernmental Panel on Climate

Change, *Climate Change 2013: The Physical Science Basis* 147–150 (2013), https://perma.cc/P9LM-A5XP.

The Service then modeled future summertime mean-maximum temperatures over three separate thirty-year time periods: early century (2010–2039), mid-century (2040–2069), and late century (2070–2099). The Service compared the predicted mean-maximum temperature for each time period to two thresholds. The first threshold is the "near" threshold, which represents "climate conditions that could negatively affect [the Beetle's] ability to feed, shelter, or reproduce[.]" J.A. 468. The Service estimated that threshold to be 93°F–95°F for the Beetle populations in the Northern Plains and 94°F–95°F for the Beetle populations in the Southern Plains. The second threshold is the "survival" threshold. J.A. 471. That threshold was estimated to be 95°F. While the Beetle may survive periodic years with mean-maximum temperatures at or above 95°F, the Service found that areas with average temperatures at or above that threshold likely could not support Beetle populations in the long-term. J.A. 468.

According to the Species Report, the most immediate effects of climate change are predicted to impact the Red River analysis area, located in the southernmost part of the Southern Plains region. Under both the moderate and high greenhouse gas emission scenarios, resiliency in the Red River analysis area is predicted to decrease to zero by 2039. The Species Report also predicts that climate change will have an impact on the other analysis areas in the Southern Plains region, but over a longer time period. In both the Arkansas River and Flint Hills analysis areas, resiliency is predicted to reduce to low by 2039, and down to zero by 2069. J.A. 475.

Meanwhile, no part of the Northern Plains is "expected to approach the 93°F–95°F near threshold" by 2039. J.A. 476.

But by the 2040–2069 period, under either the moderate or high emissions scenario, parts of the Northern Plains are anticipated to begin experiencing temperatures at the near threshold. Over the course of the century, resiliency in the Northern Plains is predicted to decrease. In New England, climate change is not expected to increase temperatures materially this century. Resiliency there is predicted to remain moderate, so long as active management continues.

In sum, the Service predicted that climate change would impact the Beetle's viability in all areas in the Southern Plains region by 2039, and in some areas within the Northern Plains region by 2069.

C

Based on the Species Report, the Service promulgated rules downlisting the Beetle from endangered to threatened and establishing protective measures for the conservation of the Beetle. *See* 85 Fed. Reg. at 65,241.

The Service first concluded that the Beetle "is not currently in danger of extinction as it faces relatively low near-term risk of extinction." 85 Fed. Reg. at 65,254. In reaching this conclusion, the Service noted that "the risk of extinction" of the Beetle "has been ameliorated since the species was listed" because "[t]he current range is much larger than originally thought" and "there are several large populations with relatively good genetic diversity and relatively low current risks." *Id.* The Service added that "the current status includes at least five populations with moderate to high resiliency and several of these populations are relatively large." *Id.*

The Service then concluded that the Beetle's longer-term prospects were starkly different, with the Beetle likely to

become endangered within the foreseeable future throughout all of its range. 85 Fed. Reg. at 65,254–65,255. The Service concluded that the Beetle "would likely be extirpated as a result of increasing temperatures due to climate change" "[w]ithin the mid-century time period (i.e., 2040–2069)" in each of the Southern Plains analysis areas—which together constitute 59% of the Beetle's range. *Id.* at 65,254. In addition, the impact of agriculture is expected to affect 5–15% of suitable habitat in the Northern Plains, and redcedar expansion in the Loess Canyon analysis area is expected to result in a 30% habitat loss in the foreseeable future. *Id.* Together, these losses "would severely impact representation" of the species. *Id.* The Service explained that "[t]he combined effects of land use and future climate changes are likely to impact the resiliency of most populations and the overall viability of the species." *Id.*

Having concluded that the Beetle is threatened throughout all of its range, the Service considered whether the Beetle was at the time endangered in any "significant portion of its range," which includes the Northern Plains, Southern Plains, and New England regions. 85 Fed. Reg. at 65,255–65,256. After reviewing the record and analyses, the Service concluded that in each of those portions of the Beetle's range, the Beetle "is not currently in danger of extinction," but that land-use and climate risks will make the Beetle "likely to become endangered in the foreseeable future." *Id.* at 65,256. As a result, the Service downlisted the Beetle to threatened.

Because of that downlisting, the full panoply of statutory protections did not automatically attach. Instead, the Service imposed a subset of protections under its Section 4(d) authority, 16 U.S.C. § 1533(d). The Service prohibited all intentional takes of the Beetle. 85 Fed. Reg. at 65,257. It also prohibited incidental takes, but in ways that differed across the Beetle's geographic regions. *Id.* In New England and the

Northern Plains, the Service prohibited incidental take in any habitat suitable for the Beetle's reproduction if the take was the result of "soil disturbance." *Id.* The Service added, however, that death or injury caused by ranching and grazing, as well as applications of fertilizer consistent with typical agricultural purposes, would not constitute a prohibited take. *Id.*

In the Southern Plains region, the Service prohibited incidental take only on select conservation lands. 85 Fed. Reg. at 65,257, 65,260. And even then, the Service did not prohibit activities conducted in compliance with Service-approved conservation plans regardless of whether they resulted in a take. *Id.* at 65,257.

In January 2024, the Service initiated a new five-year review of the Beetle's status. *See Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews of 22 Species in the Southwest*, 89 Fed. Reg. 4966, 4967 (Jan. 25, 2024).

D

The Center filed suit in the United States District Court for the District of Columbia challenging both the Downlisting Rule and the adequacy of the Section 4(d) protections. The parties cross-moved for summary judgment. The Center argued, in relevant part, that the Service's Downlisting Rule is inconsistent with the language of the Endangered Species Act and that the decision to downlist is arbitrary and capricious, in part because it provides less stringent protections in the Southern Plains than in the other regions.

The district court granted summary judgment for the Service on all claims. *See Center for Biological Diversity v. United States Fish & Wildlife Serv.*, 698 F. Supp. 3d 39 (D.D.C.

2023). The court concluded that the Service reasonably determined that the predicted serious threats to the Beetle's continued existence in the 2040–2069 time period qualified as within the "foreseeable future" for purposes of threatened-species status, but did not make the Beetle "in danger of extinction" now. *Id.* at 66. The court further concluded that the Service's Downlisting Rule and its tailoring of the Beetle's Section 4(d) protections were supported by the administrative record and adequately explained. *Id.* at 71–82.

II

The Center challenges the Downlisting Rule on two grounds. First, it argues that the downlisting fails to comport with the statutory definitions of "endangered" and "threatened" in the Endangered Species Act. Center Opening Br. 26–30. Second, the Center contends that the Service's Downlisting Rule is unsupported by the administrative record and is inadequately explained. Center Opening Br. 30–33. As to both of these claims, the Center views the record as requiring that the Beetle be categorized as endangered now given its condition in the Southern Plains region. The Center lastly challenges the Section 4(d) Rule as arbitrary and capricious and contrary to law because it "omits any protection against incidental take from soil disturbing activity" in most of the Southern Plains region while providing that protection in the Northern Plains. Center Opening Br. 34.

We affirm. With respect to the Downlisting Rule, the parties' dispute comes down to the question of when a recognized prospective threat to a species comes so close in time that it is unreasonable for the Service not to treat the species as endangered in the present. Given the record in this case, considered against the backdrop of the Service's recent initiation of another five-year review of the Beetle's status, the

Service's conclusion that the Beetle was not endangered when it issued its Rule in 2020 falls within the bounds of reasonable judgment and is consistent with the record evidence. As to the Section 4(d) challenge, the Center has failed to establish Article III standing on appeal.

A

Before this court can resolve the Center's appeal, we must ensure that we have the power to act. Article III of the Constitution confines federal courts to the resolution of actual "Cases" and "Controversies[.]" U.S. CONST. Art. III, § 2. One essential component of the case-or-controversy requirement is that the party seeking relief must establish standing. *DaimlerChrysler Corp. v. Cuno*, 547 U.S. 332, 342 (2006). To do so, a plaintiff must show that (i) it "suffered an injury in fact that is concrete, particularized, and actual or imminent"; (ii) the "injury was likely caused by the defendant"; and (iii) the injury "would likely be redressed by judicial relief." *TransUnion LLC v. Ramirez*, 594 U.S. 413, 423 (2021) (citing *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560–561 (1992)).

When, as here, an association asserts standing to sue on behalf of its members, the association must show that (i) at least one member has standing to sue in her own right, (ii) the interests the association seeks to protect are germane to its purposes, and (iii) neither the asserted claim nor requested relief requires the participation of individual members. *Center for Biological Diversity v. EPA*, 56 F.4th 55, 66 (D.C. Cir. 2022); *see also Friends of the Earth, Inc. v. Laidlaw Env't Servs., Inc.*, 528 U.S. 167, 181 (2000). As the party invoking federal jurisdiction, the Center bears the burden of establishing these elements. *Spokeo, Inc. v. Robins*, 578 U.S. 330, 338 (2016).

Applying that test, the Center has met the second and third requirements for associational standing for its challenges to both the Downlisting Rule and the Section 4(d) protective criteria. The interests in conservation and preservation of the Beetle relate closely to the Center's "mission of 'protection and enjoyment of the environment and our nation's endangered and threatened species and their habitats.'" *Center for Biological Diversity*, 56 F.4th at 67 (citation omitted); *see also* J.A. 35. In addition, the purely injunctive and declaratory relief sought by the Center, Compl., Prayer for Relief, does not require the participation of individual members either to litigate or to remediate the claim.

As for the first prong of associational standing—whether an individual member would have standing to sue in her own right—the Center has made that showing with respect to its challenges to the Service's Downlisting Rule. But it has not identified an individual with standing to challenge the Section 4(d) Rule, and so the Center lacks standing to prosecute that claim.

1

To demonstrate standing, the Center submitted a declaration from Christopher Bugbee, a member and employee of the Center. J.A. 35. Mr. Bugbee attested to his interest in the Beetle's preservation and protection. In his professional capacity as a conservationist, Mr. Bugbee works to protect endangered and threatened species. J.A. 35. He also has a personal interest in the Beetle. J.A. 35. Mr. Bugbee visits Block Island, Rhode Island every summer for a family vacation and searches for and photographs the Beetle while there. J.A. 35–36. According to Mr. Bugbee, he would "suffer professional, aesthetic, spiritual, and recreational injuries from any further loss of th[e] [Beetle] in the wild." J.A. 38.

Those allegations adequately demonstrate that Mr. Bugbee's interests in seeing the Beetle and visiting its habitat are injured by the downlisting of the Beetle from endangered to threatened and the accompanying reduction in protections for the species in the New England region. Mr. Bugbee's "desire to * * * observe an animal species, even for purely esthetic purposes, is undeniably a cognizable interest for purpose of standing." *Lujan*, 504 U.S. at 562–563.

To be sure, a plaintiff's "vague desire" to visit a species' habitat and observe it "is insufficient" to show that the plaintiff will be injured. *Summers v. Earth Island Inst.*, 555 U.S. 488, 496 (2009). But Mr. Bugbee's interests show the type of here-and-now injuries, backed up by specific facts and concrete plans, that support Article III standing. *See Lujan*, 504 U.S. at 564. As noted, Mr. Bugbee visits Block Island, Rhode Island, which is in the New England analysis area, annually. J.A. 35. "Both as a personal hobby and in a professional capacity," Mr. Bugbee "specialize[s] in finding and documenting rare and cryptic species." J.A. 36. Because of this, he "routinely search[es] for [the Beetle] in its native habitat on Block Island" and has "located and photographed [it] on several occasions." J.A. 36. "In the coming years," he plans to continue observing the Beetle in this habitat during his "annual" "summer vacation." J.A. 36.

The Center has also demonstrated that the Service's downlisting decision "adversely affect[s]" Mr. Bugbee's interest in observing the Beetle in the New England analysis area. *Center for Biological Diversity v. Department of Interior*, 563 F.3d 466, 478 (D.C. Cir. 2009). That is because the downlisting decision reduced the level of protection and conservation measures for the Beetle. *See* 16 U.S.C. § 1533(d); *Sweet Home Chapter*, 515 U.S. at 697–703. That the

challenged rules do not threaten the imminent elimination of the Beetle in Block Island is beside the point. *See Animal Legal Def. Fund, Inc. v. Glickman*, 154 F.3d 426, 437 (D.C. Cir. 1998) (en banc) ("It has never been the law, and is not so today, that injury in fact requires the elimination (or threatened elimination) of either the animal species or environmental feature in question."). What suffices is that, as a result of the downlisting decision, the Service prohibited incidental take in the New England analysis area "only if it occurs in suitable habitat[,] is the result of soil disturbance[,]" and is not caused by ranching or grazing. 85 Fed. Reg. at 65,257–65,258. That decision will increase the risk of loss of the Beetle and, in turn, Mr. Bugbee's ability to see and enjoy it in its natural habitat. In addition, the Service acknowledges its new limited prohibition on incidental take risks harm to some Beetles in the New England area. *Id.* at 65,258 ("[S]ome minimal level of take may occur incidental to ranching and grazing" in New England.). In other words, the Beetle now enjoys less protection and faces greater risk of harassment, harm, and death than it did with the comprehensive prohibition on take that governed when it was listed as endangered. *See* 16 U.S.C. § 1538(a)(1); 54 Fed. Reg. at 29,652.

As a result, Mr. Bugbee's aesthetic interests "will be lessened" by the downlisting rule. *American Rivers*, 895 F.3d at 41 (citation omitted). And agency action that "adversely affects a plaintiff's enjoyment" of a species causes a cognizable harm to that interest. *American Soc'y for Prevention of Cruelty to Animals v. Ringling Bros. & Barnum & Bailey Circus*, 317 F.3d 334, 337 (D.C. Cir. 2003).

Lastly, the Center has shown that vacatur of the Downlisting Rule would remedy Mr. Bugbee's injury. Should the Downlisting Rule be vacated, the Beetle would return to its status as an endangered species and all forms of incidental take

would be prohibited. *See* 54 Fed. Reg. at 29,652; *Sweet Home Chapter*, 515 U.S. at 697–703. That the Center's legal arguments as to why the Beetle should remain listed as endangered focus on threats to the species in the Southern Plains, rather than in New England, is neither here nor there. The downlisting is what allowed the Service to reduce protections for the Beetle in New England and thereby to directly impair Mr. Bugbee's interests. So Mr. Bugbee's injury "would be redressed by vacatur of th[e challenged action] on the basis of *any* defect[.]" *Sierra Club v. FERC*, 867 F.3d 1357, 1366 (D.C. Cir. 2017).

2

The Center, however, has not established standing on appeal to challenge the Section 4(d) Rule. To be sure, Mr. Bugbee's injury and causation remain because the Section 4(d) Rule's reduced protections for the Beetle threaten its viability in the New England area where Mr. Bugbee regularly seeks out the Beetle. But the Center has not demonstrated redressability on appeal.

"[A] plaintiff satisfies the redressability requirement when he shows that a favorable decision will relieve a discrete injury to himself." *Massachusetts v. EPA*, 549 U.S. 497, 525 (2007) (quoting *Larson v. Valente*, 456 U.S. 228, 244 n.15 (1982)). It "must be 'likely,' as opposed to merely 'speculative,'" that the requested relief will redress the stated injury. *Lujan*, 504 U.S. at 561. "Relief that does not remedy the injury suffered cannot bootstrap a plaintiff into federal court; that is the very essence of the redressability requirement." *Steel Co. v. Citizens for a Better Env't*, 523 U.S. 83, 107 (1998).

On the question of the lawfulness of the Section 4(d) Rule, the Center seeks a particularized and narrow form of relief from

this court. It asks for vacatur of the Section 4(d) Rule *only* "insofar as it eliminates protections for the beetle in the Southern Plains." Center Opening Br. 43 ("Should the court decline to vacate the downlisting, the 4(d) Rule should be vacated insofar as it eliminates protections for the beetle in the Southern Plains."); Center Reply Br. 24 (same).

The standing problem is that the entirety of the Section 4(d) relief that the Center seeks on appeal—vacatur of the Southern Plains portion of the Section 4(d) Rule—is a form of relief that will have no discernible effect on the injury Mr. Bugbee alleges, which is interference with his ability to observe the Beetle in New England. Mr. Bugbee's declaration offers only vague suggestions that he might observe the species outside of Block Island. He notes that he has "searched for [the Beetle] in other areas" and "like[s] to think that the species may still exist in other places[.]" J.A. 36. But he has not articulated any plans to visit the Beetle anywhere other than Block Island. At most, he "plan[s] on following up on [possible] scientific leads in the future as time and money allow[]." J.A. 36. Such "some day" intentions are insufficient to support standing. *Lujan*, 504 U.S. at 564.[1]

Because granting the requested vacatur of the Southern Plains portion of the Section 4(d) Rule would have no impact on Mr. Bugbee's injuries in the New England analysis area, the

[1] Before the district court, the Center submitted a standing declaration from a second member. That member has since passed away, and the Center no longer relies on his declaration. *See* Center Supp. Br. 1, 5.

Center lacks standing to seek vacatur of the Section 4(d) Rule as to the Southern Plains.[2]

B

Turning to the merits of the Service's Downlisting Rule, we may only overturn the Rule if it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A); *American Wildlands v. Kempthorne*, 530 F.3d 991, 997 (D.C. Cir. 2008). An agency acts arbitrarily or capriciously if it "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." *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). Our review "under the 'arbitrary and capricious' standard is narrow and a court is not to substitute its judgment for that of the agency." *Id.*

1

The Center's first argument is that the Service ran afoul of the statutory definitions of "endangered" and "threatened" when it downlisted the Beetle to threatened status. In

[2] Since in district court the Center sought vacatur of the Section 4(d) provisions in full, including those governing the New England region, the Center had standing to press its challenges to the Section 4(d) Rule there. *See*, *e.g.*, Center Mot. Summ. J. 42. But, because the Center changed the scope of its requested relief before us, it now lacks standing. *See Hollingsworth v. Perry*, 570 U.S. 693, 705 (2013) ("[S]tanding 'must be met by persons seeking appellate review, just as it must be met by persons appearing in courts of first instance.'") (citation omitted).

particular, the Center focuses its arguments on the Southern Plains region and maintains that the Beetle is currently endangered there. Because that area constitutes a significant portion of the Beetle's range, the Center reasons, the Beetle meets the statutory definition of an endangered species. Center Opening Br. 22–30. The Center's perceived statutory transgression did not occur. On the record in this case, the Service's decision comports with the statutory terms.

The Endangered Species Act defines an "endangered species" as one that "is in danger of extinction throughout all or a significant portion of its range[,]" and a "threatened species" as one that "is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." 16 U.S.C. § 1532(6), (20). What distinguishes the two categories, then, is the imminence of the extinction danger. "Threatened" status applies if the danger of extinction is in the "foreseeable future," while "endangered" status applies if there is a current danger that extinction will occur. The foreseeability of an extinction danger is made on a "case-by-case basis, using the best available data and taking into account considerations such as the species' life-history characteristics, threat-projection timeframes, and environmental variability." 85 Fed. Reg. at 65,244; *see also In re Polar Bear Endangered Species Act Listing & Section 4(d) Rule Litig.—MDL No. 1993*, 709 F.3d 1, 15 (D.C. Cir. 2013). Here, the Service made predictions about the effects of climate change on the Beetle's viability through 2099. 85 Fed. Reg. at 65,247.

The Service explained that, in determining whether the Beetle is endangered or threatened under the statutory criteria, it identified threats to the species, evaluated the expected effect of each of those threats, and then analyzed the cumulative effect of all the threats on the species currently and in the

reasonably and reliably foreseeable future. 85 Fed. Reg. at 65,243.

In so doing, the Service hewed to the statutory text and appropriate species-specific analytical framework. The Service concluded that in six of the seven total analysis areas for the Beetle, its populations exhibited moderate to high resiliency. 85 Fed. Reg. at 65,246. That includes two of the analysis areas in the Southern Plains region—the Arkansas River and Flint Hills analysis areas, which make up 87% of the Beetle's Southern Plains range. The Service explained that both the Arkansas River and Flint Hills analysis areas "have large areas of suitable habitat, several large protected areas, and a relatively wide distribution of American burying beetles within the analysis areas." *Id.* Based on population and habitat factors, the Service found that the Arkansas River analysis area has high resiliency and that the Flint Hills analysis area has moderate resiliency. At the time of the Service's decision in 2020, that resiliency was predicted to continue for approximately nineteen years in the Southern Plains region, and even longer in most parts of the other regions.[3]

Overall, representation throughout the Beetle's range is moderate, and current "genetic diversity appears to be relatively high," the Service found, while noting that ecological diversity has been reduced. 85 Fed. Reg. at 65,246. In addition, "[m]ultiple populations within the analysis areas[,]" including in the Southern Plains, "provide redundancy that

[3] In the Northern Plains region, through 2069 (and potentially through 2099), resiliency was projected to be high in the Sand Hills analysis area, moderate or moderate-low in the Niobrara analysis area, and low in the Loess Canyons analysis area. In the New England region, resiliency was predicted to be moderate-low through 2099.

reduces the risk of any catastrophic events." *Id.* That is because, since the initial endangerment finding, additional populations of the Beetle have been found in larger and more geographically dispersed areas, and the Beetle has been successfully reintroduced into two new areas. *Id.* at 65,242, 65,254.

As required to find the Beetle "threatened," the Service also found that the threat profile of the Beetle would change materially many years in the foreseeable future. In the Southern Plains region in particular, the Service found that rising temperatures will likely cause resiliency in the Southern Plains' analysis areas to decrease by 2039, and they could result in the Beetle's extirpation from the Southern Plains by 2069. *See* 85 Fed. Reg. at 65,256 (finding risk to be "likely"). The Service also found that the combination of land-use and climate-related risks would likely endanger the Northern Plains populations within the foreseeable future, and that land-use risks were likely to similarly endanger New England populations. *Id.*

Having evaluated the Beetle's current and prospective status, both near-term and for the longer-term, the Service found in 2020 that the Beetle was not endangered at that time because it "is not currently in danger of extinction," and it "faces relatively low near-term risk of extinction" throughout all of its range and in each significant portion of its range, including in the Southern Plains region. 85 Fed. Reg. at 65,254, 65,256. At the same time, the Service found that the Beetle was threatened because it faced the danger of extinction in the foreseeable future in its entire range and in each significant portion of its range, including in the Southern Plains. *Id.* at 65,254–65,256.

That finding falls within the statutory definition of a threatened species. After all, the Center does not dispute that the Service relied solely on the best scientific and commercial data available, 16 U.S.C. § 1533(b)(1)(A), or that the Service made its decision based on the statutory criteria. Nor does the Center dispute the Service's scientific and technical findings, including that the 2040–2069 period is within the foreseeable future for the Beetle.

Instead, the Center argues that, because the Beetle could be extirpated in the Southern Plains as soon as 2040, the Beetle was "in danger of extinction" in the Southern Plains in 2020, within the meaning of the statute. Center Opening Br. 26–27.

But nothing in the statutory text requires the Service to list a species as endangered rather than threatened based on threats to the species that are not predicted to manifest at the earliest until roughly two decades after the Service's listing determination. The statute leaves the term "foreseeable future" undefined. That makes sense given the broad variety of flora and fauna to which the "foreseeable future" analysis must be applied, not to mention the diverse and ever-changing environments and conditions affecting those species. How far out the Service can make reliable predictions about a species' viability is necessarily an individualized, fact-specific determination that is dependent on the species' life cycle, the nature of the threats to the species' viability, and the availability of scientific data and modeling.

As a result, the statutory context indicates the phrase "foreseeable future" merits the case-by-case flexibility that the Service applied here, and it must be evaluated through the lens of the species' particular lifespan and characteristics. *See In re Polar Bear Endangered Species Act Listing*, 709 F.3d at 15 (noting that the Service "determines what constitutes the

'foreseeable' future on a case-by-case basis in each listing decision").

Because the Service considered the best available scientific and commercial data and exercised its expertise to determine that the Beetle, at the time of decision and for the near term, was threatened but not yet endangered, the downlisting decision falls within the statute's textual bounds.[4] While the Center would prefer a timeframe that finds extinction sooner than the Service did, the Center points to nothing in the statutory text that compels that result.

2

The Service's determination that, at the time of its decision and for the coming years, the Beetle was threatened rather than endangered, also is grounded in the record and reasonably and adequately explained.

In categorizing the Beetle as threatened, the Service carefully distinguished between risks to the Beetle in the near term and in the foreseeable future. To do so, it relied on its standard Species Status Assessment Framework that measures viability in terms of a species' resiliency, redundancy, and representation. 85 Fed. Reg. at 65,244.

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[4] This is particularly true here where the intervening time period includes a statutorily required reevaluation of the status of the species long before the date of the predicted harms. *See* 16 U.S.C. § 1533(c)(2); Oral Argument Tr. 68:18–19, 73:19–10. The Service, in fact, has already begun its five-year review of the Beetle's status. 89 Fed. Reg. at 4967. That study ensures that the Service will reevaluate its listing long before the Beetle is on the brink of extinction.

For its near-term analysis, the Service analyzed the Beetle's current and short-term resiliency, redundancy, and representation. The Service determined the "current condition * * * based on relative abundance, population distribution, known population trends, availability of suitable habitat, acres of protected areas, and the level of management in protected areas." 85 Fed. Reg. at 65,245. The Service also considered the impact of climate change on the Beetle's current condition and its loss of historical range, and it compared the Beetle's current viability with that of its last assessment in 2008. *Id.* at 65,254.

That data bears directly on the short- and long-term prospects for the Beetle and equipped the Service to reasonably assess the Beetle's viability in the near term. As noted earlier, *see* pp. 22–23, *supra*, the Service concluded that in six of the seven analysis areas—including Arkansas River and Flint Hills in the Southern Plains—the Beetle populations exhibited moderate to high resiliency. 85 Fed. Reg. at 65,246. In addition, current overall representation is moderate, and current "genetic diversity appears to be relatively high[.]" *Id.* As for redundancy, the Service noted that there were currently "multiple populations within the analysis areas" that "provide redundancy that reduces the risk of any catastrophic events." *Id.* Based on the Beetle's then-current resiliency, representation, and redundancy, the Service concluded that the Beetle "is not currently in danger of extinction as it faces relatively low near-term risk of extinction." *Id.* at 65,254.

To evaluate the Beetle's longer-term resiliency, redundancy, and representation, the Service identified changes in land use and climate as the two primary threats to the Beetle's future viability, evaluated the expected effects of each of those threats on the Beetle, and then analyzed their cumulative effects. 85 Fed. Reg. at 65,246–65,250, 65,254–

65,256. In the Southern Plains region, on which the Center focuses, the Service found that "[w]ithin the foreseeable future, i.e., the mid-century time period (2040–2069), all Southern Plains analysis areas are expected to exceed threshold temperatures under [a range of] emissions scenarios, likely resulting in extirpation of the American burying beetle from these areas." *Id.* at 65,256.

The Service added that, while the Southern Plains is "currently experiencing the effects of climate change[,]" the "magnitude of the changes up to the present time are low enough that the species is not [now] in danger of extinction." 85 Fed. Reg. at 65,256. The Service therefore concluded that the Beetle "is not currently in danger of extinction within the Southern Plains representative area but is likely to become endangered in the foreseeable future." *Id.*

The Service's determination that the Beetle was not currently in danger of extinction was grounded in record data and explained in detail. The Service reasonably distinguished between near-term and longer-term risks to the Beetle's viability. The Center, again, does not dispute that the Service considered the relevant information and used the best scientific information available. The question before us, after all, is not whether the Service's conclusion was the only reasonable one on this record or even the most reasonable one, but whether it was a sensible one. Which it was. *See Deaf Smith County Grain Processors, Inc. v. Glickman*, 162 F.3d 1206, 1215 (D.C. Cir. 1998) ("[U]nder the arbitrary and capricious standard, '[t]he action * * * need be only a reasonable, not the best or most reasonable, decision[.]'") (citation omitted).

The Center objects that the Service failed to define the "near term." Center Reply Br. 9. Not so—the Service differentiated between the near term and longer term based on

the data, variable circumstances, and condition of Beetle populations. The Service then defined the relevant timeframes in terms of future multi-decade periods. Neither the statute nor reasoned decisionmaking required the Service to impose an artificially more precise timeline that would have misrepresented the variability and intangibility of the relevant circumstances. To that point, the Service stressed that its assessments were made on a case-by-case basis that ensured flexibility to consider the "species' life-history characteristics, threat-projection timeframes, and environmental variability." 85 Fed. Reg. at 65,244. In addition, the Service distinguished between near-term risks and future risks based on whether the risk would impact the Beetle's current or future viability. That was a "'comprehensible standard'" for deciding whether the Beetle was endangered or threatened. *ACA Int'l v. Federal Commc'ns Comm'n*, 885 F.3d 687, 700 (D.C. Cir. 2018) (quoting *United States Postal Serv. v. Postal Regulatory Comm'n*, 785 F.3d 740, 753 (D.C. Cir. 2015)).

The Center also argues that the Service failed to explain why its findings do not make the Beetle at risk of extinction in the near term, particularly when the Red River analysis area is already experiencing the impacts of climate change. Center Reply Br. 9.

The Service adequately explained its judgment. To start, the Service predicted the future impacts of climate change by modeling summertime mean-maximum temperatures under two emissions scenarios over three thirty-year time periods: early century (2010–2039), mid-century (2040–2069), and late century (2070–2099). The Service compared those mean-maximum temperatures against the Beetle's "near" threshold of 94°F–95°F—that is, the point at which the Beetle's ability to feed, shelter, or reproduce could be negatively affected—and the Beetle's survival threshold of 95°F.

The Service acknowledged that the southernmost portion of the Red River analysis area—the Beetle's smallest habitat area in the Southern Plains region—is already experiencing mean-maximum temperatures of 94°F–95°F, and survey results suggest that the Beetle may already be extirpated from portions of that analysis area. Mean-maximum temperatures from 2010–2039 in that one area are predicted to be above the Beetle's survival threshold under both the moderate and high emissions scenarios. The Service accordingly found that the Red River analysis area currently exhibits low resiliency, and that resiliency will become zero by 2039 when the average temperatures coalesce above the Beetle's survival threshold.

Had the Service made similar predictions for the Arkansas River and Flint Hills analysis areas—which together make up 87% of the Southern Plains region—the Service would have been hard-pressed to find that the Beetle was merely threatened there. But the Service's predictions for the Arkansas River and Flint Hills analysis area in the same period are quite different from Red River. And the Center does not argue that the Red River analysis area, which accounts for just 13% of the suitable habitat in the Southern Plains, by itself constitutes a significant portion of the Beetle's range such that the climate effects there could render the Beetle endangered in the Southern Plains region as a whole.

To illustrate, in the Arkansas River analysis area, under the moderate emissions scenario, 43% of the area will be above the 95°F threshold by 2039, while under the high emissions scenario, 64% of the area will be above the 95°F threshold in that same timeframe. J.A. 474–475. The remaining parts of the area will be within two degrees of the threshold. *Id*. And in the Flint Hills analysis area, under either emissions scenario, only a portion of the area (4% under the moderate emissions

scenario and 32% under the high emissions scenario) is predicted to be above the 95°F threshold by 2039, but most of the remaining area (73% under the moderate emissions scenario and 64% under the high emissions scenario) will be at the 94°F near threshold.

Given that data—which the Center does not contest—temperatures in the Arkansas River and Flint Hill analysis areas do not pose a near-term risk of extinction to the Beetle. As the Service explained, Beetle "populations may be able to survive periodic or occasional years with mean maximum temperatures at or above 95ºF, but areas that *average* mean maximum temperatures above 95ºF are not likely to support populations." J.A. 468 (emphasis added). As a result, the Service found that temperatures pose a threat to the Beetle's viability when they coalesce at thirty-year averages above the Beetle's survival threshold. That threat was not predicted to materialize for at least nineteen years after the Service's downlisting decision.

The data similarly indicates that it is uncertain how much of the Arkansas River analysis area, which constitutes 73% of the suitable habitat in the Southern Plains, will exceed the threshold, depending on whether climate change proceeds along the moderate or high emissions scenarios. It is also unclear how much of the Flint Hills analysis area, which constitutes another 14% of suitable habitat in the Southern Plains, will be affected. Given that uncertainty in the data, occasioned at least in part by the multifarious influences on both emissions levels and the progress of climate change, the Service made a reasoned determination that the Beetle's status in 2020 was "threatened," especially since there would be an intervening review of the Beetle's status in the mid 2020s.

Finally, based on its predictions, the Service found that, under either emissions scenario, resiliency would become low

in both the Arkansas River and Flint Hills analysis areas by 2039, which, based on the record, would likely support endangerment no later than 2039, and perhaps earlier. The Service, after all, relied on the Beetle's resiliency as a key metric informing its listing determination. *See* 85 Fed. Reg. at 65,254 ("In summary, the current status includes at least five populations with moderate to high resiliency and several of these populations are relatively large. We find that the species is not currently in danger of extinction as it faces relatively low near-term risk of extinction."); *id.* at 65,254–65,255 ("The combined effects of land use and future climate changes are likely to impact the resiliency of most populations and the overall viability of the species. Thus, after assessing the best available information, we conclude that the American burying beetle is likely to become in danger of extinction in the foreseeable future throughout all of its range.").

Based on the Service's own methodology and predictions then, the Beetle would become endangered in the Southern Plains by 2039. That finding is consistent with the Service's determination here that the Beetle is "likely to become endangered within the foreseeable future"—that is, nineteen years after the Service's current finding that the Beetle is threatened, and it will likely face extinction in the foreseeable future. *See* 85 Fed. Reg. at 65,251 ("By definition, a threatened species determination implies a potential need to reclassify the species as endangered if our projections about its status in the foreseeable future are accurate.").

The dissenting opinion maintains that the Service failed to address evidence that those reductions in resiliency in the Southern Plains might occur sometime between 2020 and 2029 in the Flint Hills and Arkansas River analysis areas and faults the Service for making a prediction "by 2039" without stating

more precisely when those reductions might happen. Dissenting Op. at 8–9. We read the record differently.

To begin, the Service's prediction that reductions in the Beetle's resiliency would occur "by 2039" derives from the Service's methodological choice in the Status Report to predict reductions in resiliency based on thirty-year average mean-maximum temperatures. That choice was reasonable in this case. As the Service explained, Beetle "populations may be able to survive periodic or occasional years with mean maximum temperatures at or above 95ºF, but areas that *average* mean-maximum temperatures above 95ºF are not likely to support populations." J.A. 468 (emphasis added). So to predict reductions in the Beetle's resiliency, the Service reasonably chose to consider average mean-maximum temperatures over a period of time.

That the Service chose to calculate the mean-maximum temperatures based on thirty-year averages was also reasonable in this case. We do not suggest that the Service was required to use thirty-year averages, or that using thirty-year averages was the only reasonable choice in this case. *Contra* Dissenting Op. at 11. But here, the Service chose to use thirty-year averages to predict how rising average temperatures will impact Beetle populations.

That methodology allowed it to make a prediction in 2020 about reductions in the Beetle's resiliency nineteen years into the future—that is, by 2039. And neither the Center nor the Service has suggested that the Service could have made reasonably certain predictions about the Beetle's future resiliency in a more precise way. Indeed, the Center does not challenge the Service's use of thirty-year average mean-maximum temperatures. For all those reasons, the Service's choice to use thirty-year averages was reasonable in this case.

In addition, the record evidence does not show that the Beetle's resiliency will reduce sometime between 2020 and 2029 in the Flint Hills and Arkansas River analysis areas. While the Service conceded that it "did not state explicitly * * * that the Beetle's resiliency in the Flint Hills and Arkansas River [a]nalysis [a]reas is expected to decline to 'low' only at or near the end of the" 2020–2039 time period, the Service explained that the "analysis and modeling in the record support that conclusion." Service Supp. Letter 2.

And they do. In the Arkansas River analysis area, depending on the emissions scenario, predicted mean temperatures range from 94.7°F–95.6ºF in 2020–2029, and from 95.9°F–96.4ºF in 2030–2039. Service Supp. Letter 23. In the Flint Hills analysis area, depending on the emissions scenario, predicted mean temperatures range from 93°F–95.1ºF in 2020–2029, and from 94.4°F–95.8ºF in 2030–2039. *Id.*

Those ranges predict steady increases in the mean temperatures in the Arkansas River and Flint Hills analysis areas between 2020 and 2039. At the same time, the data also reflects uncertainty about what sustained mean temperatures will be in the 2020–2029 period. Yet it is only "areas that average mean maximum temperatures above 95ºF" over time that "are not likely to support populations." J.A. 468.[5]

Finally, the dissenting opinion relies on government counsel's representation at oral argument that endangerment would occur at sustained temperatures of 93°F–94ºF. *See* Oral

[5] Because the Service's statement in its supplemental brief is independently present and verifiable in the record, the dissenting opinion's objection (at 12 n.4) that the court is improperly relying on counsel's statements as a basis for decision is misplaced.

Arg. Tr. 58–59. From that statement by counsel, the dissenting opinion reasons that the Beetle faces a risk of extirpation in the Southern Plains by 2029. Dissenting Op. at 3, 9.

But our task is to review the agency's decision, not counsel's oral argument. We "may not accept appellate counsel's *post hoc* rationalizations for agency action; *Chenery* requires that an agency's discretionary order be upheld, if at all, on the same basis articulated in the order by the agency itself[.]" *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168–169 (1962) (citing *Securities & Exch. Comm'n v. Chenery Corp.*, 332 U.S. 194, 196 (1947) (italics added)).

Nowhere in the record does the Service say what the dissenting opinion says (in reliance on government counsel's argument)—that mean-maximum temperatures of 93°F–94ºF over a ten-year period would result in an endangerment finding for the Beetle. *Compare* Dissenting Op. at 10, *with* J.A. 468 (Beetle "populations may be able to survive periodic or occasional years with mean maximum temperatures at or above 95ºF, but areas that *average* mean-maximum temperatures above 95ºF are not likely to support populations.").

The dissenting opinion suggests that such a finding "comes from the record" because the Beetle's "near" threshold is at 93°F–94°F. Dissenting Op. at 10. But the Service expressly found that the Beetle's near threshold in the Southern Plains is 94°F–95°F, not 93°F–94°F. J.A. 468 (Species Report) ("[W]e have identified a near mean maximum threshold temperature range of * * * 94°F–95°F for southern analysis areas."). And the Service also stated that "populations under" the near threshold of 94°F–95°F in the Southern Plains "remain viable." *Id.* In its Species Report, the Service defines "viability" as "the ability of a species to sustain populations in

the wild beyond a biologically meaningful time frame." J.A. 318 (Species Report).

Moreover, the Service never said that temperatures at the Beetle's "near" threshold result in endangerment. Nor does the record support that conclusion. According to the Service, the Beetle's "near" threshold represents "climate conditions that could negatively affect [the Beetle's] ability to feed, shelter, or reproduce[.]" J.A. 468. Those conditions could just as well represent a finding that the Beetle is threatened, but not yet endangered. *Id*. Which is the finding the Service made here.

To be sure, the Center's and the dissenting opinion's concerns over the timelines the Service drew are not without reason given the uncertainty of the pace of climate change over the coming decades. But it is precisely such close judgment calls about scientifically uncertain data and timing that the Endangered Species Act assigns to the Service, not this court. So in upholding the Service's predictive judgments, we underscore that, especially "[i]n an area characterized by scientific and technological uncertainty[,] * * * this court must proceed with particular caution, avoiding all temptation to direct the agency in a choice between rational alternatives." *American Wildlands*, 530 F.3d at 1000. Our review is limited to whether the determination the Service made was reasonable, adequately explained, and supported by the record when the decision was made, not whether an arguably better decision could have been made then or today.

III

For the foregoing reasons, the district court's judgment dismissing the case is affirmed.

So ordered.

PAN, *Circuit Judge*, concurring in part and dissenting in part:

During the 1900s, the American Burying Beetle disappeared from 90 percent of its historic range. In response, the Fish and Wildlife Service listed the Beetle as "endangered" in 1989, guaranteeing it important protections under the Endangered Species Act (ESA). For more than three decades, the Beetle retained its "endangered" classification. Indeed, as recently as 2008, the Service confirmed that the species was "endangered" because "even with the discovery" of a few additional Beetle populations unknown to the Service at the time of the initial listing decision, the Beetle "remain[ed] extirpated from about 90 percent of its historic range" and the discovery of additional populations was largely attributable to extensive search efforts, not a recovery by the species. J.A. 732; *see also* J.A. 730.

But then, in 2020, acting on a petition from oil interests in Oklahoma, the Service downlisted the Beetle from "endangered" to "threatened," reducing the protections it receives under the ESA and making it easier for oil companies to drill in Beetle habitat in Oklahoma. The Service downlisted the Beetle without identifying any discovery or successful reintroduction of additional Beetle populations since 2008. And the downlisting took effect despite the emergence of a serious new threat to the Beetle's survival — climate change. The Service rested its decision on a poorly explained, conclusory determination that the Beetle "is not currently in danger of extinction as it faces relatively low near-term risk of extinction." Reclassification of the American Burying Beetle From Endangered to Threatened With a Section 4(d) Rule (*Downlisting Rule*), 85 Fed. Reg. 65241, 65254 (Oct. 15, 2020).

I respectfully disagree with my colleagues' decision to uphold the Service's Downlisting Rule.[1] In my view, the Service failed to adequately support its conclusion that the threat of climate change does not put the Beetle in danger of extinction in the near term. I therefore would vacate the Downlisting Rule because it is arbitrary and capricious.

I.

The American Burying Beetle can survive only in "temperate climates" or at "high elevations in tropical climates." J.A. 321. That is because hot temperatures impede the Beetle's ability to reproduce and to find food, shelter, and moisture. Global warming thus poses a grave threat to the Beetle: A whopping 59 percent of the species' current range is in the Southern Plains — a region spanning Texas, Arkansas, Oklahoma, and Kansas — which is "rapidly" warming due to climate change. J.A. 360.

I focus on two indicators of the Beetle's prospects for survival: (1) the temperatures at which it can live, and (2) its "resiliency," which measures its ability to withstand "non-catastrophic" disturbances to its environment. As discussed below, the Beetle's resiliency is deeply influenced by changes in temperature.

With respect to temperature, the Service concluded that the Beetle likely cannot survive more than the occasional summer with mean-maximum temperatures at or above 95°F — and may not be able to survive even the occasional summer at those

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[1] I concur with the majority's holding that appellant, the Center for Biological Diversity, has standing to challenge the Downlisting Rule but lacks standing to challenge the Section 4(d) Rule. *See* Maj. Op. 15–20.

temperatures. *See* J.A. 468. In other words, 95°F is a "lethal threshold" — the threshold at which the Beetle will go extinct. J.A. 358. But "endangerment" happens before the "lethal threshold" is met. Counsel for the Service made an important concession at oral argument: He stated that 95°F is "too much" for the Beetle to survive, but "endangerment" occurs at around "93–94°F," "when temperatures rise to a level at which it puts pressure on the Beetle, not to the level at which the Beetle can no longer survive." Oral Arg. Tr. 58–59. Consistent with that statement, the Service's 2019 Assessment of the Beetle's status identified a "near" threshold (short of the "lethal" one), at which "climate conditions" may "negatively affect" the Beetle's "ability to feed, shelter, or reproduce." J.A. 468. The Service estimated this "near" threshold to be 93–95°F for the Beetle in the Northern Plains and 94–95°F for the Beetle in the Southern Plains, on the theory that the Southern Plains Beetle may have a slightly greater tolerance to heat. *Id.*

The Service also assessed the Beetle's resiliency, which is an important measure of the Beetle's viability. It refers to the Beetle's ability to withstand the sort of non-catastrophic "disturbance events" that occur in nature on a routine basis, such as a prolonged dry spell or a moderate decline in annual birth rates. J.A. 318; *see also Downlisting Rule*, 85 Fed. Reg. at 65244. In areas where the Beetle enjoys moderate or high resiliency, the species can weather such routine disturbances. But in areas where the Beetle's resiliency has declined to low, the species has limited ability to survive nature's ordinary ups and downs. In other words, where the Beetle's resiliency is low, there is a serious risk that even routine disturbance events will cause it to go extinct. Thus, counsel for the Service conceded that the Beetle is endangered wherever its resiliency is low. *See* Oral Arg. Tr. 42–43, 45.

In the 2019 Assessment, the Service divided the Southern Plains into three analysis areas — Red River, Arkansas River, and Flint Hills — with Red River being the furthest south. At that time, the Beetle's resiliency had already declined to low in Red River, where summertime mean-maximum temperatures ranged between 93–94°F.[2] *Downlisting Rule*, 85 Fed. Reg. at 65249. Accordingly, no one disputes that at the time of the downlisting decision in 2020, the Beetle was already endangered in at least Red River.[3]

In the Southern Plains' other two analysis areas — Arkansas River and Flint Hills — the Assessment determined that the Beetle enjoyed moderate to high resiliency in 2019. Nevertheless, the Assessment also noted that "climate conditions" were "rapidly changing" for the worse. J.A. 360. And the Assessment showed that as climate change increased temperatures, the Beetle's resiliency would quickly decline

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[2] At the time of the 2019 Assessment, the Beetle had already experienced "a relatively rapid decline" in Red River. J.A. 310. It had vanished from the southern portions of that analysis area. *See* J.A. 465 (reporting "no positive surveys in [Texas] or [Arkansas] near the Red River since 2008"). There, summertime mean-maximum temperatures ranged between 94–95°F. *See* J.A. 470 ("Southern portions of the Red River analysis area already have mean maximum temperatures of 94–95°F."). And even in the cooler portions of Red River to the north, there had been "few positive surveys" of the Beetle since 2008, indicating that the species was dying off there, too. J.A. 465. Notably, the Beetle "does not exist south" of the Red River area, and "[t]here are no current or known historical populations of [the Beetle] in areas with summer mean-maximum temperatures" at or above 95°F. *Id.*

[3] Nevertheless, Red River accounts for only 13 percent of suitable Beetle habitat in the Southern Plains, so neither the Service nor the Center for Biological Diversity regard Red River as a significant portion of the Beetle's range within the meaning of the ESA.

throughout all three analysis areas in the Southern Plains. What was unclear was the timing of the Beetle's inevitable decline.

In the Assessment, the Service evaluated the effects of climate change over three time periods: the early-century period (2010–2039), the mid-century period (2040–2069), and the late-century period (2070–2099). The Service did so by modeling two climate-change scenarios: (1) a moderate-emissions scenario and (2) a high-emissions scenario. The Service determined that under both scenarios, the Beetle's resiliency would decline from low to zero in Red River "by 2039," rendering "all habitats in this analysis area unsuitable." J.A. 473–74. The Service further determined that under both scenarios, the Beetle's resiliency would decline to low in both Arkansas River and Flint Hills "by 2039," and that both analysis areas would experience "a major decline in [population] abundance" within the same timeframe. J.A. 474–75. The Service concluded that temperature increases have the "potential to extirpate [the Beetle] from most or all Southern Plains populations" "by 2039." J.A. 470. In short, the Service concluded that at some undetermined point "by 2039," the Beetle would see its resiliency reduced to low or zero throughout the entire Southern Plains region, imperiling the species' survival there.

The Service also determined that at another undetermined point "within the mid-century time period (i.e., 2040–2069)," temperatures would reach and exceed the lethal threshold such that the Beetle "would likely be extirpated" throughout the entirety of the Southern Plains. *Downlisting Rule*, 85 Fed. Reg. at 65254. In other words, the data showed that the Southern Plains Beetle *could* go extinct in the early-century period (by 2039) and almost certainly *will* go extinct in the mid-century period (by 2069).

II.

A.

The Administrative Procedure Act requires this court to "hold unlawful and set aside agency action" that is "arbitrary" and "capricious." 5 U.S.C. § 706(2)(A). To survive arbitrary-and-capricious review, "agency action must be 'reasonable and reasonably explained.'" *Advocates for Highway & Auto Safety v. Fed. Motor Carriage Safety Admin.*, 41 F.4th 586, 595 (D.C. Cir. 2022) (quoting *FCC v. Prometheus Radio Project*, 592 U.S. 414, 423 (2021)). That means the agency "must examine the relevant data," *Motor Vehicles Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983), "reasonably consider[] the relevant issues," *Prometheus Radio*, 592 U.S. at 423, and "articulate a satisfactory explanation for its action including a rational connection between the facts found and choices made," *State Farm*, 463 U.S. at 43 (cleaned up). The agency's ultimate decision must also fall "within a zone of reasonableness." *Prometheus Radio*, 592 U.S. at 423.

To be sure, our review is "deferential." *Prometheus Radio*, 592 U.S. at 423. We "may not substitute [our] own policy judgment for that of the agency." *Id.* But when an agency "ignores evidence that undercuts its judgment," "minimizes such evidence without adequate explanation," or offers "conclusory explanations for matters involving a central factual dispute where there is considerable evidence in conflict," the agency must be reversed even under this forgiving standard of review. *Genuine Parts Co. v. EPA*, 890 F.3d 304, 312 (D.C. Cir. 2018) (cleaned up).

B.

Under the ESA, a species is considered "endangered" if it "is in danger of extinction throughout all or a significant portion of its range." 16 U.S.C. § 1532(6). For purposes of the Downlisting Rule, the Service assumed that the Southern Plains — where 59 percent of the Beetle population can be found — constitutes a significant portion of the Beetle's range. *See Downlisting Rule*, 85 Fed. Reg. at 65255. Thus, the issue before us boils down to whether the Service, in making its downlisting decision, adequately explained why the Beetle was not "in danger of extinction" in the Southern Plains. Ultimately, the Service found that the Beetle "is not currently in danger of extinction as it faces relatively low near-term risk of extinction." *Id.* at 65254. In my view, that finding was "conclusory" and not adequately supported by the reasons given and the evidence cited. *Genuine Parts*, 890 F.3d at 312.

To support its determination that the danger of extinction in the Southern Plains was low in the near term, the Downlisting Rule relied on data that pertained to (1) the Beetle's immediate conditions at the time of the Assessment in 2019, and (2) the conditions it was expected to face in the distant future, *i.e.*, the mid-century period from 2040–2069. Notably, the Assessment cited no evidence that spoke to the danger of extinction *in the near term* — the central issue in the rulemaking.

The Rule first pointed to the Beetle's "present" conditions and "moderate to high resiliency" in Arkansas River and Flint Hills at the time of the Assessment in 2019. *See Downlisting Rule*, 85 Fed. Reg. at 65254, 65256. Then, the Rule acknowledged that "rapidly changing climate conditions" would imperil that resiliency, *id.* at 65249, but the Rule brushed that concern aside with a terse conclusion that "[t]he bulk of

the impact from climate change . . . [will] occur in the future," appearing to reference "the mid-century time period (2040–2069)," *id.* at 65256. In a glaring lapse, the Rule failed to account for the critical period between 2020 and 2039, which includes the "near-term" future. The Rule's omission of any discussion of the most relevant period, which was at the core of the rulemaking, was arbitrary and capricious. Its finding that the Beetle "is not currently in danger of extinction as it faces relatively low near-term risk of extinction" was unsupported by record evidence. *Id.* at 65254.

In fact, the Service's own scientific Assessment appears inconsistent with the Downlisting Rule's finding of "relatively low near-term risk of extinction." The Assessment found that the Beetle's resiliency would decline to the point of endangerment throughout the Southern Plains at some undetermined point within the early-century period, *i.e.*, "by 2039." J.A. 473–75. Of course, "by 2039" encompasses all the time up to and including 2039. *See, e.g.*, *By*, CAMBRIDGE DICTIONARY, https://perma.cc/K9QC-NYQD (defining "by" to mean "not later than; at or before"); *By*, MERRIAM-WEBSTER DICTIONARY, https://perma.cc/9CQH-W4G8 (defining "by" to mean "no later than"). These findings therefore indicated that the Southern Plains Beetle faced a significant risk of going extinct *at some time before* 2039. Indeed, the Assessment stated that "[a] majority of the Southern Plains analysis areas will be near or exceed threshold temperatures by 2039, *with potential to extirpate [the Beetle]* from most or all Southern Plains populations." J.A. 470 (emphasis added). Thus, contrary to the majority's characterization of my views, it is not the Service's "methodological choice" of thirty-year periods to model the Beetle's resiliency that renders the Downlisting Rule arbitrary and capricious. Maj. Op. 33. Rather, the Rule is arbitrary and capricious because it failed to address what that modeling showed — a real danger that the Beetle could go

extinct at some point within the early-century period, *i.e.*, "by 2039," which includes the "near term."

The Downlisting Rule is also arbitrary and capricious because it failed to address more granular temperature modeling in the record which indicated that the entire Southern Plains would experience temperatures that endanger the Beetle much closer to 2020 than 2039. In particular, the Service projected ten-year averages for summertime mean-maximum temperatures in each of the Southern Plains analysis areas between 2020 and 2029. In Flint Hills, such temperatures were expected to range between 93–95.1°F, and in Arkansas River, they would range between 94.7–95.6°F. *See* Fish & Wildlife Service Post-Argument Filing 3. Given that the Service has conceded that "endangerment" occurs at around "93–94°F," *see* Oral Arg. Tr. 58, and the Beetle's resiliency in Red River declined to low at mean-maximum temperatures between 93–94°F, those temperature projections support the conclusion that the Beetle faces a significant risk of extinction *by 2029* throughout the Southern Plains.

Yet, the Downlisting Rule failed to "examine [this] relevant data," *State Farm*, 463 U.S. at 43, let alone explain why it did not put the Southern Plains Beetle at near-term risk of extinction. Instead, the Rule "ignored evidence that undercut its judgment" or, at the very least, "minimized such evidence without adequate explanation." *Genuine Parts*, 890 F.3d at 312 (cleaned up). Even if our review of the Service's scientific analysis is especially deferential, *see* Maj. Op. 36, we cannot defer to the Service when it fails to analyze the most relevant scientific data in the record, *see U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 629 (D.C. Cir. 2016) ("Although we afford an agency's scientific decision an extreme degree of deference, we cannot uphold an agency decision that does not consider all

relevant factors or fails to establish a reasonable connection to the facts in the record." (cleaned up)).

C.

My colleagues in the majority are right that "[w]e read the record differently." Maj. Op. 33. That is so in at least five important respects.

First, the majority opinion appears to regard 95ºF as the threshold for *endangerment*. *See* Maj. Op. 31, 33. But the record makes clear that 95°F is the "lethal" threshold for *extinction* — endangerment occurs sooner. The Assessment clearly stated that "[t]here are no current or known historical populations of [the Beetle] in areas with summer mean-maximum temperatures" at or above 95°F. J.A. 465. Thus, 95°F is not the point at which the Beetle is endangered — it is the point at which the Beetle is already extinct or nearly there.

Second, contrary to the majority's contention, the concession made by counsel for the Service at oral argument — that "endangerment" occurs at around "93–94°F," "when temperatures rise to a level at which it puts pressure on the Beetle, not to the level at which the Beetle can no longer survive," Oral Arg. Tr. 58–59 — comes from the record. In devising "near" thresholds short of the lethal threshold of 95°F, the Assessment noted that temperatures of around 93–94°F may strain the Beetle's ability to survive. *See* J.A. 468. And although the "near" threshold established by the Assessment starts at 94°F for the Southern Plains Beetle and 93°F for the Northern Plains Beetle, the Beetle's resiliency in Red River had already declined to low — *i.e.*, the point of endangerment — at mean-maximum temperatures between 93–94°F. Moreover, although the Beetle "remain[s] viable" at temperatures between 93–94°F, J.A. 468, in the sense that it *can* sustain populations

at those temperatures, *see* Maj. Op. 35–36, that hardly means the Beetle is not also at risk of extinction — which is the standard for endangerment. In sum, the record demonstrates that 93–94°F is the temperature range at which the Beetle becomes endangered, as proven by the Beetle's experience in Red River.

Third, and relatedly, the majority opinion states that temperatures must "coalesce at thirty-year averages above the Beetle's survival threshold" of 95°F before they threaten the Beetle's viability. Maj. Op. 31. This assertion appears to misread a line in the Assessment, which suggested that the Beetle "*may* be able to survive *periodic* or *occasional*" summers at or above 95°F but that the Beetle will likely perish when "*average* mean-maximum temperatures" hover in that range over any longer period. J.A. 465 (emphases added). I do not understand the Assessment to conclude that average temperatures must exceed the Beetle's lethal threshold over a thirty-year period before the Beetle is endangered.

Fourth, my colleagues in the majority suggest that the rising temperatures that are expected to endanger the Beetle "by 2039" are "threat[s] not predicted to materialize for at least nineteen years after the Service's downlisting decision." Maj. Op. 31; *see also id.* at 23 ("At the time of the Service's decision in 2020, that resiliency was predicted to continue for approximately nineteen years in the Southern Plains region[.]"). But the Assessment's finding that the Beetle's resiliency will decline to low or zero throughout the Southern Plains "by 2039" plainly means that the climate threats to the Beetle's resiliency will materialize at some undetermined point within the early-century period — the Service never said exactly when. Indeed, the Service has conceded this point, stating in a supplemental filing that "[t]he Service did not state explicitly in either the Species Status Assessment or the

preamble to the final rule that the Beetle's resiliency in the Flint Hills and Arkansas River Analysis Areas is expected to decline to 'low' only at or near the end of the early century (2010 – 2039) time period." Fish & Wildlife Service Post-Argument Filing 2. My colleagues thus misconstrue the meaning of "by 2039" by equating it with "in or after 2039."[4]

Finally, the majority suggests that the Downlisting Rule is reasonable when "considered against the backdrop of the Service's recent initiation of another five-year review of the Beetle's status," which could result in the Beetle's uplisting. Maj. Op. 15; *see also id.* at 5. Although in theory the Service must reevaluate a listed species' status every five years, the Service often misses its deadlines. *See generally* U.S. Gov't Accountability Off., GAO-17-304, ENVIRONMENTAL LITIGATION: INFORMATION ON ENDANGERED SPECIES ACT DEADLINE SUITS (2017). Indeed, it took the Service twelve years — between 2008 and 2020 — to conduct its last "five-year review" of the Beetle's status. Thus, the majority's reliance on the "five-year review" is cold comfort for the heat-stricken Beetle.

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[4] The Service has not adequately "explained that the 'analysis and modeling in the record support [the] conclusion'" that the Southern Plains Beetle will become endangered "'only at or near the end'" of the early-century period. Maj. Op. 34 (quoting Fish & Wildlife Service Post-Argument Filing 2). Although the majority attempts to glean that from the Service's post-argument filing, that explanation appears nowhere in the Downlisting Rule itself. *See* Maj. Op. 35 ("We 'may not accept appellate counsel's post hoc rationalizations for agency action[.]'" (quoting *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168–69 (1962))). In any event, the record plainly reveals that the Beetle faces a near-term risk of extinction. *See supra* Part II.B.

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In sum, I would vacate the 2020 Downlisting Rule because its finding that the Beetle "faces relatively low near-term risk of extinction" is neither reasonable nor reasonably explained. The Service's downlisting decision is therefore arbitrary and capricious and should be set aside.[5]

[5] The Service asks for the "exceptional remedy" of remand without vacatur. *Am. Great Lakes Ports Ass'n v. Schultz*, 962 F.3d 510, 519 (D.C. Cir. 2020). But the Service "has not shown that vacatur would be so disruptive as to justify" that exceptional remedy. *Cboe Futures Exch., LLC v. SEC*, 77 F.4th 971, 982 (D.C. Cir. 2023) (cleaned up). For over three decades — from the time the Beetle was listed as endangered until the Service downlisted the Beetle — the Service streamlined permitting for the oil industry in Oklahoma, allowing it to operate in Beetle habitat while also requiring precautions to protect the Beetle. Given the availability of streamlined permitting programs, the Service has not shown why vacatur would be unduly disruptive. Moreover, in light of the significant evidence of the Beetle's endangerment, the Service likewise fails to show that it could "justify" the downlisting decision "on remand." *United Steel v. Mine Safety & Health Admin.*, 925 F.3d 1279, 1287 (D.C. Cir. 2019) (cleaned up).