

What Will the “Foreseeable Future” Bring for Climate-Imperiled Species?

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ABSTRACT

The Endangered Species Act (ESA) is the strongest source of federal protection for species that are at risk of extinction, and the ESA is becoming increasingly important as climate change threatens species and their habitats more than ever. In 2019, the Trump Administration amended the ESA to provide clarity and predictability when making decisions to list a species as threatened or endangered under the ESA. The Administration defined “foreseeable future” in a way that starkly limits how far into the future the listing agencies may look when assessing risks to species. Prior to the 2019 definition of “foreseeable future,” the federal agencies in charge of deciding to list species under the ESA faced risk uncertainty when assessing the likelihood and magnitude of threats to species and their habitats from climate change predominantly because of scientific uncertainty and difficulty predicting mitigation efforts.

This Note argues that instead of the 2019 amendments providing the intended clarity and consistency, the “foreseeable future” definition instead weakens the substantive standards used in the ESA listing process, limits federal agencies’ ability to consider climate change when making decisions on whether to provide species with ESA protections, and ultimately will push climate-imperiled species further toward the risk of extinction. To provide more effective guidance to the agencies making listing decisions under the ESA, revised rulemaking should require the agencies to explain how they deal with uncertainties and species’ risk of endangerment and to apply standards consistently.

INTRODUCTION

The Endangered Species Act (ESA) is the flagship legislation in the United States to prevent species extinctions. As of 2020, more than 1600 species of animals are listed as endangered or threatened and, thus, are protected by the Act.¹ Although

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1. See *Species Directory*, NOAA FISHERIES, <https://www.fisheries.noaa.gov/species-directory/threatened-endangered> (documenting a total of 165 endangered and threatened marine species); *Listed Animals*, U.S. FISH & WILDLIFE SERV., <https://ecos.fws.gov/ecp0/reports/ad-hoc-species-report?kingdom=V&kingdom=I&status=E&status=T&status=EmE&status=EmT&status=EXPE&status=EXPN&status=SAE&status=SAT&mapstatus=3&fcritHab=on&fstatus=on&fspecrule=on&finvpop=on&fgroup=on&header=Listed+Animals> (documenting a total of 1470 listed and endangered species).

species are still being listed, other species are recovering. More than ninety-seven species are delisted²—meaning that the species no longer need the ESA’s protection.³

Listing species occurs through a formal rulemaking process.⁴ The rulemaking process called “listing” is the gatekeeper for which species receive protections to reverse their path toward extinction. Efforts to widen the “gate” expand the number of species protected under the Act and increase the range of activities and actions subject to the statute. Conversely, steps to limit listing may be seen as reducing ESA regulation. The ESA considers a species “in danger of extinction throughout all or a significant portion of its range” as endangered.⁵ Species “likely to become an endangered species within the *foreseeable future*” are listed as threatened.⁶ Both of these statutory thresholds for ESA protection require predictions. Climate change has emerged as an important threat to species survival and a confounding factor in predicting the risk of extinction. In particular, federal agencies and courts have struggled with defining the scope of “foreseeable future” in deciding whether to protect a species as threatened.

In deciding whether a particular species is likely to become endangered in the “foreseeable future,” the Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) face uncertainties. Threatened listings under the ESA involve risk uncertainty because assessing risks requires the Services to look at both the magnitude and likelihood of threats.⁷ Likelihoods of climate change threats are difficult to predict because what mitigation efforts will be taken and how species will respond to threats are unclear.⁸ Climate change models used to predict future threats involve speculations and uncertainties, which also pertain to uncertain magnitude projections.⁹ Additionally, inconsistency results from agencies proceeding under ambiguous terms or standards.

Agencies have great discretion in interpreting “foreseeable future” when assessing risks, especially because “foreseeable future” was never defined in a rule prior to 2019. In 2009, the Solicitor for the United States Department of Interior’s opinion (“M-Opinion”) provided the Services with the guidance that “foreseeable future” should be defined on a situational basis and will depend on the data available during listing determinations.¹⁰ Even with the M-Opinion’s guidance, the Services

2. See *Delisted Species*, U.S. FISH & WILDLIFE SERV., <https://ecos.fws.gov/ecp/report/species-delisted>.

3. *Delisting Species Under the Endangered Species Act*, NOAA FISHERIES, <https://www.fisheries.noaa.gov/national/endangered-species-conservation/delisting-species-under-endangered-species-act>

4. See 16 U.S.C. § 1533; 5 U.S.C. § 553.

5. 16 U.S.C. § 1532(6). The list of Endangered and Threatened Wildlife can be found at 50 C.F.R. § 17.11 (2020).

6. 16 U.S.C. § 1532(20) (emphasis added).

7. See *id.*

8. See *infra* Part II.

9. See *infra* Part II.C.

10. *Solicitor’s Memorandum on the Meaning of ‘Foreseeable Future’ in Section 3(20) of the ESA*, M-37021 (Jan. 16, 2009), <https://www.fws.gov/endangered/esa-library/pdf/M-37021%20Foreseeable%20future.pdf> [hereinafter M-Opinion]; see also *infra* text accompanying notes 79–81.

still faced difficulties posed by uncertainties based on scientific projections, mitigation efforts, and predictions of species’ responses.¹¹ To achieve the ESA’s goals of conserving threatened and endangered species and using all possible methods necessary to recover them,¹² courts sometimes provide more deference to affirmative listing decisions than decisions not to list species.¹³

Though the ESA itself contains substantive and procedural requirements for the process of listing species for protection under the ESA, there remain many implementation details that the Services have discretion to determine via regulation. Since many of the Services’ rulemakings and courts’ decisions used the M-Opinion as the baseline for interpreting “foreseeable future,” FWS essentially used the 2019 ESA amendments (“2019 rule”) to codify the M-Opinion and what the Services and courts were already doing.¹⁴ In an effort to provide clarity and improve predictability of species listings,¹⁵ FWS defined “foreseeable future” as extending “only so far into the future as the Services can reasonably determine that both the future threats and the species’ responses to those threats are likely,”¹⁶ requiring consideration of the likelihood of endangerment and how long this risk extends into the future on a case-by-case basis.¹⁷

Despite the goals to provide clarity and avoid speculation too far into the future,¹⁸ the 2019 “foreseeable future” definition falls short in a few areas. First, the 2019 definition does not provide enough clarity. Although FWS codified a definition for the first time and defined terms such as “likely” similarly to other entities,¹⁹ there are still vague and potentially ambiguous standards to guide the Services’ listing decisions. Along the same lines, the Services’ listing determinations are often criticized and are given less discretion by courts when a Service fails to adequately

11. *See infra* Part II.

12. *See* 16 U.S.C. § 1531(b); *TVA v. Hill*, 437 U.S. 153, 184 (1978) (“The purposes of the bill included the conservation of the species and of the ecosystems upon which they depend, and every agency of government is committed to see that those purposes are carried out.”).

13. *Compare* *Alaska Oil & Gas Ass’n v. Pritzker*, 840 F.3d 671, 684 (9th Cir. 2016) (agreeing with NMFS’s affirmative listings and its contention that agencies need not predict a population reduction, define an extinction threshold, nor establish the probability of reaching the threshold) *with* *Ctr. for Biological Diversity v. U.S. Fish & Wildlife Serv.*, 488 F. Supp. 3d 1219, 1233 (S.D. Fla. 2020) (rejecting FWS’s decision not to list the Florida Keys mole skink because of FWS’s inadequate justification based on scientific uncertainty, especially “when the future of a species is on the line”).

14. *See* 50 C.F.R. § 424 (2019).

15. *See* *Endangered and Threatened Wildlife and Plants; Regulations for Listing Species and Designating Critical Habitat*, 84 Fed. Reg. 45020, 45020–01 (proposed Aug. 27, 2019) (codified at 50 C.F.R. § 424 (2019)).

16. § 424.11(d).

17. *Id.*

18. *See* *Endangered and Threatened Wildlife and Plants*, 84 Fed. Reg. at 45027.

19. *Id.* at 45021 (defining likely as “more likely than not”). This definition is similar to IPCC’s definition of likely—greater than or equal to sixty-six percent. MICHAEL D. MASTRANDREA ET AL., GUIDANCE NOTE FOR LEAD AUTHORS OF THE IPCC FIFTH ASSESSMENT REPORT ON CONSISTENT TREATMENT OF UNCERTAINTIES 3 (2010), https://www.ipcc.ch/site/assets/uploads/2017/08/AR5_Uncertainty_Guidance_Note.pdf.

explain a decision not to list a species as endangered,²⁰ and these occurrences will likely continue when unclear and inconsistent standards are offered as guidance. Second, the 2019 rule does not adequately address one of the most severe and impending threats to species—climate change. The definition’s limitation to only “likely” threats and species’ responses will inhibit the Services’ abilities to consider long-range climate change projections when analyzing threats—like extreme heat, drought, and rising sea levels—facing species, even though these threats are becoming increasingly frequent and problematic to the survival of species.²¹ To mitigate these problems, the Services must focus on consistency and clarity in future rulemaking and guidance.

This Note focuses on the 2019 rule’s definition of “foreseeable future.” Part I explains the purpose of the ESA and details how the listing process works. Using caselaw, Part II explains the issues the Services and courts face when interpreting the meaning of “foreseeable future” prior to the 2019 definition and examines challenges that climate change presents to assessing the risk of extinction. Part III details what the 2019 rule involves—specifically focusing on the addition of a “foreseeable future” definition—and analyzes shortcomings of the definition. Part IV concludes by predicting the likely fate of the new rule in judicial challenges in the face of uncertainties and suggests ways the Services could better fulfill their objectives moving forward through rulemaking.

I. THE ESA’S PURPOSE AND THE LISTING PROCESS

In 1973, Congress enacted the ESA to protect and recover imperiled species and their habitats worldwide.²² From the start, Congress announced its goal of enacting the ESA to “provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved . . . [and] provide a program for the conservation of such endangered species and threatened species.”²³ This purpose is to be achieved at whatever cost.²⁴ The ESA defines “conserve,” “conserving,” and “conservation” to mean “to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary.”²⁵

20. *See infra* Part II; *Otter v. Salazar*, No. 1:11-CV-00358-CWD, 2012 WL 3257843 (D. Idaho Aug. 8, 2012) (vacating the species’ listing after FWS failed to provide an adequate justification for its interpretation of “foreseeable future”).

21. *See infra* Section II.A.

22. *Endangered Species Act*, U.S. FISH & WILDLIFE SERV., <https://www.fws.gov/international/laws-treaties-agreements/us-conservation-laws/endangered-species-act.html>.

23. 16 U.S.C. § 1531(b).

24. *TVA v. Hill*, 437 U.S. 153, 184 (1978).

25. 16 U.S.C. § 1532 (“Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.”).

The lead federal agencies that implement the ESA are the FWS and NMFS, a smaller agency within the U.S. National Oceanic and Atmospheric Administration Fisheries Service (NOAA).²⁶ Together, they are known as “the Services.” Specifically, the Secretary of the Interior for FWS and the Secretary of Commerce for NMFS have the responsibility to administer the ESA.²⁷ As part of the method to achieve the conservation and recovery of species, these agencies have the power to determine which species are in need of greatest federal protection (listing)²⁸ and when those species are recovered to the point at which they no longer need protection under the Act (delisting).²⁹

The Services initiate listing via two alternative routes: (1) NMFS or FWS initiate a status review of the species or (2) more commonly, concerned citizens use petitions to invite the listing Services to review the status of species.³⁰ The ESA authorizes interested people to petition the appropriate agencies for the listing of any species.³¹ Nongovernmental organizations, scientific societies, and community groups play a key role in species conservation by introducing these petitions.³² Requests for species to be considered for listing under the ESA require information on the species’ current population trends, factors that may cause species to be threatened or endangered, and effectiveness of existing state conservation efforts.³³ Within ninety days of receipt, the Services must publish specific findings about the petition in the Federal Register conveying whether there is “substantial information” meriting listing.³⁴ Within a year, the Services decide whether the listing of the species is warranted or not.³⁵

Under section four of the ESA, the Services are required to list species of animals and plants as threatened or endangered.³⁶ The substantive standards for listing are based on an evaluation of the risks a species faces: present or threatened habitat modification, overutilization, predation, disease, inadequacy of existing regulatory measures, and other factors.³⁷ The degree of threat, which involves consideration of the magnitude and probability of threats, is the most important consideration for the listing agencies.³⁸ Next, species’ life histories are considered to discover the adequacy of their responses to threats, and this may require generations of data to

26. See *Implementation of ESA and Related Litigation*, U.S. DEP’T OF JUST., <https://www.justice.gov/enrd/endangered-species-act>.

27. See *id.*

28. See 16 U.S.C. § 1533(a).

29. *Listing and Critical Habitat: Overview*, U.S. FISH & WILDLIFE SERV., <https://www.fws.gov/endangered/what-we-do/listing-overview.html>; see § 1533(a)(2)(B).

30. See 5 U.S.C. § 553(e); CTR. FOR SCI. & DEMOCRACY, *ADVANCING SCIENCE IN THE ENDANGERED SPECIES ACT* 4 (2017), <https://www.ucsusa.org/sites/default/files/attach/2017/07/esa-toolkit-ucs-july-2017.pdf>.

31. 16 U.S.C. § 1533(b)(3)(A).

32. CTR. FOR SCI. & DEMOCRACY, *supra* note 30, at 7.

33. See 16 U.S.C. § 1533(b)(3); CTR. FOR SCI. & DEMOCRACY, *supra* note 30, at 9.

34. § 1533(b)(3)(A).

35. § 1533(b)(3)(B).

36. § 1533(a)(3)(A).

37. § 1533(a)(1); *Listing and Critical Habitat: Overview*, *supra* note 29.

38. *Listing a Species as a Threatened or Endangered Species*, U.S. FISH & WILDLIFE SERV., <https://www.fws.gov/endangered/esa-library/pdf/listing.pdf>.

discover.³⁹ The Services then assess if there are any known factors that will affect the conservation of species in the “foreseeable future” and correlate these threats from the life history over the period in which each threat is foreseeable, which includes assessing how threats will affect species at different life stages and generations.⁴⁰ The ultimate objective of this analysis is to figure out whether species’ populations are likely to be maintained at a level that does not threaten or endanger their existence in the “foreseeable future.”⁴¹

The analysis results in a listing decision, which has three possible outcomes: no listing rule, an endangered listing rule, or a threatened listing rule.⁴² Endangered species are those “in danger of extinction throughout all or a significant portion of its range.”⁴³ After facing criticism for the inadequacy of legal protections for species on the verge of extinction, Congress extended the ESA protections⁴⁴ to “threatened species,” which are those species “likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”⁴⁵ Essentially, the difference between an endangered and threatened species is “the timing of when a species may be in danger of extinction.”⁴⁶ The Services must base these decisions *solely* on the best available scientific and commercial data,⁴⁷ but public opinions from the commenting process on the Federal Registrar posting also play a role.⁴⁸

These agencies follow Administrative Procedure Act (APA) informal rulemaking when making listing decisions.⁴⁹ But the ESA overlays additional procedures. The listing Service must publish notices of review that they believe a species is threatened or endangered, seek biological information to complete the review, and publish the proposed regulation in the Federal Register.⁵⁰ Within one year of this publication, the Secretary must make a final decision as to whether the species will be listed as endangered, threatened, or not listed at all.⁵¹ If need be, consultation with affected

39. *Id.*

40. *Id.*; see 50 C.F.R. § 424.11(d) (2019); 16 U.S.C. § 1533(b)(1)(B)(ii).

41. M-Opinion, *supra* note 10, at 6.

42. See § 1533(a).

43. 16 U.S.C. § 1532(6). The list of Endangered and Threatened wildlife can be found at 50 C.F.R. § 17.11.

44. S. REP. NO. 93-307, at 3 (1973) (quoting President Nixon, who critiqued the current laws for not allowing enough conservation action).

45. 16 U.S.C. § 1532(20).

46. Endangered and Threatened Species; Identification of 14 Distinct Population Segments of the Humpback Whale (*Megaptera novaeangliae*) and Revision of Species-Wide Listing, 81 Fed. Reg. 62,260, 62,261 (Sept. 8, 2016).

47. See § 1533(b)(1)(A).

48. Natalie Jacewicz, Note, *Protecting Evolutionary Potential: Can the Endangered Species Act Save Species Before They Exist?*, 94 N.Y.U. L. REV. 472, 477 (2019).

49. See *infra* text accompanying notes 60–63.

50. See 16 U.S.C. § 1533(b); *Listing a Species as a Threatened or Endangered Species*, *supra* note 38. A full list of the “candidate species” can be found at http://ecos.fws.gov/tess_public/reports/candidate-species-report.

51. § 1533(b)(6)(A). A six-month extension is available if “there is substantial disagreement regarding the sufficiency or accuracy of the available data relevant to the determination . . . concerned.” § 1533(b)(6)(B)(i).

states is also encouraged in making a listing decision.⁵² It is incompatible with the purpose of the ESA for agencies to defer listing a species as threatened with just a hope that the species’ conditions will improve because this listing goes beyond just memorializing a species on the extinction path. Listing and the ESA compel necessary changes to save these species.⁵³

II. CLIMATE CHANGE AND ISSUES ARISING FROM THE INTERPRETATION OF “FORESEEABLE FUTURE”

In this Part, I discuss how “foreseeable future” was interpreted before the 2019 revisions. Section A provides common law and administrative background on construing “foreseeable future.” The remaining sections in this Part use caselaw to describe the difficulties agencies and courts faced in understanding and applying “foreseeable future” when deciding whether or not to list species under the ESA. Section B examines caselaw where scientific uncertainties made listing decisions difficult. Section C details caselaw where separate mitigation efforts affected agencies’ and courts’ decisions when interpreting “foreseeable future.” Section D focuses on cases especially applicable to concerns today about how climate change has and will affect decisions to or not to list species.

A. Inconsistent Foresight: Background and Administrative Issues Regarding “Foreseeable Future”

Prior to the 2019 revisions, issues arose from interpreting the meaning of “foreseeable future” without a set definition. The meaning of “foreseeable future” is vital to the determination and listing of threatened species.⁵⁴ Using this phrase within the definition of a “threatened” species highlights how Congress recognized the importance of the foreseeable future in assessing risks. This stemmed from the importance of the “foreseeable future” in analyzing risks in common law. When considering whether actions are too remote or proximately caused specific results, courts base decisions upon the concept of foreseeability.⁵⁵ Congress, the Services, and courts cannot ignore the meaning and use of “foreseeable future” in common law. However, the meaning of “foreseeable future” in common law should not be the only source decision-makers use when assessing risks to species. The plain meaning, legislative history, and the connotations of the phrase given by the listing process also guide interpretation of “foreseeable future.”

Despite the importance and weight of foreseeability in common law, the language of the ESA and the listing process discussed in Part I highlight that the “foreseeable future” language was drafted with the intent to provide some leeway in identifying

52. See § 1533(b)(5)(A)(ii).

53. See *Or. Nat. Res. Council v. Daley*, 6 F. Supp. 2d 1139, 1152 (D.C. Or. 1998).

54. See 16 U.S.C. § 1532(20).

55. See Peter Nash Swisher, *Causation Requirements in Tort and Insurance Law Practice: Demystifying Some Legal Causation “Riddles”*, 43 TORT TRIAL & INS. PRAC. L.J. 1, 9 (2007). The proximate causation requirement of foreseeability involves looking at the foreseeability of harm and the foreseeability of the extent of the harm. *Id.* at 10.

the meaning of the phrase in different circumstances.⁵⁶ Courts have refused challengers' attempts to establish a bright-line rule for defining "foreseeable future."⁵⁷ Ultimately, the meaning of "foreseeable future" has been left up to the courts' and the Services' discretion.⁵⁸ If Congress has not directly spoken on the issue in a statute, courts presume that Congress left the resolution to the agency's deference.⁵⁹

Additionally, the APA provides the judiciary with an important role in policing agency discretion. A court may hold unlawful and overturn an agency's decision if it is "arbitrary, capricious, or otherwise not in accordance with the law."⁶⁰ This arbitrary and capricious standard of review requires courts to provide a great amount of deference to the agency, such that the court cannot substitute its judgement for the agency's.⁶¹ Although deference is at its highest when reviewing conclusions that rely on technical expertise, courts must still ensure that the agency made reasonable decisions using sound judgment.⁶² Agencies' actions are considered arbitrary and capricious when the agency (1) relied on factors not intended by Congress, (2) entirely failed to address an important aspect of the issue, (3) offered explanations running counter to the evidence that the agency has, or (4) offers an explanation that is implausible enough that it couldn't be ascribed to the product of the agency's expertise.⁶³ The APA is the default standard of review for the ESA.⁶⁴ Courts assess whether the listing Services' decisions interpreting "foreseeable future" were arbitrary and capricious. In doing so, however, both the listing Services and courts face issues and discrepancies regarding the interpretation of "foreseeable future."

For common law and listing decisions, foreseeability usually involves uncertainty, especially when predicting the future of what happens in complex systems like ecosystems. For example, assessing long-term survival is important but difficult "under variable and unpredictable future climate conditions."⁶⁵ Among the threats the ESA authorizes the Services to consider are present or threatened habitat modification, overutilization, predation, disease, and inadequacy of existing regulatory measures.⁶⁶ In comparison to these identifiable problems, climate change brings impacts to species conservation that are harder to target and measure because scientists and agencies must deal with scientific models—which are themselves

56. See M-Opinion, *supra* note 10, at 13; *supra* Part I.

57. See *W. Watersheds Project v. Foss*, No. CV 04-168-MHW, 2005 WL 2002473, at *16 (refusing to "establish a bright-line rule for defining foreseeable future").

58. Jacewicz, *supra* note 48, at 481.

59. *Chevron USA, Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 843 (1984).

60. Administrative Procedure Act, 5 U.S.C. § 706(2)(A).

61. See *Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 378 (1989); Elizabeth Kuhn, *Science and Deference: The "Best Available Science" Mandate is a Fiction in the Ninth Circuit*, GEO. ENVTL. L. REV. ONLINE 1 (2016).

62. See *Marsh*, 490 U.S. at 377–78; Kuhn, *supra* note 61.

63. *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

64. Kuhn, *supra* note 61.

65. *Or. Nat. Res. Council v. Daley*, 6 F. Supp. 2d 1139, 1156 (D.C. Or. 1998) (quoting 62 Fed. Reg. 24,588, 24, 607).

66. See Federico Cheever, *The Road to Recovery: A New Way of Thinking About the Endangered Species Act*, 23 ECOLOGY L.Q. 1, 16 (1996).

dependent on guessing mitigation efforts, how the earth systems are going to respond to those changes, and how species will respond to those changes.

Climate change poses fundamental threats to species conservation and survival; however, climate change is not mentioned in the ESA.⁶⁷ Climate change leaves more than twenty to thirty percent of species at an increased risk of extinction in the future,⁶⁸ so the problems it poses are important to consider in listing decisions. Models projecting long-term weather patterns predict these problems will only continue.⁶⁹ When assessing species’ statuses and making listing decisions, the Services are required to use the “best scientific and commercial data available.”⁷⁰ Difficulties in measuring the threat of climate change make quantifying its impact especially difficult. These uncertainties about the future of climate change include (1) incomplete understandings of atmospheric, geographic, and oceanic processes; (2) future human decisions about the path of future greenhouse gas emissions (GHG); (3) impacts that climate change will have on species’ habitats; and (4) species’ responses to those changes.⁷¹

The prime illustration of climate change’s impact on species conservation through the ESA is exemplified by the polar bear. In 2005, the Center for Biological Diversity recognized the threat facing polar bears’ habitat because of climate change and petitioned FWS to list the polar bear as threatened under the ESA.⁷² After review, FWS published a proposed rule to list the polar bear as threatened and justified this decision with findings about the polar bear’s taxonomy, evolution, and population.⁷³ FWS cited three overarching reasons justifying the polar bear’s listing as threatened: (1) the polar bear depends on sea ice for survival; (2) sea ice is declining; and (3) climate change will continue to reduce the extent and quality of sea ice.⁷⁴ In making this decision, FWS used widely accepted climate models. These models exemplified similar warming and sea ice trends until 2500; however, they diverged beyond this year because of uncertainties involving population increases, technological improvements, and regulatory changes.⁷⁵

Despite the discrepancies beyond the mid-century projections, the D.C. District Court and the Court of Appeals affirmed the decision.⁷⁶ The case of the polar bear—as shown by concerned citizens petitioning for the listing, FWS finding sufficient

67. Eric V. Hull, *Protecting Endangered Species in an Era of Climate Change: The Need for a Smarter Land Use Ethic*, 31 GA. ST. U. L. REV. 579, 581 (2015).

68. *Id.*

69. Andrew J. N. D. Coffey, *Feeling the Heat: The Endangered Species Act and Climate Change*, 36 GA. ST. U. L. REV. 437, 438 (2020). Changes in temperatures, precipitation patterns, droughts, and sea levels are projected to continue through this century and beyond. See *The Effects of Climate Change*, NASA GLOBAL CLIMATE CHANGE, <https://climate.nasa.gov/effects/>.

70. 16 U.S.C. § 1533(b)(1)(A).

71. See Coffey, *supra* note 69, at 438.

72. See Determination of Threatened Status for the Polar Bear (*Ursus maritimus*) Throughout Its Range, 73 Fed. Reg. 28,212, 28,235 (May 15, 2008); *In re Polar Bear Endangered Species Act Listing & § 4(d) Rule Litig.*, 709 F.3d 1, 4 (D.C. Cir. 2013).

73. *In re Polar Bear*, 709 F.3d at 4–5.

74. *Id.*

75. *Id.* at 16.

76. See *id.* at 1, 16.

evidence of the species likely endangerment, and the court's decision to uphold the threatened listing—highlights the vulnerability of species conservation in the face of climate change and how the listing Services have considered climate change threats under their ESA authority. When analyzing the fate of species in the “foreseeable future” to make listing decisions like FWS did with the polar bear—which increasingly brings into play the consideration of climate change effects—the Services have been inconsistent.⁷⁷

In 2009, the Solicitor for the United States Department of Interior wrote the M-Opinion, asking the FWS to provide guidance on how the Services should interpret “foreseeable future.”⁷⁸ The Solicitor expressed that Congress intended for “foreseeable future” to extend as far as agencies can reasonably rely on predictions, allowing the Services to provide what is necessary for species conservation. This reliance can vary significantly based on what kind of data is available during listing determinations.⁷⁹ The M-Opinion also highlighted that incorporation of public participation with the law, along with use of scientific judgment, ensures that the agencies will use their discretion wisely.⁸⁰

The M-Opinion indicated that Congress intended the listing process to provide the Services with more discretion to strategize and forecast conservation concerns in the future.⁸¹ The views expressed by the Solicitor were incorporated into some courts' and agencies' justifications for their applications of “foreseeable future” in listing determinations.⁸² However, even incorporating these views into listing decisions, in the absence of a set “foreseeable future” definition, has led to difficulties—based on science, mitigation efforts, and species' response predictions.

B. Difficulties Presented by Scientific Uncertainty

Agency science plays a big role in ESA decision making, specifically because listing determinations are based on “the best scientific and commercial data available.”⁸³ Although Congress has not defined what “best available science” means,⁸⁴ this requirement is viewed as a congressional attempt to remove political and commercial influences from decision making.⁸⁵ The Services sometimes face uncertainty resulting from their scientific data's projections of magnitude and

77. See *infra* Section III.B.

78. M-Opinion, *supra* note 10, at 1.

79. See *id.*

80. See *id.* at 4.

81. See *id.* at 3.

82. *E.g.*, Alaska Oil & Gas Ass'n v. Pritzker, 840 F.3d 671, 681–82 (9th Cir. 2016); Final Listing Rule: Threatened Status for the Beringia & Okhotsk Distinct Population Segments of the *Erignathus barbatus nauticus* Subspecies of the Bearded Seal, 77 Fed. Reg. 76,740, 76,740 (Dec. 28, 2012); see *infra* Part III.

83. 16 U.S.C. § 1533(b)(1)(A); Katherine Renshaw, *Leaving the Fox to Guard the Henhouse: Bringing Accountability to Consultation Under the Endangered Species Act*, 32 COLUM. J. ENVTL. L. 161, 166 (2007).

84. See 16 U.S.C. § 1533(b)(1)(A).

85. Renshaw, *supra* note 83, at 167.

likelihood; courts often recognize this and defer to the resulting definition or lack of a definition of “foreseeable future.”⁸⁶

FWS faced scientific uncertainty regarding magnitude and likelihood of sea level rise when determining that the Florida Keys mole skink population was neither endangered or threatened.⁸⁷ The court concluded that FWS’s listing decision was inadequately explained, which is unacceptable “when the future of a species is on the line.”⁸⁸ FWS limited its “foreseeable future” timeline to a thirty- to forty-year limit (until 2060), even though sea level rise projections extended until 2100, because they feared too much uncertainty about sea level rise threats beyond 2060.⁸⁹ The Services can appropriately consider divergence among scientific models when discerning the meaning of “foreseeable future,” and because divergence reasonably leads to projections further in the future than agencies may consider, the court accepted FWS’s “foreseeable future” timeline.⁹⁰

In *Center for Biological Diversity v. Lubcheno*, the court recognized that the length of time constituting “foreseeable future” varies depending on individual species and individual threats they face; these differences are exemplified by scientific data.⁹¹ FWS used 100 years of climate science and sea ice scenarios when deciding that the emperor penguin’s habitat requirements would be met within that time frame.⁹² Despite the use of the 100-year time frame, FWS still recognized that using large-scale, generalized predictive models when predicting the “foreseeable future” of species involves uncertainties about magnitude and likelihood of risks and species responses to them.⁹³ Similarly, based on two models—one hundred and three hundred years—FWS found the likelihood of endangerment for killer and beluga whales would increase, justifying their endangered listing.⁹⁴ Both time frames were considered because of the different threats facing the species.⁹⁵

Courts have also accepted the inconsistent exercise of discretion without an established “foreseeable future” definition in the absence of sufficient scientific evidence. *Western Watersheds Project v. Ashe* upheld the Service’s decision not to list the pygmy rabbit because FWS lacked sufficient and necessary data to assess the likelihood of the risk, evaluate the rabbit’s response, and, thus, define “foreseeable

86. *Id.* at 172.

87. *Ctr. for Biological Diversity v. U.S. Fish & Wildlife Serv.*, 488 F. Supp. 3d 1219, 1222–23 (S.D. Fla. 2020). The mole skink is a small, thin lizard with a long red or orange tail. *Mole Skink (Eumeces [Plestiodon] egregius)*, SAVANNAH RIVER ECOLOGY LABORATORY, <https://srelherp.uga.edu/lizards/eumegr.htm>.

88. *Ctr. for Biological Diversity*, 488 F. Supp. at 1233.

89. *See id.* at 1226.

90. *Id.* However, the listing decision was ultimately vacated and remanded to FWS because FWS’s reliance on habitat loss projections was unexplainable. *Id.* at 1233.

91. 758 F. Supp. 2d 945, 967 (N.D. Cal. 2010).

92. *See* Endangered and Threatened Wildlife and Plants; 12–Month Finding on a Petition to List Four Penguin Species as Threatened or Endangered Under the Endangered Species Act and Proposed Rule to List the Southern Rockhopper Penguin in the Campbell Plateau Portion of Its Range, 73 Fed. Reg. 77,264 (Dec. 18, 2008).

93. *See Lubcheno*, 758 F. Supp. 2d at 968.

94. *See* Endangered and Threatened Wildlife and Plants: Endangered Status for Southern Resident Killer Whales, 70 Fed. Reg. 69,903 (Nov. 18, 2005).

95. *See Lubcheno*, 758 F. Supp. 2d at 968.

future.”⁹⁶ Beyond using the best available scientific data, the ESA does not require agencies to conduct their own studies to make a listing determination, but it is important for agencies to consider trends that are normally assessed regarding the species’ distribution, abundance, and habitat.⁹⁷ This kind of data was unavailable for the Agency in *Ashe*, so the court decided that the Agency could not adequately define “foreseeable future.”⁹⁸

Courts allowed the Services to use longer-term projections to define “foreseeable future.” For example, after performing a rulemaking process, NMFS concluded that two distinct population segments of the Pacific bearded seal subspecies were threatened with endangerment in the “foreseeable future.”⁹⁹ NMFS reasonably concluded that shrinking sea loss would cause habitat loss for the seal populations, “almost certainly” threatening their survival.¹⁰⁰ Despite NMFS’s previous practice of setting the year 2050 as the extent of “foreseeable future,” the court accepted NMFS’s new policy.¹⁰¹ This policy used longer-term climate projections and more consideration for the specific habitat and threat factors in this case.¹⁰² This reflects the approach taken in the M-Opinion.¹⁰³ Additionally, the court affirmed that agencies need not quantitatively demonstrate the magnitude of threats facing a species—agreeing with NMFS that agencies need not predict a population reduction, define an extinction threshold, nor establish the likelihood of reaching the threshold.¹⁰⁴

96. 948 F. Supp. 2d 1166, 1180, 1184 (D. Idaho 2013); see *Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List the Pygmy Rabbit as Endangered or Threatened*, 75 Fed. Reg. 60,516, 60516–61.

97. *Ashe*, 948 F. Supp. 2d at 1179.

98. *Id.* at 1182. Similarly, NOAA’s listing of the Mexico-distinct population of humpback whales as threatened has yet to be challenged. In this case, NOAA considered “foreseeable future” to mean “the horizon over which predictions about conservation status of the species can be reasonably relied upon.” *Endangered and Threatened Species; Identification of 14 Distinct Population Segments of the Humpback Whale (Megaptera novaeangliae) and Revision of Species-Wide Listing*, 81 Fed. Reg. 62,260, 62,261 (Sept. 8, 2016). NOAA considered the species’ history, habitat characteristics, data, predictability of particular threats, and the reliability of forecasting these threats to be within the meaning of “foreseeable future.” *See id.* No time horizon was provided for what “foreseeable future” meant in this case. NOAA reasoned that narrowing down “foreseeable future” to a set number is inappropriate when making listing decisions because threats can be measured by different available data and threats operate across different time measures. *See id.*

99. *Alaska Oil & Gas Ass’n v. Pritzker*, 840 F.3d 671 (9th Cir. 2016); see *Final Listing Rule: Threatened Status for the Beringia & Okhotsk Distinct Population Segments of the Erignathus barbatus nauticus Subspecies of the Bearded Seal*, 77 Fed. Reg. 76,740, 76,740 (Dec. 28, 2012).

100. *Pritzker*, 840 F.3d at 681, 682.

101. An agency need not show that a new policy is better than an older policy. To justify the adoption of a new policy, an agency must just acknowledge its changing position and provide new findings that justify the change. *Id.* at 682; *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009).

102. *See Pritzker*, 840 F.3d at 681–82.

103. *Id.* at 681.

104. *Id.* at 684.

Some agencies refused to set a timeline for the “foreseeable future” because of difficulties predicting the response of species, even with the guidance of the M-Opinion.¹⁰⁵ The court in *Otter v. Salazar* vacated the slickspot peppergrass’s listing after FWS failed to provide a definition or justification for its interpretation of “foreseeable future.”¹⁰⁶ FWS defined this period as “that period of time over which events can reasonably be anticipated,” which stems from the court’s analysis in *Western Watersheds Project v. Foss*.¹⁰⁷ However, the court in *Otter* clarified that *Foss* did not endorse this specific definition for the ESA, as it varies depending on the particular species.¹⁰⁸ *Foss* and a federal regulation, which used the life cycle of an ecosystem to estimate that “foreseeable future” falls between thirty to one hundred years,¹⁰⁹ provided FWS with sufficient guidance to define “foreseeable future.”¹¹⁰ The definition FWS offered in this case does not amount to what the ESA requires; it is not supported by the species-specific requirement, as focused on in the M-Opinion,¹¹¹ and is too generic on its face for the court to accept without the fear of this same definition being applied to any species.¹¹² The court agreed with the Plaintiff’s arguments that “the failure to provide an adequate definition of foreseeable future undermines the entire listing” and that “without a properly calibrated definition of foreseeable future . . . [the] concern that [a] species will be perpetually listed is well-founded.”¹¹³

The court in *Center for Biological Diversity v. Everson* found FWS’s determination that the northern long-eared bat was threatened to be arbitrary and capricious.¹¹⁴ FWS decided to list the bat as threatened because the spread of white-nose syndrome (WNS) and its impact on the bat were reasonably foreseeable, indicating that the species would likely become endangered within the “foreseeable future,” which the Service failed to set a time frame for.¹¹⁵ The court agreed that FWS must look both to the likelihood and magnitude of threats and impacts on the species.¹¹⁶ In making this listing determination, FWS explained there was a lack of evidence showing that natural or manmade factors beyond WNS would significantly affect the bat population when these factors were considered alone.¹¹⁷ However, the

105. Jacewicz, *supra* note 48, at 483.

106. No. 1:11-CV-00358-CWD, 2012 WL 3257843, at *20 (D. Idaho Aug. 8, 2012). The slickspot peppergrass is a small, rare plant that grows only in sagebrush habitats, mostly in southwest Idaho. *Slickspot Peppergrass*, IDAHO FISH & WILDLIFE OFF., <https://www.fws.gov/idaho/promo.cfm?id=177175828>.

107. *Otter*, 2012 WL 3257843, at *18 (citing *W. Watersheds Project v. Foss*, No. CV 04-168-MHW, 2005 WL 2002473 (D. Idaho Aug. 19, 2005)); see Section II.B.

108. *Otter*, 2012 WL 3257843, at *19.

109. See 70 Fed. Reg. 2281 (Jan. 12, 2005).

110. *Otter*, 2012 WL 3257843, at *19.

111. See M-Opinion, *supra* note 10, at 9.

112. *Otter*, 2012 WL 3257843, at *19.

113. *Id.* at *20.

114. 435 F. Supp. 3d 69, 79 (D.D.C. 2020).

115. *Id.* at 77.

116. *Id.* at 86.

117. *Id.* at 82.

court viewed this as FWS disregarding the cumulative effects that factors other than WNS may have on the bat.¹¹⁸

C. Difficulty Predicting Mitigation Efforts

One of the factors the ESA sets out for listing determinations is the adequacy of existing regulatory mechanisms. If a regulating entity can improve its mechanisms, it may stave off listing. Alternatively, private stakeholders may commit to habitat conservation¹¹⁹ or other conservation methods that will remove foreseeable threats to species. NMFS and FWS sometimes consider existing or proposed mitigation methods when making listing decisions; however, courts usually refuse to uphold these listing decisions. For example, the court held that NMFS's decision not to list Oregon Coast coho salmon as threatened was based on an incorrect legal standard and was arbitrary and capricious.¹²⁰ NMFS only justified this decision because of a lack of threat "in the interval between"—instead of in the "foreseeable future" of—the listing decision and adopting habitat measures.¹²¹ Although not listed in its final rule, NMFS conceded that "foreseeable future" in this case would be thirty years; however, the court found this distinction unnecessary because only a two-year period was used in the listing decision (the time of listing until the adoption of mitigation measures), which is too short of a period to call the "foreseeable future."¹²² This determination only involved a "mere prospect" of endangerment rather than a likelihood, as the ESA requires.¹²³ In addition to this short interval, the court also found NMFS's focus on the State of Oregon's potential mitigation measures problematic because NMFS essentially deferred the decision to list the species for two years, hoping that the State of Oregon would take some action to protect the species.¹²⁴ Without waiting to see whether state action would defend the species from endangerment, NMFS should have simply said whether the species was likely to become endangered in the "foreseeable future" or not.¹²⁵ The court found that NMFS's actions indicated concern for the salmon in the future but also an unwillingness to make a listing decision required by the ESA.¹²⁶

Similarly, in *Foss*, FWS found that the slickspot peppergrass faced a sixty-four percent chance of extinction within the next one hundred years with complete implementation of conservation efforts per a candidate conservation agreement and other resource management plans.¹²⁷ FWS believed the likelihood of endangerment fell outside the range of "foreseeable future," suggesting that a reasonable person would expect the extinction of the candidate species would be complete within one

118. *Id.*

119. *See generally* 16 U.S.C. § 1539.

120. *Or. Nat. Res. Council v. Daley*, 6 F. Supp. 2d 1139, 1160–61 (D. Or. 1998).

121. *Id.* at 1151.

122. *See id.* at 1151.

123. *Id.* at 1152.

124. *Id.* at 1152.

125. *See id.* Then the court could review the administrative record to see if it rationally supported NMFS's listing decision. *Id.*

126. *Id.*

127. 2005 WL 2002473, at *1, *14 (D. Idaho 2005).

hundred years.¹²⁸ FWS’s quantification of “foreseeable future” contradicted that of the International Union for the Conservation of Nature (IUCN)¹²⁹: a species should be listed as threatened under the ESA if there is a ten percent extinction risk within one hundred years.¹³⁰ The court found the Service’s conclusion to be “untenable” and defying common sense, using Merriam-Webster’s Dictionary of Law’s definition of foreseeable—“such as reasonably can or should be anticipated: such that a person of ordinary prudence would expect it to occur or exist under the circumstances.”¹³¹ The court feared that if it just accepted the way FWS defined “foreseeable future” in this case, without outlining any factors it used to justify its listing decision, the Services would have free range in defining this phrase without any guidelines.¹³²

Similar to the court’s disapproval of NMFS delaying listing of the coho salmon in *Oregon Natural Resources Council v. Daley* because of other potential conservation methods, the court in *Foss* refused to equate prolonging the inevitable by twenty years with pushing the risk of extinction beyond what “foreseeable future” includes.¹³³ Despite the existing conservation efforts expressed in resource management plans, the court concluded that FWS’s decision to remove the species from ESA listing was arbitrary and capricious: FWS should have “erred on the side of caution” by keeping the species listed under the ESA—especially because scientific data indicated the likelihood of extinction within the next one hundred years.¹³⁴

D. Effects of Climate Change

Climate change presents the Services with more difficulties predicting species’ responses to different threats. This is evidenced by the polar bear.¹³⁵ FWS decided that the polar bear is likely to become endangered due to global climate change decreasing the availability of their habitat (ice-covered seas) and should be listed as

128. *Id.* at *14–15. FWS experts’ reasoning placed the “foreseeable future” somewhere between twenty and one hundred years. *Id.* at *17.

129. *Id.*; see also *W. Watersheds Project v. Fish & Wildlife Serv.*, 535 F. Supp. 2d 1173, 1185 (D. Idaho 2007) (sharing the *Foss* court’s concern about agencies asking the court to assume they have special insight for a listing decision that contradicts experts).

130. *IUCN Red List of Threatened Species*, IUCN, <https://www.iucn.org/resources/conservation-tools/iucn-red-list-threatened-species>. IUCN upkeeps a list of threatened species, which uses “quantitative criteria to evaluate the extinction risk of thousands of species.” IUCN has listed more than 32,000 species threatened with global extinction using expert knowledge to assess the conservation status of species. Government agencies like FWS, NOAA, and NMFS rely on these lists and the data IUCN produces to guide their policies and regulations. *Id.*

131. *Foss*, 2005 WL 2002473, at *15.

132. *Id.* at *17 (conceding that the court might have accepted FWS’s conclusions if the agency offered a detailed outline of the factors considered in its listing decision).

133. *Id.* (acknowledging that “foreseeable future” may be defined differently based on circumstances).

134. *Id.* at *18.

135. See *supra* Section II.A.

threatened.¹³⁶ Since “foreseeable future” varies on a case-by-case basis, FWS concluded that forty-five years was a fitting time period for this species.¹³⁷ When making this listing decision, FWS considered the “timeframe over which the best available scientific data allows [it] to reliably assess the effects of threats on the species” as the most critical component of deciding what time frame encompasses the “foreseeable future.”¹³⁸ The court concluded that FWS’s reliance on the available climate projections, which were generally agreed upon but diverged on the basis of risk uncertainties, adequately supported the agency’s forty-five year period for foreseeability.¹³⁹

As this Part displays, the listing Services’ interpretations of “foreseeable future” prior to the 2019 rule revision were inconsistent, but courts afforded these interpretations high levels of discretion. This is even the case when the Services vary in predicting the effects of threats based on scientific data, relying on existing mitigation efforts, and determining species’ responses. Although FWS defined “foreseeable future” in 2019 to provide more guidance and clarity, the problems displayed in this Part are likely to continue.

III. THE 2019 “FORESEEABLE FUTURE” DEFINITION AND ITS PITFALLS

A. The Services’ Justifications for the 2019 Revised Rule

The issues presented in Part II’s caselaw highlight the inconsistencies in how the Services have defined “foreseeable future,” even with the help of the M-Opinion. To bring consistency and, perhaps, also to limit the number of listings climate change brings, in 2019, the Services suggested ways to continue improving species protection and listing decisions by proposing and finalizing a revision to the ESA. The Services proposed listing regulatory revisions in the Federal Register, and this listing provided background on the proposed revisions in terms of the ESA, legislative history, and caselaw precedent.¹⁴⁰ After assessing public comments and considering the issues further, this amendment became official on September 26, 2019.¹⁴¹ These revisions endorsed the M-Opinion’s provisions that “foreseeable

136. *See* Determination of Threatened Status for the Polar Bear, 73 Fed. Reg. 28,212 (May 15, 2008). FWS based this listing on three principles: polar bears depend on sea ice, the sea ice is declining, and climate change is and will continue to reduce the amount of sea ice. In re Polar Bear Endangered Species Act Listing & § 4(d) Rule Litig., 709 F.3d 1, 5–6 (D.C. Cir. 2013).

137. *In re Polar Bear*, 709 F.3d at 15; *see also* 12–Month Finding on a Petition to List the Siskiyou Mountains Salamander (*Plethodon stormi*) and Scott Bar Salamander (*Plethodon asupak*) as Threatened or Endangered, 73 Fed. Reg. 4380, 4381 (Jan. 24, 2008) (defining the “foreseeable future” as forty years based on FWS’s ability to accurately anticipate threats to the species).

138. *In re Polar Bear*, 709 F.3d at 15; *see* Determination of Threatened Status for the Polar Bear, 73 Fed. Reg. at 28,253.

139. *In re Polar Bear*, 709 F.3d at 15–16.

140. *See* 50 C.F.R. § 424 (2019).

141. Regulations for Listing Species and Designating Critical Habitat, 84 Fed. Reg. 45,020, 45,020 (Aug. 19, 2019).

future” will vary by species based on the available scientific data in each instance and that agencies have discretion to forecast conservation concerns in the future.¹⁴²

The 2019 revised rule weakened the substantive standards used in the Services’ listing process. The purpose of the 2019 rule is to clarify and improve predictability of species listings and critical habitat designations under section four of the ESA.¹⁴³ To achieve this purpose, the Services enacted three amendments attempting to eliminate automatic protections for threatened species, change standards for designating critical habitat, and revise interagency consultation.¹⁴⁴ First, the 2019 rule allowed the Services to use economic impacts of listing decisions.¹⁴⁵ Essentially, this change still required the Services to make listing decisions solely based on the best scientific and commercial data; however, the change allowed the Services to compile data on economic impacts to present to the public, without influencing listing determinations.¹⁴⁶ Second, the 2019 rule added a requirement that species’ occupied habitat must contain one of the physical or biological features essential to conserve the species for it to be included as designated critical habitat.¹⁴⁷

The third major revision in the 2019 rulemaking defined “foreseeable future” for evaluating extinction risk.¹⁴⁸ Throughout all the ESA amendments, the definition of threatened species has not changed,¹⁴⁹ emphasizing the importance of protecting species that may be on the brink of extinction in the future. The Services’ initial framework for defining “foreseeable future” in the 2019 rule received public feedback, which focused on how the proposed framework for defining “foreseeable future” is unclear and “impermissibly raises the bar for listing species as threatened species.”¹⁵⁰ The 2019 “foreseeable future” definition replaced the phrase “conditions potentially posing a danger of extinction in the foreseeable future” with “both the future threats and the species’ responses to those threats.”¹⁵¹ Public comments made clear that the original wording could incorrectly imply that “conditions” would include something other than “threats.”¹⁵² Additionally, the Services worried that “posing a danger of extinction” could indicate that “foreseeable future” involves the reasonable time in which the Services can make reasonable predictions about threats and species’ responses to them.¹⁵³ The term “likely” replaced “probably” to avoid confusion and clarify its meaning: “more likely than not.”¹⁵⁴

142. *Id.*; see M-Opinion, *supra* note 10, at 9.

143. See Regulations for Listing Species and Designating Critical Habitat, 84 Fed. Reg. at 45050.

144. See § 424.11; James Rusk & Daniel Maroon, *As Legal Challenges Loom, Impact of New Endangered Species Act Rules Remains Uncertain*, 51 No. 2 ABA TRENDS 4, 4 (2019).

145. See § 424.12.

146. See § 424.11.

147. *Id.*

148. *Id.*

149. See § 424.02.

150. See Regulations for Listing Species and Designating Critical Habitat, 84 Fed. Reg. 45,020, 45,020 (Aug. 19, 2019).

151. See § 424.11(d).

152. See Regulations for Listing Species and Designating Critical Habitat, 84 Fed. Reg. at 45021.

153. *Id.*

154. § 424.11(d); see Regulations for Listing Species and Designating Critical Habitat, 84

After making these revisions, the Services defined “foreseeable future” as extending “only so far into the future as the Services can reasonably determine that both the future threats and the species’ responses to those threats are likely,”¹⁵⁵ requiring consideration of the likelihood of extinction and how long risks extend into the future. This consideration is to be performed on a case-by-case basis, and the Services are not required to identify what the “foreseeable future” is in terms of a specific time period.¹⁵⁶ The goals of this definition were to provide clearer guidance to the Services when interpreting the “foreseeable future” for listing decisions and avoid speculative decisions that extend too far into the future.¹⁵⁷

B. The 2019 “Foreseeable Future” Definition: Pitfalls

In examining how the 2019 rule falls short of the Services’ goals presented in Section A, this Section reveals the glaring pitfalls in the “foreseeable future” definition. Subsection 1 focuses on how the definition does not provide clarity or consistency, and Subsection 2 argues that the definition insufficiently considers climate-imperiled species.

1. Clarity and Consistency Concerns

Despite FWS’s goals of clarity and avoiding speculation, the 2019 “foreseeable future” definition falls short in two areas: providing clarity and encouraging consistency when applying standards. Although FWS defined “likely” as “more likely than not,”¹⁵⁸ which is similar to the Intergovernmental Panel on Climate Change’s (IPCC) definition,¹⁵⁹ this still leaves vague and potentially ambiguous standards to guide the Services’ listing decisions. The definitions for “probable” and “likely” mirror each other,¹⁶⁰ leaving similar ambiguity around the meaning of “foreseeable future” as the pre-2019 rule did rather than clarifying it.¹⁶¹ FWS’s “likely” standard means that threats and species’ responses must be fifty-one percent possible. Therefore, if the Services, using the best available science, conclude a species has a forty-nine percent chance of endangerment, they can claim that the

Fed. Reg. at 45,021.

155. § 424.11(d).

156. *Id.*

157. Lisa Friedman, *U.S. Significantly Weakens Endangered Species Act*, N.Y. TIMES (Aug. 12, 2019), <https://www.nytimes.com/2019/08/12/climate/endangered-species-act-changes.html>.

158. § 424.11(d); *see* Regulations for Listing Species and Designating Critical Habitat, 84 Fed. Reg. at 45,021.

159. IPCC defined terms like “likely” and “very likely” to help interpret statistical uncertainty and to help laypeople understand how this data and uncertainties are understood and incorporated into the Services’ listing processes. IPCC defines “likely” as “a probability greater than or equal to sixty-six percent.” MICHAEL D. MASTRANDREA ET AL., *supra* note 19, at 3.

160. *Likely*, BLACK’S LAW DICTIONARY (10th ed. 2014) (“Apparently true or real; probable.”).

161. Coffey, *supra* note 69, at 448.

species does not meet the new “likely” standard.¹⁶² This might insinuate that the best available science is inadequate for these predictions and may continue the confusion about what factors can be considered when determining the “foreseeable future.”¹⁶³

Inconsistency results from agencies proceeding under ambiguous terms and standards, and the definition still lacks consistency for the Services to rely on when applying standards and justifying their “foreseeable future” quantifications.¹⁶⁴ The Services apply very different interpretations of “foreseeable future” to species facing similar threats.¹⁶⁵ For example, NMFS found that greenhouse gas and sea ice threats affecting the Arctic ringed seal ninety years into the future were foreseeable enough to list the species as threatened,¹⁶⁶ whereas FWS refused to find that similar threats posed by greenhouse gas emissions affecting the Pacific walrus less than forty-five years away were foreseeable enough to justify listing the walrus.¹⁶⁷ Despite the differences, the Services did not articulate any differences in the life histories of the species that justify the different “foreseeable future” timeframes.¹⁶⁸ The 2019 “foreseeable future” definition does not fix these kinds of discrepancies or help the impact of uncertain mitigation measures that might influence the speed of climate change; however, neither will restoring the pre-2019 rule.

Along these lines, courts often criticize, reject, and provide less deference to the Services’ listing when they fail to adequately explain a decision not to list a species as endangered.¹⁶⁹ To achieve the ESA’s goals of conserving threatened and endangered species and using all possible methods necessary to recover them,¹⁷⁰ courts sometimes provide more deference to affirmative listing decisions than decisions not to list species.¹⁷¹ Treating each situation unequally, without requiring

162. *Id.* at 451.

163. *Id.* at 451–52.

164. *See* 50 C.F.R. § 424.11(d) (2019).

165. *See supra* Part II.

166. *See* Endangered and Threatened Species; Threatened Status for the Arctic, Okhotsk, and Baltic Subspecies of the Ringed Seal and Endangered Status for the Ladoga Subspecies of the Ringed Seal, 77 Fed. Reg. 76,706 (Dec. 18, 2012).

167. *See* Endangered and Threatened Wildlife and Plants; 12-Month Findings on Petitions to List 25 Species as Endangered or Threatened Species, 82 Fed. Reg. 46,618 (Oct. 5, 2017).

168. Ya-Wei Li, *Species Protection Will Take More Than Rule Reversal*, 370 SCIENCE 665, 665 (2020); *see also supra* Part II.

169. *See* Or. Nat. Res. Council v. Daley, 6 F. Supp. 2d 1139 (D.C. Or. 1998) (holding that NMFS’s decision not to list Oregon Coast coho salmon as threatened was arbitrary and capricious because this determination only involved a “mere prospect” of endangerment rather than a likelihood, as the ESA requires); *Ctr. for Biological Diversity v. U.S. Fish & Wildlife Serv.*, 488 F. Supp. 3d 1219, 1233 (S.D. Fla. 2020) (rejecting FWS’s decision not to list the Florida Keys mole skink because of FWS’s inadequate justification based on scientific uncertainty, especially “when future species are on the line”); *W. Watersheds Project v. Foss*, 2005 WL 2002473 (D. Idaho 2005) (rejecting FWS’s determination not to list the slickspot peppergrass because (1) FWS failed to adequately outline factors they used to justify “foreseeable future” and their listing decisions and (2) the court feared that if they let this decision stand, the Services would have free range in defining this phrase without any guidelines).

170. *See* 16 U.S.C. § 1531(b); *TVA v. Hill*, 437 U.S. 153, 184 (1978).

171. *See, e.g., Alaska Oil & Gas Ass’n v. Pritzker*, 840 F.3d 671, 684 (9th Cir. 2016)

the Services to provide more thorough explanations in every situation, will only contribute to the inconsistency and lack of clarity for listing decisions, which Part II exemplifies as problematic for effectively listing species that need to be listed for survival.

2. Effect on Climate-Imperiled Species

Although climate change is expected to be the largest contributor to the loss of species in the United States,¹⁷² the 2019 rule did not efficiently address the changing climate conservation context that is exacerbated by climate change. Climate change exposes more than twenty to thirty percent of species to an increased risk of extinction.¹⁷³ Climate change operates on a different paradigm than the typical ESA mandate for the Services to prevent human disturbances of “threatened” and “endangered” species: the causal connections between human actions and harm to species are muddled.¹⁷⁴ The causal chain between climate change and species’ endangerment may take multiple decades to unfold, and each species affected by climate change will face endangerment on its own unique time frame.¹⁷⁵

The 2019 definition of “foreseeable future” gives regulators ample room to neglect consequences of climate change—like extreme heat, drought, and rising sea levels—that will occur several decades from now.¹⁷⁶ Although the Service continued to use the best science available with the 2019 rule,¹⁷⁷ it “avoid[ed] speculating as to what is hypothetically *possible*,”¹⁷⁸ likely impeding the Service’s ability to use predictive climate models even if the magnitude of possible impacts is great.¹⁷⁹

Clarity and consistency concerns are especially troubling for species imperiled by climate change. The uncertainties posed by scientific projections, potential mitigation efforts, and species’ responses are only more problematic in the face of climate change. Although the 2019 rule still allowed the Services to use climate change projections as their best available science¹⁸⁰—these models still often rely on

(agreeing with NMFS’s affirmative listings and that agencies need not predict a population reduction, define an extinction threshold, nor establish the probability of reaching the threshold).

172. Lindsey Popken, *How Will the 2019 Changes to the Endangered Species Act Impact Wildlife?*, SCH. OF MARINE & ENV’T AFFS. (Nov. 4, 2019), <https://smea.uw.edu/currents/how-will-the-2019-changes-to-the-endangered-species-act-impact-wildlife/> (supported by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)).

173. Barry Kellman, *Climate Change in the Endangered Species Act: A Jurisprudential Enigma*, 46 ENV’T. L. REP. NEWS & ANALYSIS 10,845, 10,845.

174. *Id.*

175. *Id.* at 10,847.

176. *Id.* (supported by the executive director of NYU School of Law’s State and Energy Impact Center).

177. *See* 50 C.F.R. § 424.11(d) (2019).

178. Endangered and Threatened Wildlife and Plants; Revision of the Regulations for Listing Species and Designating Critical Habitat, 83 Fed. Reg. 35,193, 35,196 (July 25, 2018) (emphasis added).

179. Coffey, *supra* note 69, at 449.

180. STEVEN P. QUARLES, THE TRUMP ADMINISTRATION’S PROPOSED ESA REGULATIONS

poor and outdated data to operate, in part because they are based on many assumptions¹⁸¹—it still curtailed the Services’ reliance on long-range climate change projections when justifying their listing determinations.¹⁸² The Services’ limitation on constraining foreseeable analysis to only “likely” threats and responses could allow them to move away from relying on the best available science.

IV: ROOM FOR IMPROVEMENT

This Part focuses on the fate of interpreting “foreseeable future.” After briefly examining how the 2019 “foreseeable future” definition will likely fare in judicial challenges, Section B pulls together the pitfalls discussed in Part III and how the definition of “foreseeable future” and agencies’ guidance could improve in the future.

Because the “foreseeable future” definition lacks clarity, set standards, and proper consideration for climate change effects, the 2019 “foreseeable future” definition—and 2019 rule as a whole—will “significantly weaken[] the nation’s bedrock conservation law[,] . . . making it harder to protect wildlife from the multiple threats posed by climate change.”¹⁸³ State Attorney Generals recognized the 2019 rule’s flaws and brought an action to challenge the decision to promulgate the rule.¹⁸⁴ However, the fate of the 2019 “foreseeable future” definition in judicial challenges is likely safe because the definition is likely within *Chevron*¹⁸⁵ latitude and the discretion provided to the Services. When an agency converts a Solicitor’s opinion (like the M-Opinion) into codified rule, *Chevron* affords high deference to agencies’ interpretations of rules.¹⁸⁶ However, here, the deference afforded may not change because explaining “foreseeable future” analyses are fact-specific inquiries.

A. How the Services Could Provide More Effective Guidance

Despite the linguistic change and established definition, inconsistency and inadequate explanations still persist regarding what “foreseeable future” means.¹⁸⁷ Although the Services have discretion under the ESA,¹⁸⁸ they have never issued clear guidance on how they will exercise this and do not always explain their choices.¹⁸⁹ To better address the issues posed by the 2019 “foreseeable future” definition¹⁹⁰ and

(2019).

181. *Id.*

182. James Rusk & Daniel Maroon, *As Legal Challenges Loom, Impact of New Endangered Species Act Rules Remains Uncertain*, ABA TRENDS (2019).

183. Friedman, *supra* note 157.

184. Complaint for Declaratory and Injunctive Relief, Ctr. for Biological Diversity v. Bernhardt, No. 3:19-cv-05206 (N.D. Cal. Aug. 21, 2019), https://www.biologicaldiversity.org/campaigns/esa_attacks/pdfs/ESA-Complaint.pdf.

185. *Chevron USA, Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837 (1984).

186. *See Vill. of Barrington, Ill. v. Surface Transp. Bd.*, 636 F.3d 650, 665 (D.C. Cir. 2011).

187. *See supra* Section III.B.

188. *See supra* text accompanying notes 60–63.

189. Li, *supra* note 168, at 666.

190. *See supra* Section III.B.

provide more effective guidance, the Services should use revised rulemaking to (1) clearly explain how they deal with uncertainties and species' risk of endangerment and (2) apply standards consistently.

More uniform standards governing the likelihood of extinction risks and timing would help with the Services' goals of clarity and transparency.¹⁹¹ To add more clarity to the "foreseeable future" definition, the Services could use a quantitative approach to define extinction risk and uncertainty of existing data in these analyses.¹⁹² A standard similar to the IUCN standard—a species should be listed as threatened under the ESA if there is a ten percent extinction risk within one hundred years¹⁹³—would provide a clear standard and time frame for the Services to use when making listing decisions, leading to more consistent interpretations of "foreseeable future." Also, using a set date for when species' vulnerabilities from climate change can be assessed up until—like the IPCC's standard for using 2100¹⁹⁴—could also be a good starting point for more consistency and transparency.¹⁹⁵ However, simply moving to a quantitative standard still leaves problems that do not necessarily fix the clarity issue because assumptions behind the numbers used in these calculations remain.

Although a one-size-fits-all definition or a more quantitative approach may not be the ultimate fix for the clarity issue, the Services should be required to provide reasons for treating each listing decision differently in terms of "foreseeable future." The ambiguous terms leading to inconsistent treatment of decisions whether to list species could be addressed by providing guidance that holds the Services accountable and requires them to explain the principles that their listing decisions are based on. More specifically, since all forecasts of impacts to species and their responses involve uncertainty,¹⁹⁶ the Services should be clearer about how they deal with uncertainties in evaluating risk of endangerment. This would likely ensure that projections about threats and their effects are more consistent with similar situations and encourage equally thorough explanations when deciding whether to list species as "threatened."

Defining "foreseeable future" more effectively can target the existing and impending climate change threats and contribute to the promotion of climate change adaptation. Instead of going beyond the "reliance on assumption, speculation, or preconception" that the M-Opinion wanted to avoid when interpreting the "foreseeable future,"¹⁹⁷ the 2019 rule should simply require that predictions be reliable; this is all the 2009 M-Opinion presented was necessary in the face of

191. Justin Berchiolli, Note, *Stewarding Species: How the Endangered Species Act Must Improve*, 10 UC IRVINE L. REV. 1096 (2020).

192. QUARLES, *supra* note 180.

193. IUCN RED LIST OF THREATENED SPECIES, *supra* note 13. This standard is consistent with the ESA's standard of threatened: "likely to become endangered in the foreseeable future." 16 U.S.C. § 1532(20).

194. See MATTHEW COLLINS & RETO KNUTTI, LONG-TERM CLIMATE CHANGE: PROJECTIONS, COMMITMENTS AND IRREVERSIBILITY 1102 (2013).

195. See Li, *supra* note 168, at 666.

196. See *supra* text accompanying notes 7 and 8.

197. M-Opinion, *supra* note 10, at 8.

uncertainties in the listing process.¹⁹⁸ Like the M-Opinion that rejected the basis of “foreseeable future” as “predictions that can be made with certainty,”¹⁹⁹ a codified “foreseeable future” definition should use a “reliable” or “reasonable” standard to forecast species’ responses and threat impact; however, the Services should abjure terms like “reliable” or “reasonable” in favor of greater quantitative estimates of both the likelihoods of extinction risk and uncertainties. All forecasts of impacts to species and their responses to impacts involve uncertainty, but abjuring these terms in this way would more likely ensure that climate-imperiled species are listed—even if they face risks whose magnitudes and likelihoods are more difficult to predict than nonclimate imperiled species. This could mitigate deprivation of essential protection for these species to avoid extinction, while continuing to use the best available science as required by the ESA.²⁰⁰

CONCLUSION

The uncertainties posed by scientific projections, potential mitigation efforts, and species’ responses are only becoming more problematic in the face of climate change. ESA rulemaking should be used to cope with these difficulties. Because the 2019 rule extended “foreseeable future” “only so far into the future as the Services can reasonably determine that both the future threats and the species’ responses to those threats are likely,”²⁰¹ the 2019 rule makes it more difficult than pre-2019 standards for regulations to factor in the decades-away impacts of climate change on species. This limitation inhibited the Services’ abilities to consider long-range climate change projections when analyzing threats—like extreme heat, drought, and rising sea levels—facing species, even though these threats are becoming increasingly frequent and problematic to the survival of species.²⁰²

Although the 2019 “foreseeable future” definition essentially codified what the Services and courts were already doing,²⁰³ the definition fell short and limited the risk horizon the Services analyze when deciding whether a species warrants listing. To better address these issues and provide more effective guidance, the Services should use revised rulemaking to (1) apply standards consistently and (2) clearly explain how they deal with uncertainties and species’ risk of endangerment. Consistent and clearer standards will promote public confidence in the science on which the listings are based while also limiting political influence in listing and conserving climate-imperiled species.

As more and more species become threatened and endangered, especially with the increasing threats posed by climate change, it is time for the ESA to step up and go beyond the status quo. The ESA—as a conservation law that focuses on protecting species that are affected by climate change²⁰⁴—should more efficiently address the changing conservation context that is being exacerbated by the climate change crisis.

198. *Id.*

199. *Id.* at 9.

200. *See* 16 U.S.C. § 1533(b)(1)(A).

201. 50 C.F.R. § 424.11(d) (2019).

202. *See infra* Section II.A.

203. The Services and courts were following the M-Opinion.

204. Berchiolli, *supra* note 191, at 1094.