"SIGNIFICANT PORTION OF ITS RANGE": STATUTORY INTERPRETATION OF THE ESA

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SUMMARY

The Endangered Species Act defines an endangered species as one at risk of extinction "throughout all or a significant portion of its range." The U.S. Department of the Interior (DOI) has repeatedly defined "significant portion" to mean an area of the range essential to species persistence. This definition is redundant, and various iterations of the definition have been struck down in the past. At the same time, other proposals to list a species only in a portion of its range fail to satisfy the statutory requirements. This Article proposes to define "significant portion of its range" so as to allow DOI to list a species as endangered throughout its entire range based only on the risk of extinction in a portion of its range. The Article also provides a framework for understanding how past policies have failed.

The Endangered Species Act (ESA) defines an endangered species as a species "in danger of extinction throughout all or a significant portion of its range."[1] The U.S. Department of the Interior (DOI) has struggled to create a workable definition of the "significant portion of its range" (SPR) clause. This Article argues that DOI can only create a workable definition for the SPR clause if listings under the SPR clause address non-essential segments of a species' range but confer protection to the species range-wide. It also addresses the difficulties and possible solutions to creating a workable definition of "significance" under this structure.

First, it is necessary to understand the history and political debates surrounding the ESA. Part I of the Article addresses the legislative history of the SPR clause and related portions of the ESA. This part will also examine the multiple iterations of the ESA to better understand the intent and purpose of the legislatures. Finally, it discusses the role of legislative history and statutory ambiguity in interpretations of the SPR clause.

Part II describes a framework that is useful in an analysis of the SPR phrase. The definition of significance and the effect of an SPR listing on the species as a whole will first be addressed separately. By separating the effect of an SPR listing from the description of an SPR, one can gain insight into the previous attempts at creating a workable SPR definition. I argue for an SPR listing to protect all members of an endangered species, and discuss the flaws in listing only a portion of the total species. Finally, I argue that a definition of significance must not describe the risk of extinction to all members of the species.

Part III analyzes the four possible listing frameworks described by the model and analyzes how each has been discussed in previous court cases and government policies. Within this discussion, the part identifies the scientific and legal shortcomings of the three rejected frameworks. It also describes the preferred framework for an SPR listing and addresses the practical challenges of its implementation. Additionally, I argue that the proposed policy, listing an entire species based on a threat to a non-essential portion of the species range, is the most logical under the preferred principles of statutory interpretation.

Finally, Part IV presents possible definitions that fit within the preferred SPR listing framework. It also discusses the scientific and policy considerations that have been ignored or impractical in other frameworks. In conclusion, I acknowledge the policy difficulties of the proposed framework, but argue that the difficulties do not negate its legal validity. Part V concludes.

1. 16 U.S.C. §1532(6), ELR Stat. ESA §3(6).

I. Background

A. Definitions, Scope, and Legislative History

To best shape policy regarding the SPR clause, it is important to understand the scope of the ESA. The ESA describes its purposes[2] in 16 U.S.C. §1531(b):

> to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of this section.

While the ESA seeks to protect ecosystems as well as species, the legal mechanisms of protection address the species.[3] The term "species" as used in this Article will encompass the statutory definition from the ESA.[4] The definition of the 1973 Act at the time of passage stated, "the term 'species' includes any subspecies of fish or wildlife or plants and any other group of fish or wildlife of the same species or smaller taxa in common spatial arrangement that interbreed when mature."[5] "Subspecies" is not defined in the bill.[6]

The definition and several other parts of the Act grew out of dissatisfaction with earlier pieces of legislation. The Endangered Species Preservation Act of 1966[7] and its predecessor, the Endangered Species Conservation Act of 1969,[8] both provided protections for species at risk of worldwide extinction. As a result of a desire to expand the scope of the legislation,[9] the 1973 bill included a two-tiered level of listing—endangered and threatened. The term "threatened species" is defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."[10] Threatened thus describes a likelihood of endangerment, which in turn describes the risk of extinction. This approach expands the 1969 provision that simply protected species and subspecies threatened with worldwide extinction—a standard equivalent to the endangered standard in the 1973 Act.[11]

The final 1973 definition closely mirrors the definition of species in the biological species concept—one of many useful but not perfect models of how genetically related entities interact in the world.[12] However, the statutory definition is still a unique and separate definition not tied to shifting scientific understandings of how organisms interact. This imperfect definition failed to protect all genetic entities that the U.S. Congress wished to protect.

In 1978, the ESA was amended to include the "distinct population segment" (DPS) listing by amending the definition of a species. The new definition states, "[t]he term 'species' includes any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature."[13] A DPS was not defined in the Act, but rulemaking clarifies that a DPS will be designated after consideration of three factors: the discreteness of the population, the significance of the population to the segment as a whole, and the conservation status of the population.[14] In practice, the agencies have exercised the DPS power to list population segments that closely resemble the phylogenetic species concept[15] and to include populations of species separated by geopolitical bodies.[16]

It is notable that the DPS classification only applies to vertebrates. This restriction illuminates some of the concerns of legislators.[17] Although the legislators wanted

2. The ESA of 1973 empowers the U.S. Fish and Wildlife Service (FWS) in DOI and the National Marine Fisheries Service (NMFS) in the U.S. Department of Commerce to protect species at risk of extinction. The principal difference between the two agencies for the purposes of this Article is the animals under their jurisdictions. Animals living on land or inland waters fall under the jurisdiction of FWS, while animals spending all or some of their life in the ocean fall under the jurisdiction of NMFS. Various other statutes alter or modify the authorities of the two agencies, but will not be discussed here.
3. 16 U.S.C. §1538 (describing the acts prohibited under the Act).
4. The agencies administering the ESA face two primary challenges relevant to the analysis here: designating the genetic entities they wish to protect and assessing the risk of extinction at which action will be taken.
5. Pub. L. No. 93-205, §3(11), 87 Stat. 884, 886 (1973).
6. *See also* Susan M. Haig et al., *Taxonomic Considerations in Listing Subspecies Under the U.S. Endangered Species Act*, 20 Conservation Biology 1584-92 (2006) (discussing the scientific considerations that affect the determination of a subspecies).
7. Pub. L. No. 89-669, §1(c), 80 Stat. 926, 926 (1966).
8. Pub. L. No. 91-135, §5(a), 83 Stat. 275, 278 (1969).
9. According to the congressional reports:
   > The committee agrees that there may be instances in which [FWS] should provide for different levels of protection for populations of the same species. For instance, the U.S. population of an animal should not necessarily be permitted to become extinct simply because the animal is more abundant elsewhere in the world. Similarly, listing populations may be necessary when the preponderance of evidence indicates that a species faces a widespread threat, but conclusive data is available with regard to only certain populations.

   S. Rep. No. 96-151, at 1397 (1979); H.R. Rep. No. 93-412, at 110 (1973) (stating that a purpose of the legislation was to extend protections to species "which are in trouble in any significant portion of their range, rather than threatened with worldwide extinction"); *To Implement the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere: Hearings Before the Subcomm. on the Environment of the Senate Comm. on Commerce*, 92d Cong. 81, 150 (1972) (clarifying that "endangered species" means "any species, plant or animal, that for any reason at all is likely to disappear from the earth, or from any significant part of its range").
10. 16 U.S.C. §1532(20).
11. Pub. L. No. 91-135, §5(a), 83 Stat. 275, 278 (1969).
12. Ernst Mayr, The Growth of Biological Thought: Diversity, Evolution, and Inheritance 273 (1982). *See also* Karl Gleaves et al., *The Meaning of Species Under the Endangered Species Act*, 13 Pub. Land L. Rev. 25 (1992).
13. 16 U.S.C. §1532(16).
14. Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act, 61 Fed. Reg. 4722, 4725 (Feb. 7, 1996).
15. Kevin C. Nixon & Quentin D. Wheeler, *An Amplification of the Phylogenetic Species Concept*, 6 Cladistics 211-23 (1990).
16. 61 Fed. Reg. at 4723.
17. According to the U.S House of Representatives conference report:
   > [U.S. Senate Bill] 2899 redefines the term "species" as it is used in the act. The existing definition of "species" in the act includes subspecies of animals and plants, taxonomic categories below subspecies in the case of animals, as well as distinct populations of vertebrate "species." [sic] The definition included within the conference report would exclude taxonomic categories below subspecies from the definition as well as distinct populations of invertebrates.

   H.R. Conf. Rep. No. 95-1804, at 17 (1978) (supporting the expansion of the ESA but clearly delineating the species, including the subspecies and

protections to include entities not at risk of worldwide extinction,[18] there were still worries that protections may grow too broad. Particularly, legislators also added language to the definition of endangered species to exclude "a species of the Class Insecta determined by the Secretary to constitute a pest whose protection under the provisions of this chapter would present an overwhelming and overriding risk to man."[19]

Further, a DPS does not have a biological equivalent. The analogy to the phylogenetic species concept derives from agency rulemaking. [20] The National Marine Fisheries Service (NMFS) developed the evolutionary significant unit (ESU) concept to provide a scientific basis for listing salmon populations in the Pacific Northwest that did not fall under the pre-1978 definition of a species but constituted a unique genetic entity.[21] Under the ESU standard, a DPS could be identified by satisfying two conditions: "(1) It must be substantially reproductively isolated from other conspecific population units; and (2) It must represent an important component in the evolutionary legacy of the species."[22] This policy was jointly adopted by NMFS and the U.S. Fish and Wildlife Service (FWS) in 1996 to be an applicable interpretation of the DPS for the purposes of classifying Pacific salmon.[23] While these concepts could also describe a species, the standards are much lower than the pre-1978 definition. A DPS could interbreed with non-DPS members as long as the interbreeding did not compromise the subjective standard of "substantially reproductively isolated." Additionally, the importance of an evolutionary legacy of a species leaves discretion to the agency in listing matters.

These ambiguities ignited scientific debate.[24] However, the multiple definitions mirror the difficulties of defining species generally. By focusing solely on the interbreeding of populations, species such as coyotes and wolves would not be differentiated in the strictest application of the biological species concept.[25] Conversely, the phylogenetic species concept focuses on common ancestors and shared evolutionary traits. This could lead to infinite subdivisions of genetic entities, as illuminated in the debate surrounding the ESU concept.[26] The contrasting scientific models of species provide useful tools for agencies administering the ESA, but none perfectly capture the intricacies of genetic variation in animal populations. The DPS clause provides a mechanism for agencies to incorporate protections in shifting understandings of genetic variation.

However, the DPS clause has not only been exercised in the context of ESUs. The DPS listing also includes protections where a species is separated by geopolitical boundaries that create management concerns.[27] These actions illuminate the purposes and powers of the agency when faced with ambiguity in the ESA. The DPS clause provides an undefined listing category in the Act. Congress did not give the agencies unlimited power to exercise the DPS clause. Floor debates indicated the DPS clause should be used "sparingly and only when the biological evidence indicates that such action is warranted."[28] Although the structure of the DPS clause and the species listing seem hierarchical, a DPS is given the same protections as a species.[29]

While the ambiguity has precluded a single, all-encompassing definition, the policy has proved beneficial. Agencies can separate populations from the rest of the species as a result of management concerns or evolutionary distinctness. Such flexibility shaped agency action in the context of salmon populations, but has also avoided the debates that would emerge from an overly strict interpretation of the original species definition in the 1973 Act. The models of the interaction of genetically related entities pervasive in common thought, such as species and breeding potential being equivalent, fail to capture all nuances of the natural world. Such strictness would fail to distinguish obviously distinct entities, such as the polar bear and the grizzly bear,[30] and would oppose the goals set forth in 16 U.S.C. §1531(b). It is not argued that the current definitions of a species, including those promulgated under the DPS criteria, encompass all possible concerns that may arise. However, the development of the DPS listing structure illuminates the shortcomings of overarching definitions in the ESA and the importance of flexibility in listing criteria.

B. Protections

Once a species is listed, the ESA provides two main mechanisms for the protection of wild animals: take prohibitions[31] and critical habitat designations.[32] The Act defines

DPS concepts, as the smallest listing unit within the Act), *reprinted in* 1978 U.S.C.C.A.N. 9484, 9485.

18. S. Rep. No. 93-307, at 302 (1973) (arguing that the secretary should be able to protect species in danger in a "substantial portion of its range").
19. 16 U.S.C. §1533(6).
20. Policy on Applying the Definition of Species Under the Endangered Species Act to Pacific Salmon, 56 Fed. Reg. 58612 (Nov. 20, 1991).
21. *Id.*
22. *Id.*
23. 61 Fed. Reg. 4722 (defining an ESU under the DPS clause).
24. *See*, *e.g.*, David S. Pennock & Walter W. Dimmick, *Critique of the Evolutionarily Significant Unit as a Definition for "Distinct Population Segments" Under the U.S. Endangered Species Act*, 11 Conservation Biology 611-19 (2002); Kyle A. Young, *Defining Units of Conservation for Intraspecific Biodiversity: Reply to Dimmick et al.*, 15 Conservation Biology 784-87 (2001); Robin S. Waples, *Evolutionarily Significant Units, Distinct Population Segments, and the Endangered Species Act: Reply to Pennock and Dimmick*, 12 Conservation Biology 718-21 (1998).
25. Richard J. Fredrickson & Paul W. Hedrick, *Dynamics of Hybridization and Introgression in Red Wolves and Coyotes*, 20 Conservation Biology 1272-83 (2006).
26. Pennock & Dimmick, *supra* note 24, at 611-19.
27. 61 Fed. Reg. 4722 ("it appears to be reasonable for national legislation, which has its principal effects on a national scale, to recognize units delimited by international boundaries when these coincide with differences in the management, status, or exploitation of a species").
28. S. Rep. No. 96-151, at 1397 (1979).
29. *See* Endangered and Threatened Species Listing and Recovery Priority Guidelines, 48 Fed. Reg. 43098, 43098-105 (Sept. 21, 1983) (explaining the use of a ranked list to prioritize species for protections). *See also* 61 Fed. Reg. at 4725 (explaining the implementation of the rankings of listing priority).
30. Jodie Pongracz & Evan Richardson, *Recent Hybridization Between a Polar Bear and Grizzly Bears in the Canadian Arctic*, 70 Arctic 2 (2017).
31. 16 U.S.C. §1538(a)(1)(B)-(C).
32. *Id.* §1532(5)(A)-(B). There are also restrictions to the sale and trade of animals, but this Article will focus on the preservation of wild species. Wild species are only directly protected by take restrictions and habitat restrictions; the other prohibitions affect processes that will indirectly affect take or habitat.

"take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."[33] These protections reflect the most obvious form of human-influenced perturbations—direct harm or killing.[34] The critical habitat protections also address human-influenced perturbations, but at times these have been difficult to define and quantify.[35]

As a result of the 1978 amendments, there are two scenarios by which critical habitat can be designated.[36] If a secretary determines that the species will need a certain amount of habitat for continued protection, the secretary may designate such an amount as critical habitat while considering the economic factors of listing. However, if a specific area is identified as essential to avoid the extinction of the species, that area must be listed.[37] In the case of a mandatory listing, the Act lays out a process for the Secretary of the Interior to lead a committee to overrule the listing based on economic factors.[38] This Endangered Species Committee is colloquially known as the "God Squad." Altogether, these provisions illustrate the concern surrounding critical habitat protections. Because the societal and economic costs of critical habitat designations are large, the agency is afforded discretion in all but the most essential circumstances. Even in instances of essential critical habitat, the agency is given an escape mechanism.

All these provisions provide a backdrop for the listing of an endangered species. Unlike the subspecies and DPS classifications, the SPR clause is part of the definition of an endangered species, not a species. The structure indicates that any species endangered in an SPR is thus endangered throughout all members of the species and afforded protection from takings and sometimes reserved critical habitat.

However, legislators were not unified in the understanding of the 1973 Act. An influential interpretation espoused by the solicitor general in the 2007 M-opinion relies on the remarks put forward by Sen. John Tunney (D-Cal.) in committee hearings on a 1972 precursor bill to the 1973 ESA. His reading of the "significant portion"[39] clause would entail separating the SPR from the rest of the species for listing (an interpretation endorsed by the M-opinion but struck down in court[40]). Further, in subcommittee hearings, executive officials testified that species could be separated using the SPR clause to protect populations in certain geopolitical areas without protecting other geopolitical areas.[41] The final U.S. Senate report on the 1972 bill affirmed, "By providing for the listing of species endangered throughout a significant portion of its range, the Committee recognized the need for maintaining a viable population of species or subspecies where possible in more than just one portion of the world."[42] Debates surrounding the 1973 Act espoused a similar view of the SPR clause.[43]

The legislative histories of the 1973 and earlier bills do not indicate that the framers actively grappled with the contradictions that certain definitions of the SPR clause create. However, the 1978 debates surrounding the DPS amendment provide evidence that Congress had contradictory understandings of and mixed support for the SPR clause. A senator proposed an amendment that would change "significant" to "essential" in the SPR clause.[44] Another proposed removing the phrase "significant" and leaving "portion of its range."[45] Neither change was included in the final bill. In 1979, the U.S. General Accounting Office (GAO) produced a report in accord with the reauthorization of the Act. In this report, GAO concluded that listing a species based on the SPR clause would entail listing a species range-wide.[46] As a response, GAO proposed an amendment that suggested a standard for significance that

33. *Id*. §1532.
34. Substantial litigation addresses the definition of "take," but is beyond the scope of this Article.
35. Weyerhaeuser Co. v. U.S. Fish & Wildlife Serv., 139 S. Ct. 361, 362, 48 ELR 20196 (2018).
36. Pub. L. No. 95-632, 92 Stat. 3751, 3766 (1978) (codified at 16 U.S.C. §1533(b)(2)).
37. 16 U.S.C. §1533(b)(2), stating:
> The Secretary shall designate critical habitat, and make revisions thereto, under subsection (a)(3) on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impact, of specifying any particular area as critical habitat. The Secretary may exclude any area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned.
38. Pub. L. No. 95-632, 92 Stat. 3751, 3753 (1978) (codified at 16 U.S.C. §1536(e)).
39. Endangered Species Conservation Act of 1972, H.R. 1311, 92d Cong. §2(a) (1972) (defining an endangered species:
> A species or subspecies of fish or wildlife shall be regarded as an endangered species whenever, in his discretion, the Secretary determines, based on the best scientific and commercial data available to him and after consultation, as appropriate, with the affected States, and, in cooperation with the Secretary of State, the country or countries in which such fish and wildlife are normally found or whose citizens harvest the same on the high seas, and, to the extent practicable, with interested persons and organizations, and other Federal agencies, that the continued existence of such species or subspecies of fish or wildlife, in the judgment of the Secretary, is *either presently threatened with extinction or will likely become threatened with extinction, throughout all or a significant portion of its range*, due to any of the following factors . . . .
40. WildEarth Guardians v. Salazar, 2010 U.S. Dist. LEXIS 105253, *17, 40 ELR 20272 (D. Ariz. Sept. 30, 2010); Defs. of Wildlife v. Salazar, 729 F. Supp. 2d 1207, 1228, 40 ELR 20219 (D. Mont. 2010).
41. *The Endangered Species Conservation Act of 1973: Hearings on S. 1592 and S. 1983 Before the Subcomm. on the Environment of the Senate Comm. on Commerce*, 93d Cong. 60-62 (1973).
42. S. Rep. No. 92-1136, at 6 (1972).
43. *Endangered Species: Hearings on H.R. 37 and 4758 Before the Subcomm. on Fisheries and Wildlife Conservation of the House Comm. on Merchant Marine and Fisheries*, 93d Cong. 207 (1973) (testimony of Nathaniel Reed, Assistant Secretary for Fish and Wildlife and Parks, U.S. Department of the Interior) (stating, "The administration's bill gives the Secretary the power to allow harvest in areas where the animal is not presently threatened with extinction and protect [it] in areas where [it] is in trouble, that is, where [it] is likely to become threatened with extinction."); *The Endangered Species Conservation Act of 1973: Hearings on S. 1592 and S. 1983 Before the Subcomm. on the Environment of the Senate Comm. on Commerce*, 93d Cong. 60-62 (1973) (testimony of Dr. Earl Baysinger, Assistant Chief, Office of Endangered Species and International Activities, and Douglas Wheeler, Deputy Assistant Secretary for Fish and Wildlife and Parks) (providing hypotheticals of separating species based on threats in geopolitical areas).
44. 124 Cong. Rec. 21582 (July 19, 1978).
45. *Id*. at 21564.
46. GAO, CED-79-65, Endangered Species: A Controversial Issue Needing Resolution (1979).

removed some agency discretion.[47] This interpretation was not adopted by the Senate committee drafting the amendments to the bill.[48]

Altogether, the legislative history does not provide a single, unifying interpretation of the language in the SPR clause. Although debate surrounding the 1973 bill supports an interpretation that entails applying differential protections to portions of the same species, later amendments illuminate a lack of uniformity in this interpretation. The DPS amendments respond to a concern that the Act would not protect species endangered in a portion but not all of their range. Further, the GAO report argues for an interpretation of total listing based on partial endangerment. The best reading of the legislative history of the phrase is ambiguity, which could support multiple interpretations.

II. Discussion of Possible Listing Frameworks

It is useful to separate the SPR clause into its two components: how to define the SPR and the protection that the SPR would create for the species as a whole. First, the definition of an SPR could describe the extinction possibility of an entire species, or the definition could describe a characteristic that is independent of species-wide extinction. Second, the designation of endangerment in an SPR could confer range-wide protection for the species or the "significant portion" could be listed separately from the rest of the species and given its own protection.

Presenting the definitions as a combination of two binary choices creates a matrix of four listing frameworks that would include all possible iterations of agency actions. Three of the scenarios have been seriously contemplated by courts, scholars, and agencies, and all have failed to give all portions of the statute unique meaning without compromising other provisions of the ESA. The fourth scenario has been acknowledged but not addressed in serious scholarship. I will endorse the fourth listing framework of listing a species throughout its range based on the endangerment of an SPR not essential to species persistence.

A. The Threshold for SPR

The first difficulty in implementing the SPR clause is defining "significant portion of its range." The often-repeated mistake of agencies and advocates is to propose a definition that ties significance to the persistence of the species as a whole. Such a definition should not be adopted because it fails to provide independent meaning to the phrase. The full definition of an endangered species reads:

> The term "endangered species" means any species which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined by the Secretary to constitute a pest whose protection under the provisions of this Act would present an overwhelming and overriding risk to man.[49]

In the definition, there are two standards: (1) a species that is endangered throughout all of its range, and (2) a species that is endangered in an SPR. An acceptable definition will describe at least some situations where a species falls into one of each category but not both.

However, this interpretation is not uniformly endorsed. Instead of viewing the two clauses as independent, it can be argued that the SPR clause merely clarifies the phrase "throughout all of its range." The clarification interpretation has some support in the legislative history. At a subcommittee hearing on the 1972 Endangered Species Conservation Act, the bill to first include the "significant portion" language that would appear in the 1973 ESA, Curtis Bohlen, deputy assistant secretary for fish and wildlife and parks, DOI, put forward a scenario in which the SPR clause would be employed. In that scenario, the extirpation of a species from an SPR would result in a chain of events that leads to worldwide extinction.[50] Further, this policy has been employed in listing decisions,[51] explicitly endorsed in a 2007 M-opinion from the solicitor general,[52] and implicitly endorsed in the current policy of FWS.[53]

In light of this support, it may be difficult to convince all judges that the interpretation should not be afforded deference. In fact, many listing decisions have been upheld that employed an interpretation that would not give the SPR clause independent meaning.[54] Under *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, courts are likely to give deference to the agency when Congress left ambiguity in a substantive statute.[55] The phrase "significance" includes ambiguity to be filled by agency discretion. However, that discretion has limits. Under §706(2)(A) of the Administrative Procedure Act, judicial review extends to invalid agency rulemaking that is "arbitrary, capricious,

47. *Id.* at 59 (the amendment stated that a significant portion would entail: (1) More than half of a species' range, which may include historical as well as recent and anticipated future losses or (2) losses of habitat totaling less than 50 percent of relatively small range, or in other circumstances where the loss may have an inordinately large negative impact on the species' survival.
48. S. Rep. No. 96-151, at 6-7 (1979).
49. 16 U.S.C. §1532(6).
50. *The Endangered Species Conservation Act of 1972: Hearings on S. 3199 and S. 3818 Before the Subcomm. on the Environment of the Senate Comm. on Commerce*, 92d Cong. 109 (1972).
51. Defs. of Wildlife v. Norton, 258 F.3d 1136, 1137, 31 ELR 20846 (9th Cir. 2001); *see also* Linda C. Maranzana, Defenders of Wildlife v. Norton: *A Closer Look at the "Significant Portion of Its Range" Concept*, 29 Ecology L.Q. 263 (2002).
52. Memorandum M-37013 from Office of the Solicitor General, to Director, FWS, Regarding Meaning of "In Danger of Extinction Throughout All or a Significant Portion of Its Range" (Mar. 16, 2007) [hereinafter M-opinion].
53. Final Policy on Interpretation of the Phrase "Significant Portion of Its Range" in the Endangered Species Act's Definitions of "Endangered Species" and "Threatened Species," 79 Fed. Reg. 37577, 37582-83 (July 1, 2014).
54. *See, e.g.*, Tucson Herpetological Soc'y v. Kempthorne, No. 04-CV-00075-PHX-NVW, 2007 U.S. Dist. LEXIS 50740 (D. Ariz. July 12, 2007); Ctr. for Biological Diversity v. U.S. Fish & Wildlife Serv., 402 F. Supp. 2d 1198 (D. Or. 2005); Envtl. Prot. Info. Ctr. v. Nat'l Marine Fisheries Serv., No. C-02-5401 EDL (N.D. Cal. Mar. 1, 2004); Sw. Ctr. for Biological Diversity v. Norton, No. 98-934, 2002 U.S. Dist. LEXIS 13661 (D.D.C. July 29, 2002) (magistrate's recommendation), *adopted in rel. part*, slip op. (D.D.C. May 24, 2004).
55. 467 U.S. 837, 844, 14 ELR 20507 (1984).

an abuse of discretion, or otherwise not in accordance with law."[56] Under this standard, the clarification opinion should be found "not in accordance with law."[57]

While reviewing agency listing decisions, courts have invalidated species listings based on a failure to provide the SPR clause independent meaning. The most often cited of these cases is the invalidation of FWS determination not to list the flat-tailed horned lizard based on threats in a portion of the species range.[58] In this case, the court rejects the agency interpretation of an SPR. The court quotes the agency's definition that confers protection when a species "faces threats in enough key portions of its range that the entire species is in danger of extinction, or will be within the foreseeable future."[59] The court states that the definition is "equivalent to the threat of extinction throughout all its range"[60] and cannot be followed because it "render[s] the [SPR] phrase superfluous."[61]

Despite the repudiation of the agency's SPR interpretation in *Defenders of Wildlife v. Norton*, the U.S. Supreme Court has never spoken on the issue. Lower courts also split on the issue. As a result, many of the listing decisions and SPR interpretations promulgated by FWS have returned to the same logical errors that fail to provide unique meaning. In 2003, FWS tried to define significance regarding wolf populations as those areas necessary to the viability of the species. It was struck down.[62]

The most explicit use of the clarifying opinion was the argument that FWS made in 2005 in the U.S. District Court for the District of New Mexico. The agency asserted:

> A particular geographic area can be so important to the continued existence of a species that threats to the species in that area can have the effect of threatening the viability of the species as a whole, even if some portions of the range of the species are not directly subject to those threats . . . . In other words, threats to the species in *a portion of the range that is significant* can drive the result of the listing analysis with respect to the entire species.[63]

This interpretation fails to pass the surplusage analysis undertaken by the court in *Norton*.[64] Said in other words, the phrase "in danger of extinction throughout all or a significant portion of its range" uses the disjunctive phrase "or." The strongest principles of statutory interpretation give independent meaning to clauses on both sides of the disjunctive.[65] Such logic is apparent when the U.S. District Court for the District of Vermont rejected a proposed delisting of a wolf population because the agency failed to consider the significance of the population, which was not essential to the persistence of the species.[66]

Even in the U.S. Court of Appeals for the Ninth Circuit, courts have permitted redundant interpretations of the SPR clause. As recently as 2009, the Ninth Circuit upheld an FWS decision not to list the lower Columbia River portion of the coastal cutthroat trout under a framework that conflated range-wide viability and significance. Although the decision was partially remanded due to inadequate consideration by FWS in regards to a different section of the coastal cutthroat trout's population, the court never took issue with the viability framework FWS used to make the ruling.[67] Additionally, the U.S. District Court for the District of Idaho seems to equate significance to viability when it accepted FWS' refusal to list the Columbian sharp-tailed grouse because the observed range reduction did not threaten the viability of the species.[68] Still, providing the SPR phrase with unique meaning independent of range-wide extinction forms the most efficacious interpretation of the phrase. It creates the smallest amount of textual contradiction while employing the surplusage interpretative principle.

While the interpretive method of independent meaning supports a unique definition of significance, a pure textualist analysis of the statute encounters one obstacle. The normal use of the word extinction entails worldwide extinction. Extirpation is used to refer to the loss of all members of a species over a specified geographic area. This suggests a species can only be in danger of extinction if it is in danger of worldwide extinction. However, the Ninth Circuit acknowledged this ambiguity and concluded the meaning of extinction in the Act "opposes ordinary usage."[69]

Using a strict definition of extinction would not provide a clear reading of the statute. The phrase "in danger of extinction throughout all of its range" would create a new redundant clause by employing a strict definition of extinction. Using a strict definition, the phrase "throughout all its range" would be unnecessary because "extinction" would entail range-wide risk. Further, other parts of

56. 5 U.S.C. §706(2)(a).
57. Confusion may arise from the role of rulemaking in this process. Currently, the interpretation of the SPR phrase is promulgated through notice-and-comment informal rulemaking under §553 of the Administrative Procedure Act. *See* 5 U.S.C. §553(b)-(c). In contrast, the process of listing a species is a quasi-notice-and-comment period that is governed by the same processes and court rulings. As a result, definitions of the SPR promulgated independently through notice-and-comment rulemaking and definitions adopted implicitly through species listing determinations are both governed by *Chevron* and all rulemaking restrictions, including §706, of the Administrative Procedure Act. *See* Ctr. for Biological Diversity v. Jewell, 248 F. Supp. 3d 946, 956 (D. Ariz. 2017), *amended in part*, No. CV-14-02506-TUC-RM, 2017 WL 8788052 (D. Ariz. Oct. 25, 2017), *appeal dismissed sub nom.* Ctr. for Biological Diversity v. Zinke, No. 17-17547, 2018 WL 3155693, 48 ELR 20150 (9th Cir. Feb. 12, 2018).
58. Defs. of Wildlife v. Norton, 258 F.3d 1136, 1137, 31 ELR 20846 (9th Cir. 2001).
59. *Id.* at 1141.
60. *Id.*
61. *Id.* at 1142.
62. Defs. of Wildlife v. Secretary, U.S. Dep't of the Interior, 354 F. Supp. 2d 1156, 1164, 35 ELR 20033 (D. Or. 2005); *see also* 68 Fed. Reg. 15804, 15825 (Apr. 1, 2003) (discussing the listing policy of wolves).
63. Ctr. for Biological Diversity v. Norton, 411 F. Supp. 2d 1271, 1278 (D.N.M. 2005), *vacated pursuant to settlement sub nom.* Ctr. for Biological Diversity v. Kempthorne, No. CIV 03-252 LFG/LAM, 2007 WL 6477262 (D.N.M. July 2, 2007).
64. *Defenders of Wildlife*, 258 F.3d at 1141.
65. TRW Inc. v. Andrews, 534 U.S. 19, 31 (2001) ("It is 'a cardinal principle of statutory construction' that 'a statute ought, upon the whole, to be so construed that, if it can be prevented, no clause, sentence, or word shall be superfluous, void, or insignificant.'").
66. Nat'l Wildlife Fed'n v. Norton, 386 F. Supp. 2d 553, 566 (D. Vt. 2005).
67. Ctr. for Biological Diversity v. U.S. Fish & Wildlife Serv., 274 F. App'x 542, 543 (9th Cir. 2008).
68. WildEarth Guardians v. U.S. Sec'y of the Interior, No. 4:08-CV-00508-EJL-LM, 2011 WL 1225547, at *6 (D. Idaho Mar. 28, 2011).
69. *Defenders of Wildlife*, 258 F.3d at 1141.

the Act would appear illogical using the strict definition. The DPS listing based on a geopolitical boundary would be suspect because extirpation from a geographic area would not equate to worldwide extinction. Additionally, the revision of the 1969 Act to the 1973 Act demonstrates clear intent to address species protection more expansive than worldwide extinction. It is thus most logical to conclude that the phrase "extinction" in the Act should encompass both extinction and extirpation.

B. The Effect of an SPR Listing

Having crafted a workable definition of "significant," the agencies must determine the effect of declaring a species in danger of extinction in an SPR. The best reading of the statute demands that a species determined to be in danger of extirpation in an SPR must be listed throughout the entire range of the species. The phrase "significant portion of its range" appears in the definition of an endangered species.[70] The definition of "endangered species" contains the phrase "species."[71] Thus, an endangered species must also be a species.

The phrase species is defined in the Act.[72] Therefore, if an entity cannot be described as a species, then it cannot be described as an endangered species. Nowhere does the Act suggest that a species can be created from an existing species based on endangerment in a portion of its range. The Ninth Circuit affirmed this point in *Norton*: "Defendants' reading of the term 'endangered species' does not work for two reasons. First, the phrase 'significant portion of its range' does not qualify where a species is endangered, but rather it qualifies when it is endangered."[73] The Act does not protect portions of species; it protects species.

This interpretive style has been reaffirmed in the ruling *Weyerhaeuser Co. v. U.S. Fish & Wildlife Service*. In that case, the Supreme Court ruled that the FWS definition of "critical habitat" must be consistent with its designation of habitat. It could not designate critical habitat that did not meet its definition of "habitat."[74] Similarly, it would be expected that the court demand an "endangered species" also qualify as a "species" under the Act. The argument for consistency between the definition of species and endangered species is even stronger than the definition of habitat and critical habitat, because species is defined in the Act[75] while habitat is not.

Further, legislative history suggests that portions of a species' range cannot be given differential protections. Specifically, the DPS framework was crafted to separate populations from the species as a whole and has been implemented to manage populations under differential administrative regimes.[76] Presumably, if the SPR allowed portions of a species to be separated from the rest of the species for the purposes of management, there would have been no need to amend the definition of species to include the DPS language.

Finally, although legislative intent is not unified in regards to splitting a species for the purpose of differential management, a key case argues that such an action is prohibited. In *Alsea Valley Alliance v. Evans*, the U.S. District Court for the District of Oregon asserted that the agency "may consider listing only an entire species, subspecies, or distinct population species ('DPS') of any species."[77] The case cites as support a U.S. House of Representatives conference report from 1978 that states, "The definition . . . would exclude taxonomic categories below subspecies from the definition as well as distinct populations of invertebrates."[78] This interpretation has been adopted by FWS through informal rulemaking.[79] Together, these arguments affirm that the species may not be divided below the listing units described in the ESA. A related but separate question is the possibility of protecting different portions of a listed species differentially.[80]

The language of the ESA does present one ambiguity that may support the differential protections of portions of the same species. Section 4(C)(1) demands that the agency shall "specify with respect to each such species over what portion of its range it is endangered or threatened" in the publication of a listing decision.[81] FWS adopted a rule outlining the conformity of its listing designations with this statutory provision.[82] Instead of finding conflict with the contents of §4(C)(1) and the proposition that the species is the lowest designation of protection, the "where listed" column has been used to designate DPS and experimental populations.

70. 16 U.S.C. §1532(6).
71. *Id.*
72. *Id.* §1532(16).
73. *Defenders of Wildlife*, 258 F.3d at 1144.
74. Weyerhaeuser Co. v. U.S. Fish & Wildlife Serv., 139 S. Ct. 361, 362, 48 ELR 20196 (2018); *see also* Thuy Le, Ctr. for Biological Diversity v. Zinke: *The Fight for the Arctic Grayling Forges a Sword in the Battle for the Dusky Gopher Frogs*, 32 Tul. Envtl. L.J. 105, 106 (2018).
75. 16 U.S.C. §1532(5)(A).
76. 61 Fed. Reg. at 4725.
77. 161 F. Supp. 2d 1154, 1162 (D. Or. 2001).
78. H.R. Rep. No. 95-1804, at 17 (1978) (Conf. Rep.).
79. Endangered and Threatened Wildlife and Plants, 50 C.F.R. §§17.11(e), 17.12(e) (2019) (stating that listing units are species, DPS, and experimental populations).
80. The DPS provides another tool to afford differential management regimes within a single species. However, the DPS framework has been used to identify distinct characteristics of populations, not unique management concerns. A recent court ruling precludes using a DPS to delist a portion of a species. Humane Soc'y of U.S. v. Zinke, 865 F.3d 585 (D.C. Cir. 2017) (stating that a DPS can be identified and delisted simultaneously, but mandating that a DPS not be identified solely for the purpose of delisting).
81. 16 U.S.C. §1533(4)(c)(1) states:
> The Secretary of the Interior shall publish in the Federal Register a list of all species determined by him or the Secretary of Commerce to be endangered species and a list of all species determined by him or the Secretary of Commerce to be threatened species. Each list shall refer to the species contained therein by scientific and common name or names, if any, specify with respect to each such species over what portion of its range it is endangered or threatened, and specify any critical habitat within such range.

82. Endangered and Threatened Wildlife and Plants, 50 C.F.R. §17.11(d) (2019), explaining:
> The "Where listed" column sets forth the geographic area where the species is listed for purposes of the Act. Except when providing a geographic description of a DPS or ESU, or an experimental population designation, "Wherever found" will be used to indicate the Act's protections apply to all individuals of the species, wherever found.

This policy can be interpreted as an organizational provision. Each DPS or experimental population is listed within the same publication as the larger taxonomic species, but the DPS and experimental populations are treated as separate statutory species receiving their own protections and considerations. It may be preferred to list the DPS and experimental populations in separate publications based on their treatment under the Act, but the organizational structure does not mandate a different interpretation of the classifications. This position is further supported by the 2011 draft policy asserting that §4(C)(1) was a "bookkeeping" requirement and not a substantive representation of the structure of the Act.[83] Even if the agency more explicitly adopts the interpretation that a species is the indivisible unit of classification, the agency could maintain the listing requirements of 50 C.F.R. §17.11(d) as the simplest organizational tool for listing.

Additionally, the M-opinion from the Office of the Solicitor General in 2007 argues for splitting the range of a species into differently listed populations.[84] FWS disputed this position in 2011[85] and did not adopt it in its 2014 policy.[86] To provide legislative support, the M-opinion quotes an executive official in 1973 as stating,

> [I]f this were an animal about which we were concerned, that was obviously getting in trouble in part of its range, for whatever reason, we would be able to sit down, look at the animal, determine with the other agencies with whom we are dealing what actions are needed to prevent that animal from deteriorating to the point where it would become endangered, make the finding that this animal is likely to become threatened over a portion of its range, and then apply such techniques as would be needed to prevent it from deteriorating further within that portion of its range.[87]

The M-opinion provides evidence that at least some legislators supported splitting species for differential management. However, that interpretation has never been afforded deference by the court.[88] Instead, courts have reaffirmed that listing and delisting pertain to an entire species.[89] Recently, FWS proposed designating and delisting a DPS of the grey wolf population for management concerns. The U.S. District Court for the District of Montana refused this proposal as against the mandate of the Act.[90] While it is possible to identify ambiguity in the statute regarding the splitting of a species based on management concerns, courts seem reluctant to afford the agency this power.[91]

III. Application of the Interpretive Framework

While it is possible to simply argue for the preferred interpretation of each of the two parts of the SPR listing framework, it is useful to examine the three possibilities created by the framework that were rejected. The following section will examine all four of the possibilities created by the SPR listing framework outlined above: (1) endangered in a non-essential portion and listed just in that portion; (2) endangered in an essential portion but listed throughout; (3) endangered in an essential portion and listed just in that portion; and (4) endangered in a non-essential portion and listed throughout its entire range. It will address the shortcomings of the rejected listing strategies as well as examples of when the listing strategies have been used or rejected. It will then analyze the preferred framework.[92]

A. Endangered in a Non-Essential Portion and Listed Just in That Portion

Perhaps, the most practical use of the SPR clause would be to allow an SPR to be identified and separated from the rest of the species for the purpose of listing. The portion of the species outside the SPR would not be afforded any protections and two portions would be treated as separate species. Under this scenario, the definition of significance would not be tied to the chance of range-wide extinction. The viability of that SPR plays no role in the persistence of the species as a whole.

This would be a highly flexible tool that agencies could use to list portions of species faced with extirpation. However, this scenario contradicts the analysis conducted in Section II.B. The definition of an SPR should be independent of range-wide endangerment,[93] but the

83. Draft Policy on Interpretation of the Phrase "Significant Portion of Its Range" in the Endangered Species Act's Definitions of "Endangered Species" and "Threatened Species," 76 Fed. Reg. 76987, 76991 (Dec. 9, 2011). *See also* Defs. of Wildlife v. Salazar, 729 F. Supp. 2d 1207, 1221, 40 ELR 20219 (D. Mont. 2010).
84. M-opinion, *supra* note 52, at 3.
85. 76 Fed. Reg. 76987.
86. 79 Fed. Reg. 37577 (to be codified at 50 C.F.R. ch. II).
87. *The Endangered Species Conservation Act of 1973: Hearings on S. 1592 and S. 1983 Before the Subcomm. on the Environment of the Senate Comm. on Commerce*, 93d Cong. 60-62 (1973) (statements of Dr. Earl Baysinger, Assistant Chief, Office of Endangered Species and International Activities, and Douglas Wheeler, Deputy Assistant Secretary for Fish and Wildlife and Parks).
88. Courts have never found that clear congressional intent on the issue stemming from legislative history. Perhaps, this is due to the conflicting text, but it still fails to satisfy the first part of the test in *Chevron, U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842, 14 ELR 20507 (1984), to afford the agency deference.
89. WildEarth Guardians v. Salazar, 2010 U.S. Dist. LEXIS 105253, *17, 40 ELR 20272 (D. Ariz. Sept. 30, 2010). *See also* Linda Larson, *All or Nothing at All*, 269 Envtl. Couns. 4 (2011) (discussing two pivotal cases that reject listing portions of a species under different levels of protection).
90. Defs. of Wildlife v. Salazar, 729 F. Supp. 2d 1207, 1228, 40 ELR 20219 (D. Mont. 2010).
91. If courts were to identify that ambiguity, they may afford the agency the power to interpret the SPR clause to allow range-wide listing or the splitting of a species under the second part of the test in *Chevron*, 467 U.S. at 842. For this reason, this Article will examine more interpretations than simply the one favored by the textualist reading.
92. For a visual representation of the four sections described in Part III, see Figure 1. The larger circle represents the entirety of the species range. The smaller circle represents the area designated as the significant portion. Vertical lines represent an area where the species receives protection. Horizontal lines represent the area in which the species is at risk of extirpation or extinction. A combination of horizontal and vertical lines indicates an area where a species is at risk of extirpation or extinction and receives protections. The absence of lines indicates that a species is not at risk of extirpation or extinction in an area, nor does it receive protection in that area.
93. *See* Section II.A.

Figure 1. Visual Representation of the Application of the Interpretive Framework

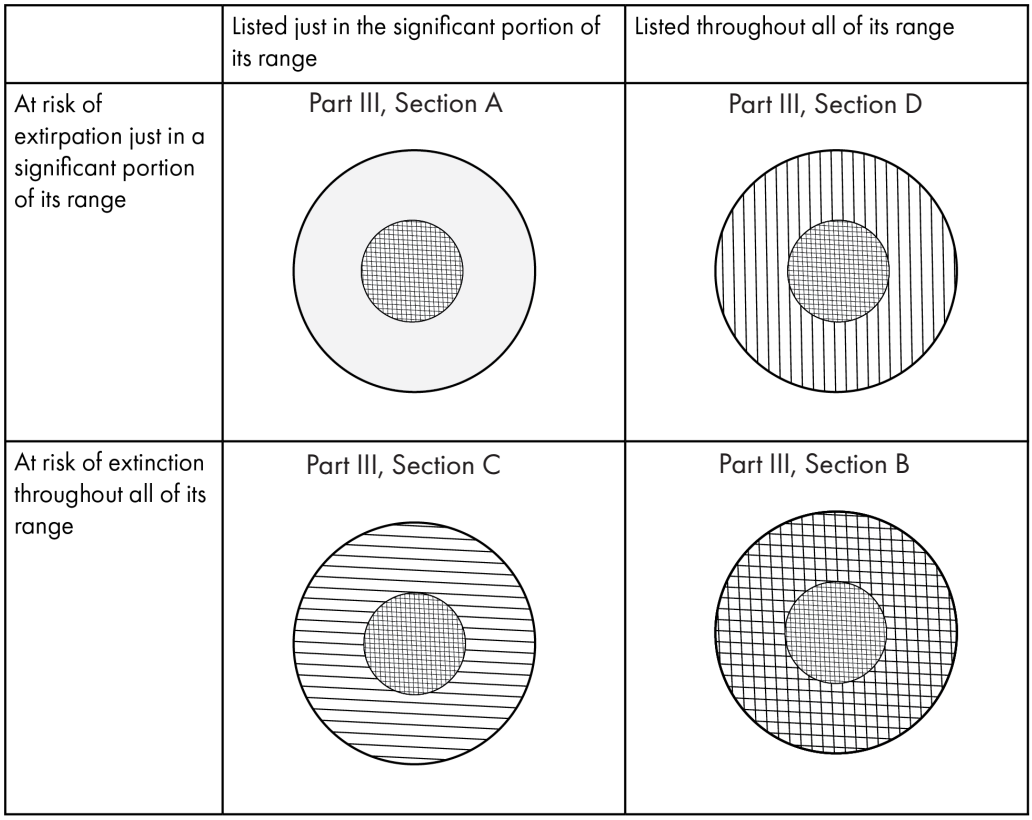

Figure 1: The larger circle represents the entirety of the species range. The smaller circle represents the area designated as the significant portion. Vertical lines represent an area where the species receives protection. Horizontal lines represent the area in which the species is at risk of extirpation or extinction. A combination of horizontal and vertical lines indicates an area where a species is at risk of extirpation or extinction and receives protections. The absence of lines indicates that a species is not at risk of extirpation or extinction in an area, nor does it receive protection in that area.

ESA does not currently afford protections to entities below the species level.[94]

Analysis of such a policy is scarce. Agencies have never provided protections to an SPR while precluding protections to the rest of the species. Therefore, such a policy has not been directly challenged in court. One must understand that it is unlikely that every court or agency ruling has contemplated the definition of significance separately from the effect on an SPR listing. Courts striking down past interpretations may have imagined this framework as the workable standard. Still, modern courts do not take it upon themselves to impose their own interpretation when invalidating rulemakings.[95] As a result, judicial review of this framework is rare. Analysis of the shortcomings of employing this interpretive method must be understood in relation to hypothetical agency actions and general policy judgments.

First, listing a species in a portion of its range based on a threat not tied to range-wide extinction would lack biological benchmarks for measurement. While agencies and legislatures must go to great lengths to define a species in the context of biological and physical reality, extinction is easier to measure. A species, subspecies, or DPS is extinct when all members of the group are dead. From this insight, scientists and agencies can create tools to measure population trends in the context of extinction. While predicting the future event leaves inherent uncertainty, there is a binary feature—extinction—that can be observed. Instead, this listing standard would create a scenario where a portion of a species range could be delineated and listed at the whim of the agency.[96] The agency would still have to base the criteria for significance on the "best available scientific and commercial information,"[97] but the latitude would be large.

94. It could be argued that the critical habitat designation effectively lists a portion of a species' range below the species level, but the process of critical habitat designation is described in the Act separate from listing. Moreover, a critical habitat designation describes and protects a geographic area. Members of a species inside and outside critical habitat are designated under the same listing category (e.g., threatened or endangered). A more appropriate comparison would be if take prohibitions were afforded to a portion of a species' range.
95. *Chevron*, 467 U.S. at 842.
96. As early as 1979, detractors of the ambiguity of the SPR clause contemplated that FWS listed a squirrel population endangered in one park. GAO, *supra* note 46.
97. According to 16 U.S.C. §1533(b)(1)(A):
> The Secretary shall make determinations required by subsection (a)(1) solely on the basis of the best scientific and commercial data available to him after conducting a review of the status of the species and after taking into account those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State

Further, the DPS already provides a framework to list a portion of a genetic entity when the statutory species definition is insufficient for the goals of the ESA. The DPS phrase is undefined, but as long as the policy uses reasonable standards for "distinct" and "population," an entity other than a statutory species can be designated and listed completely separate from the rest of the statutory species. The definition of DPS could be extended to include things other than ESUs and geopolitical subspecies. The phrases "distinct" and "population" give more power to courts exercising review than "significant."

While the DPS framework is technically distinct from this proposed interpretation in that the DPS language defines new species, the result would be similar. Portions of genetically similar populations would be separated from the entity as a whole and afforded different management tools. Under this scenario, a prudent administrator would likely elect to list a population through the SPR clause rather than the DPS procedure because the DPS clause would give potential legal challengers more substantive standards ("distinct" and "population") to review.

Overall, listing a species in a portion of its range based on a threat only affecting that portion may be a better policy than the preferred listing framework. If a threat is unique to a certain portion of the range, it makes sense only to manage the species in the area threatened. However, the position of the SPR clause within the definition of endangered species does not afford the agencies the power to manage a single species as if it were two. As a result, the most flexible listing structure is precluded by the language of the Act.

B. *Endangered in an Essential Portion and Listed Throughout the Entire Range*

A species could be listed as endangered based on a threat to a portion of the range deemed significant and listed throughout its entire range. However, if the definition of significance was an area of the species' range essential to the preservation of the species, such a listing would provide no additional listing possibility beyond a species endangered throughout all of its range. Despite the redundancy of this structure, it is the definition employed by FWS today.[98] Its logical flaw is alluring and simple.[99] The proposed structure has often been repeated and advocated and, thus, despite multiple adverse rulings, it continues to shape species listings.

First, by adopting the clarifying definition, the Act fails to give unique meaning to the SPR clause. Instead, the SPR clause would just be a reiteration of how species, subspecies, and DPS are already treated. A threat may affect only one portion of a species range, but if that threat is great enough to place the entire species in danger of extinction, the entire species is listed as endangered because it is endangered throughout all of its range. This challenge is well understood, and thus the policy is often described in a way meant to distance it from the clarification interpretation.

The current definition was proposed in 2011,[100] and was then adopted in the 2014 policy that is still in place today. The policy states that an SPR will be designated

> if the species is not currently endangered or threatened throughout all of its range, but the portion's contribution to the viability of the species is so important that, without the members in that portion, the species would be in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range.[101]

To further illustrate its policy, the rulemaking describes the following scenario:

> Under the Final SPR Policy, listing a species based on threats in a significant portion of its range will be considered warranted only if three conditions are satisfied: (1) the species is neither endangered nor threatened throughout all of its range, (2) the portion's contribution to the viability of the species is so important that, without the members in that portion, the species would be endangered or threatened throughout all of its range, and (3) the species is endangered or threatened in that portion of its range.[102]

This policy was struck down in the U.S. District Court for the District of Arizona. The judge asserted:

> These attempts to distinguish the Final SPR Policy from the "clarification interpretation" rejected by the Ninth Circuit in *Defenders of Wildlife* are illusory . . . All three of these conditions cannot be satisfied at once, because whenever conditions (2) and (3) are satisfied, a species should properly be determined to be endangered or threatened throughout all of its range. If a portion of a species' range is so vital that its loss would render the entire species endangered or threatened, and the species is endangered or threatened in that portion, then the entire species is necessarily endangered or threatened.[103]

The policy attempts to create unique meaning by removing a scenario that would normally be described in the phrase "in danger of extinction throughout all of its range" and assigning it to the SPR clause. Such a reading fails because

or foreign nation, to protect such species, whether by predator control, protection of habitat and food supply, or other conservation practices, within any area under its jurisdiction, or on the high seas.

98. 79 Fed. Reg. 37577 (to be codified at 50 C.F.R. ch. II).

99. The flaw has been persistent even in the academic literature. *See, e.g.*, Sherry A. Enzler & Jeremy T. Bruskotter, *Contested Definitions of Endangered Species: The Controversy Regarding How to Interpret the Phrase "A Significant Portion of a Species' Range,"* 27 Va. Envtl. L.J. 1 (2009); Robin Waples et al., *A Biological Framework for Evaluating Whether a Species Is Threatened or Endangered in a Significant Portion of Its Range*, 4 Conservation Biology 946 (2007).

100. 76 Fed. Reg. 76987.

101. 79 Fed. Reg. at 37579.

102. *Id.* at 37582-83.

103. Ctr. for Biological Diversity v. Jewell, 248 F. Supp. 3d 946, 956-57 (D. Ariz. 2017), *amended in part*, No. CV-14-02506-TUC-RM, 2017 WL 8788052 (D. Ariz. Oct. 25, 2017), *appeal dismissed sub nom.* Ctr. for Biological Diversity v. Zinke, No. 17-17547, 2018 WL 3155693, 48 ELR 20150 (9th Cir. 2018).

the text of the statute does not include ambiguity in the phrase "throughout all of its range."[104] The discretion afforded to the agency comes in crafting a definition in the second half, the SPR phrase, of the definition.

Further, the application of protections to the entire species instead of just the SPR does not afford the definition of an SPR a unique meaning. Although past policies did not afford the same protections once an SPR was defined and listed, the definitions were equally redundant with the clause "throughout all of its range." The redundancy argument concerns the definition of "significant." The effect of a positive listing determination under any definition of significant does not affect the distinct meaning of both clauses. There are potentially endless ways a population can be endangered throughout all of its range. Simply because a species has not been listed range-wide based on a regionally specific threat in the past does not imply the agency definition creates unique meaning.

The 2014 final rule tries to distinguish the policy from past policies using a hypothetical. Although the hypothetical correctly illustrates two situations that may occur in the natural world, both scenarios in the hypothetical would be listed under the phrase "in danger throughout all of its range." In the first scenario, a species is only experiencing a threat to a portion of its range, but that threat is placing the entire range in danger of extinction immediately. An example would include heavy persecution in a breeding area essential to all members of the species that is only used seasonally. This scenario, used to represent the past policy, contrasts with a scenario in which a species is experiencing a threat to a portion of the species range. The threat does not immediately place the whole species at risk. Rather, the whole species will be at risk only once all members of the threatened portion are extirpated.[105]

The two scenarios, while different, are still encapsulated in an assessment of range-wide threats. The second scenario simply describes a situation in which range-wide extinction is contingent on an intermediate step of partial extirpation.[106] In fact, the second scenario could be used to describe many extinction threats currently listed in the ESA. Rarely is a threat applied proportionally across an entire species. Instead, in cases of intentional take, members of a species that are easy to identify and kill are first hunted.[107] Next, members that are in more remote regions are targeted.[108] At a certain point, the viability of the species is compromised due to small population size, and the species is declared endangered.[109] The second proposed hypothetical would remove this listing process from the criteria "in danger throughout all of its range" to reposition it in "in danger of extinction throughout an SPR." Providing independent meaning should not entail restricting the definition of another part of the Act.

Additionally, the proposed policy takes into account the loss of an historical range in listing an SPR to the extent that the loss is relevant to the persistence of the entire species. However, the SPR listing cannot be based solely on the loss of historical range nor include historical range.[110] The statute does not directly address the role of historical and current occupancy in the definition of range. The 2014 policy, while considering historical range as a predictive tool, ultimately excludes historical range from its definition of range within the SPR clause. While this policy is in contradiction of the rulings of the Ninth Circuit,[111] it may be afforded deference under current jurisprudence of the U.S. Court of Appeals for the District of Columbia (D.C.) Circuit.[112] A challenge to the current policy will likely not focus on the interpretation of the phrase "range" to mean current or historical range, but instead emphasize the redundant standard of range-wide extinction.

The 2014 policy also states that the definitions of a DPS and an SPR can overlap.[113] The policy proposes to just list a DPS instead of an SPR in those cases.[114] This proposal weakens the ESA beyond the proposed argument of redundancy. The 2014 policy purports to say that a species in danger of extinction range-wide, even if that threat is particular to a portion of its range, receives protection throughout its entire range. However, this scenario would allow for a species under such conditions to receive protections only in a portion of its range. Therefore, this provision does not fall under the structure discussed in this section. The implications of listing a species only in an essential portion of its range are discussed in Section III.C., and the implications of equating an SPR and DPS are discussed in

104. Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc., 467 U.S. 837, 842, 14 ELR 20507 (1984).

105. 79 Fed. Reg. at 37582. *See also To Implement the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere: Hearings Before the Subcomm. on the Environment of the Senate Comm. on Commerce*, 92d Cong. 81, 131 (1972) (statement of David H. Wallace, Associate Administrator for Marine Resources, National Oceanic and Atmospheric Administration, U.S. Department of Commerce) (presenting a similar hypothetical regarding breeding areas in a testimony about the SPR clause).

106. M-opinion, *supra* note 52, at A-5.

107. *See* Joshua B. Smith et al., *Evaluating Detection Probabilities for American Martins in the Black Hills, South Dakota*, 71 J. Wildlife Mgmt. 2412, 2412-16 (2007) (finding that individuals of some species are proportionally harder to locate in low-density populations than high-density populations).

108. *See* Ted McKinney et al., *GIS-Based Evaluation of Escape Terrain and Desert Bighorn Sheep Populations in Arizona*, 31 Wildlife Soc'y Bull. 1229, 1229-36 (2003) (finding that sheep living in areas with more escape terrain experience greater population stability when faced with ecological threats). The purposeful eradication of weeds provides insight into the population dynamics of species under persecution. For an analysis of the difficulties of completing extirpation at small population sizes, see F. Dane Panetta, *Evaluation of Weed Eradication Programs: Containment and Extirpation*, 13 Diversity & Distributions 33, 33-41 (2007).

109. *See generally* Joel Berger, *Persistence of Different-Sized Populations: An Empirical Assessment of Rapid Extinctions in Bighorn Sheep*, 3 Conservation Biology 91, 91-98 (1990) (describing the extirpation of small bighorn sheep populations).

110. 79 Fed. Reg. at 37584.

111. Defs. of Wildlife v. Norton, 258 F.3d 1136, 1145, 31 ELR 20846 (9th Cir. 2001):

> where . . . it is on the record apparent that the area in which the lizard is expected to survive is much smaller than its historical range, the Secretary must at least explain her conclusion that the area in which the species can no longer live is not a "significant portion of its range."

112. Humane Soc'y of the United States v. Zinke, 865 F.3d 585, 603 (D.C. Cir. 2017) (affirming that deference should be afforded to the agency interpretation of "range" to mean the current range of a species).

113. Proposed Rule to List the Tanzanian DPS of African Coelacanth as Threatened Under the Endangered Species Act, 80 Fed. Reg. 11363 (Mar. 3, 2015) (finding that the Tanzanian portion of the African coelacanth is both an SPR and DPS and choosing to list the DPS).

114. 79 Fed. Reg. at 37585.

Part IV. However, it is important to note the existence of this provision within an analysis of the 2014 policy.

Finally, there is an alternative view of the ESA that could overcome the redundancy argument. While this argument fails to provide a viable framework for an SPR listing, it may explain some confusion surrounding the 2014 policy. Currently, the two biological definitions that create protected species are "endangered," which means at risk of extinction, and "threatened," which means likely to become at risk of extinction.[115] Threatened is explicitly a prediction of a future event. It is an unquantified probability of endangerment.

Conversely, endangered is treated as a binary quality. Either a species is "in danger of extinction" or it is not. However, the assessment of endangerment is a probabilistic analysis of the true binary phenomenon—extinction. A more accurate view of endangerment is not a binary standard, but a probabilistic threshold of the chance of extinction. Still, there are many levels of separation from the scientific prediction of extinction probability from the final listing determination. However, it is clear that the determination is not binary. The classification "endangered" does not mean that a species is certainly going to go extinct. Instead of endangered and not endangered, scientists and officials weigh the risks of extinction. This is evident in the point system of the candidate species list.

The most sympathetic reading can provide unique meaning to the 2014 policy when one understands the ESA listings as probabilities.[116] Say, for the purpose of example, that endangered means a 90% chance that a species will go extinct throughout all of its range. Only one threat is afflicting the species. The threat affects only one portion of the species range. The threat creates a 90% possibility that a species will be extirpated in that portion. If that portion is extirpated, then there is a 90% chance that the entire species will go extinct. Using the law of conditional probabilities, the overall chance of extinction will be 81%. However, under the current definition, this species could be listed. This would be inappropriate because the SPR phrase would just be used to assess range-wide extinction. However, by calculating the value differently, the species is protected.[117]

Even if endangered is not viewed as a probabilistic listing, the same analysis could be conducted to create a standard for threatened under the 2014 policy. Threatened is a prediction of the risk of endangerment,[118] set by the agency at some value that is greater than 50%.[119] Thus a situation could be imagined in which the current framework protects a species in a situation not captured by the phrase "throughout all of its range." In this scenario, the chance of endangerment of the SPR is greater than 50%. Simultaneously, in the event of the extinction of the SPR, the entire species would have a greater than 50% chance of endangerment. Thus, the two-part analysis of the 2014 draft policy, where the agency first assesses the threat to a specific area, and then analyzes the risk to the entire species imagining the extirpation of the first region, could lead to a listing of a threatened species as a result of a threat to the entire range causing a less than 50% chance of endangerment.

The mental gymnastics required to parse these hypotheticals do not illuminate any enlightened policy. Instead, the use of probabilities[120] simply shows how the agency may justify the redundancy of its definition of an SPR. Under the probabilistic analysis, there would simply be two standards for range-wide threats. The choice of standards would simply be a choice of preferred calculations. The system would be ripe for abuse. An agency wishing to list a species that does not meet the required risk for a range-wide listing could instead turn to a two-step analysis of an SPR listing. As long as a portion of the range could be identified that met the risk standard for listing, the agency would have a second chance to assess range-wide risk, this time imagining the extinction of the identified portion.

The 2014 policy fails to give unique meaning to the SPR clause. While correctly assessing that an SPR listing entails range-wide listing, the agency grappled with the difficulties of creating a reasonable standard for a range-specific threat that triggers range-wide protections. However, the final policy simply restates a scenario captured by the phrase "in danger of extinction throughout all of its range."

C. *Endangered in an Essential Portion and Listed Only in That Portion*

A definition of significance that equates the term to the persistence of the entire species coupled with partial range listings would weaken the protective power of the ESA. If significance were defined as a

> particular geographic area [that is] so important to the continued existence of a species that threats to the species in that area can have the effect of threatening the viability

115. 16 U.S.C. §1532(20).

116. Although never quantified, language suggests that the agency views the listing categories in terms of probabilities of extinction. 79 Fed. Reg. at 37581 (stating, "For that reason, it describes the threshold for 'significant' in terms of an increase in the risk of extinction for the species.").
Uncertainty also likely played a role in the probabilistic standards set in the Act. A Senate report following the 1978 amendments stated, "[L]isting populations may be necessary when the preponderance of evidence indicates that a species faces a widespread threat, but conclusive data is available with regard to only certain populations." S. Rep. No. 96-151, at 6-7 (1979).

117. The 2014 policy asserts that they will not impose a threshold of significance that is too low such as "a portion of the range is 'significant' if its loss would result in any increase in the species' extinction risk, even a negligible one." 79 Fed. Reg. at 37582.

118. If endangerment is also viewed as a probability of extinction, then threatened can be conceptualized by two multiplied probabilities—the probability the species will become endangered and, once endangered, the probability it will become extinct. S. Rep. No. 93-307, at 301 (1973).

119. Because threatened means likely to become endangered, the threshold for threatened is greater than 50%. 16 U.S.C. §1532(20) (defining "threatened species" as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range").

120. Even if the threatened and endangered factors are not thought of as simple probabilities, any standard that is not binary could achieve this result. An extinction factor, similar to the number ranking given to candidate species, could have some factor of listing priority that decreased with uncertainty. Such a standard would still achieve the same, prohibited goal. It would describe a significant portion based on the chance of range-wide extinction. Additionally, endangered "throughout all of its range" would be given two meanings.

> of the species as a whole, even if some portions of the range of the species are not directly subject to those threats,[121]

the SPR clause would be redundant. However, the policy could be distinct from the traditional listing methodology by only listing the threatened portion. The precise application of protections would be alluring to agency officials. Still, this opposes the plain language of the statute.

First, the ESA does not allow for differential listings within a species. This is the method espoused in the 2007 M-opinion.[122] It has been abandoned by DOI and criticized in the 2011[123] draft policy and the final policy adopted in 2014.[124] The definition of endangered species includes the word species. An endangered species cannot be split from a preexisting species simply for the purpose of listing or delisting. It would oppose the principle that a species be the smallest unit of listing.[125] Courts have more recently addressed this fact in the context of delisting. Despite the broad deference given to agencies in the DPS language, courts have asserted that a DPS cannot be designated simply for the purpose of delisting.[126] The SPR clause poses an even higher barrier than the DPS standard because it appears within the definition of an endangered species, a phrase that the statute ties to the definition of species. The subdivision of species for differential management concerns would be unlikely to sustain judicial scrutiny.[127]

While no policy of FWS or NMFS has explicitly endorsed this listing structure, redundancy between the DPS phrase and an SPR definition could have the same effect. By allowing a DPS to be identified and separately listed in the same scenario as an SPR listing, the agency would achieve an escape mechanism from range-wide listing. As a result, species facing endangerment would not be given range-wide protection. Thus, it is important to craft definitions of the SPR clause and the DPS clause that are distinct from all other protections of the Act and address separate management concerns.

D. The Preferred Framework: Endangered in a Non-Essential Portion but Listed Throughout All of Its Range

The preferred listing framework of range-wide protections based on threats to a non-essential portion of a species range seems opposed to first impressions of the statute. However, the proposed framework is the only mechanism to both provide independent meaning to the SPR clause and conform to the dominant judicial interpretation of species-wide listings. While this policy has been acknowledged in the past, it has not been given serious contemplation.[128]

If adopted, such a policy would likely face challenges in the context of both congressional intent and agency deference for ambiguous terms. Because the interpretation of the SPR phrase is bound by its context and surrounding language within the Act, courts are likely to uphold definitions that afford the phrase independent meaning while striking down definitions found to be redundant.[129] As seen in past cases, courts will not afford deference to an SPR policy that they find at odds with the text of the statute.[130] However, because congressional intent is ambiguous, courts will afford wide deference to the agency in crafting a policy that fits within the larger framework of acceptable definitions.[131]

The ESA requires listings to be made "solely on the basis of the best scientific and commercial data available."[132] Extinction throughout all of a species' range is an easy phenomenon to measure scientifically. Once a species is defined, it can be determined whether it is extinct or not. If all members of the species are dead, the species is extinct; if some members of the species are alive, it is not extinct. By employing a standard not tied to worldwide extinction, FWS and NMFS would have difficulty quantifying a standard in scientific terms.

A potential solution to the high scientific standard of listing that fits within the proposed framework is to adopt the same criteria for an SPR as the criteria employed in a definition of a DPS. When a portion of the species is identified to meet the criteria for a DPS or SPR, the agency would have the discretion to list a DPS and confer regional protections, or designate an SPR and confer range-wide protections. The extensive debate surrounding the creation of DPS standards would ensure that the SPR clause is tied to measurable scientific data.

However, such an interpretation would encounter problems. First, the DPS is treated as the smallest listing unit.[133] Therefore, a DPS or subspecies cannot be designated within a portion of a preexisting DPS. However, a DPS is still treated as a species separate from individuals outside the DPS. No jurisprudence addresses if a portion of a DPS can be declared significant and listed under the SPR framework. Presumably, if an SPR is not found to constitute a taxonomic category,[134] a DPS could receive protection throughout the entire DPS if a significant portion of the DPS is in danger of extinction. Giving both standards the same definition would preclude this possibility.

121. Ctr. for Biological Diversity v. Norton, 411 F. Supp. 2d 1271, 1278 (D.N.M. 2005), *vacated pursuant to settlement sub nom.* Ctr. for Biological Diversity v. Kempthorne, No. CIV 03-252 LFG/LAM, 2007 WL 6477262 (D.N.M. July 2, 2007).
122. M-opinion, *supra* note 52, at 17.
123. 76 Fed. Reg. 76987.
124. 79 Fed. Reg. 37577.
125. Alsea Valley All. v. Evans, 161 F. Supp. 2d 1154, 1162 (D. Or. 2001).
126. Defs. of Wildlife v. Salazar, 729 F. Supp. 2d 1207, 40 ELR 20219 (D. Mont. 2010) (addressing the delisting of the northern population of the Rocky Mountain grey wolf) (opinion vacated but not on the merits); WildEarth Guardians v. Salazar, 2010 U.S. Dist. LEXIS 105253, 40 ELR 20272 (D. Ariz. Sept. 30, 2010) (addressing the listing of the Gunnison's prairie dog).
127. Larson, *supra* note 89.
128. 76 Fed. Reg. at 76993-98.
129. Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc., 467 U.S. 837, 844, 14 ELR 20507 (1984).
130. Defs. of Wildlife v. Norton, 258 F.3d 1136, 1137, 31 ELR 20846 (9th Cir. 2001) (addressing the flat-tailed lizard listing).
131. *Chevron*, 467 U.S. at 844.
132. 16 U.S.C. §1533(b)(2).
133. Defs. of Wildlife v. Salazar, 729 F. Supp. 2d 1207, 1212, 40 ELR 20219 (D. Mont. 2010) (stating that "[t]he plain language of the ESA does not allow the agency to divide a DPS into a smaller taxonomy").
134. *Id.*

Additionally, the DPS provision was provided by Congress to give the agency latitude to create a listing framework to protect entities below the species level and treat them as separate species. However, once a definition of the DPS is created, the agency does not have the ability to apply that definition arbitrarily.[135] Equating the definitions of SPR and DPS would preclude a uniform and predictable policy of DPS and SPR listings. The protection afforded to the populations would be entirely at the discretion of the agency.[136] The decision to list an SPR or a DPS would be entirely independent of any scientific or commercial data.

Although the criteria for a DPS listing, promulgated by NMFS through informal rulemaking, include robust criteria describing significance,[137] significance in the context of an SPR should not be based on the same criteria. The four criteria of significance for the second prong of the DPS analysis address the importance of the persistence of the DPS.[138] It would be illogical to use these criteria to designate an entire species based on the importance of the persistence of an SPR. Additionally, the use of the phrase significant in describing a DPS comes from agency rulemaking, not the substantive statute. Thus, there is not an expectation that the same definition for significance is used in the statute as an unrelated rulemaking.

However, careful analysis and application of the SPR phrase have potential to afford powerful management tools to the agencies protecting endangered species. Under the preferred framework, the ESA would allow normal listing procedures throughout the entire range based on range-wide endangerment, the DPS procedure to separate distinct units for protection, and a tool to list species endangered throughout their entire range based on risks to an SPR. The framework would create three unique tools to be exercised in three different scenarios.

Further, the Act provides guidelines to help shape the policy. First, the SPR listing should be exercised in line with the five goals of the ESA described in §2(b):

> The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions . . .[139]

It is difficult to ascertain the extent to which the SPR clause can be shaped to preserve ecosystem health. In one regard, the location of the SPR clause with the definition of an endangered species indicates the phrase should reflect the health of the species. However, the ambiguity may allow agency rulemakings to consider ecosystem effects in addition to species-level protections. Similarly, the use of the SPR clause to uphold international treaties would oppose idiosyncratic definitions reflecting species health, but may still be permitted. Regardless, the broad generalities of §2(b) are unlikely to prove critical in judicial review of the agency rulemaking.

Another important consideration in the creation of an SPR definition is the role of critical habitat. Because an SPR will describe a non-essential portion of the species range, habitat designations will likely undergo a different analysis. The two components of critical habitat are the importance of the habitat to the persistence of the species[140] and the special management considerations or protection.[141] Although nothing prevents a species that is not at immediate risk of extinction to rely on a certain piece of habitat for persistence, if that piece of habitat was at risk, the species would receive protection under the "throughout all its range" clause and not the SPR clause.

As a result, it is possible that the agency may interpret 16 U.S.C. §1533(b)(2) to allow species listed under the proposed SPR framework to receive critical habitat "on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impact." However, the agency would face a high bar in justifying the listing of critical habitat in the absence of economic consideration because that power is afforded only when "the failure to designate such area as critical habitat" will "result in the extinction of the species concerned."[142] Therefore, the mandatory listing of critical habitat must occur outside the SPR, because extirpation in the SPR under the proposed framework could not result in total species extinction.

Special management concerns do not necessarily entail present risk, but an area not under current threat would face a high burden of evidence to be listed in the absence of risk. The agency analysis of critical habitat in regards to special management concerns would likely be entitled to the same agency deference under the proposed listing framework as it is currently. Unlike the analysis undertaken regarding species persistence, the proposed framework would not mandate a reassessment of agency listing procedures in regards to critical habitat.

135. 61 Fed. Reg. 4722; Nat. Res. Def. Council, Inc. v. Rauch, 244 F. Supp. 3d 66, 84 (D.D.C. 2017) (finding that FWS failed to adequately evaluate the possibility of DPS listings).

136. Ashling P. McAnaney, *Remembering the Spirit of the Endangered Species Act: A Case for Narrowing Agency Discretion to Interpret "Significant Portion" of a Species' Range*, 36 Golden Gate U. L. Rev. 431 (2006) (arguing for uniform standards in SPR listings).

137. 61 Fed. Reg. 4722.

138. *Id.*

139. 16 U.S.C. §1531(2)(b).

140. *Id.* §1533(5)(A)(i)(I). Additionally, populations designated experimental, non-essential populations may not receive critical habitat protections. *Id.* §1539(j)(2)(C)(ii). By analogy, this provision could either support or preclude the listing of critical habitat under the SPR clause. One could read the provision reaffirming the notion that mandatory critical habitat protections should be reserved for essential populations. Conversely, the inclusion of the provision could affirm the possibility that critical habitat be listed for non-essential populations in other circumstances. It is not disputed that critical habitat can be discretionarily designated for non-essential populations. The provision both bars a possibility that is commonly accepted—critical habitat discretionarily granted for non-essential populations—and a possibility that is more ambiguous—the mandatory listing of critical habitat for non-essential populations. Therefore, the ambiguity in the statute remains. The presence of the restriction does not provide determinative evidence of the purposes or scope of critical habitat designations outside the context of experimental populations.

141. *Id.* §1532(5)(A)(i)(II).

142. *Id.* §1533(b)(2).

In addition to the considerations detailed in the statute, possible tools from biology and ecology may create a workable definition. The proposed framework only details aspects of an acceptable definition. Many acceptable definitions could be created within that framework. The agency could continue without a definition but list species under the SPR clause. The listing policies would evolve through precedent. There would be very high transaction and administration costs because when an SPR listing was challenged, courts must determine that the listing did not employ a prohibited framework and that it was not arbitrary and capricious.[143] However, a single, universal definition could be created within the framework and promulgated through Administrative Procedure Act §553 informal rulemaking. The following part proposes a non-exhaustive list of several acceptable definitions.

IV. Possible Acceptable Definitions

A definition could be created that is tied to biological aspects of a species. A simple definition may state "a portion of a species range will be deemed significant if the loss of that portion increases the probability of extinction to at least half the likelihood required for listing under the criteria 'threatened.'" It could be argued that under this definition there would be a portion of every species' range that could be deemed significant; an SPR listing would simply rely on the manifestation of a threat.

This assertion relies on the assumption that extinction risk is always negatively correlated to population. It is usually true that extinction risk and population are negatively correlated, but one can imagine a scenario where it is not true. It is possible to imagine a scenario where a higher number of individuals increases the risk of extinction. There could be a species that is released from predator-mediated population control and is at risk of exploiting its resources. In this scenario, it would be illogical to list the species according to the proposed definition because it would increase the risk of extinction to prohibit take. Still, overpopulation is probably a rare management concern. More likely, the association of the SPR standard to a percent likelihood of extinction would arbitrarily expand the designation of significance.

Alternatively, the decreased threshold for risk of extinction could serve as an additional listing framework when a species does not meet the threatened or endangered standard due to data uncertainty. However, it is difficult to understand how "best available scientific and commercial data" could evaluate a term reliant on uncertainty. Further, the standard would not apply to situations where the risk is equally widespread across the range; it would only apply to situations with differential risks across the range. Uncertainty in data is not always tied to differential geographic risk, and thus it may be arbitrary to incorporate concerns about uncertainty into the SPR clause. However, in rare circumstances, there may be a risk in a single portion of a range that is difficult to measure but may compromise range-wide persistence. In those circumstances, the SPR tool could be a useful extension to the existing listing mechanisms to provide additional, range-wide protections.

In contrast, agencies could leave the extinction framework behind and still have a biological framework in speciation. Instead of focusing on the loss of genetic diversity through extinction, the agencies could focus on the growth of new genetic diversity. A population segment can already be protected if its evolutionary history is critical to the survival of a species. In circumstances when a species is at elevated risk of extinction due to low genetic diversity, the species can, under current policy, be listed as "in danger of extinction throughout all of its range."[144] These listings focus on genetic variation that has already happened and the fitness benefits of heterozygotes.

In most circumstances, a more diverse population is less likely to go extinct. Instead, the definition could focus on evolutionary processes in progress or that may happen in the future. The definitions for species that are currently in use do not fully protect the processes of genetic change. It is not immediately clear if the offspring of a protected species that hybridizes with a related, unprotected species receives the protections of its listed parent. Further, a portion of an unprotected species range can be geographically or reproductively isolated due to natural or human forces. Such occurrences are likely to become more frequent with climate change and human incursion. However, under the current listing structures, only genetic processes useful for the persistence of existing species are granted protections. Thus, a portion of species range not necessary to species persistence, but possibly the progenitor of future genetic change, would be at risk of persecution.

A world where the current protections of the ESA are the sole protection of genetic diversity through millennia would see decreasing genetic diversity even if administered perfectly. Through most of the history of life on earth, genetic change has outpaced genetic loss.[145] Currently, extinction removes more genetic diversity than evolutionary processes add.[146] Species existing solely at the minimum viable population size will not realize the genetic diversity necessary to undergo evolutionary change. The ESU concept approaches this problem, but relies on persistence instead of future evolutionary change.

143. The court in *Norton* proposed a listing framework that entailed a two-step analysis not tied to a single definition. In the analysis, the agency first asks "if there are major geographical areas in which it is no longer viable but once was." If the answer is yes, the agency must "explain [their] conclusion that the area in which the species can no longer live is not a 'significant portion of its range.'" 258 F.3d 1136, 1145 (9th Cir. 2001).

144. Region 2, FWS, Mexican Wolf Conservation Assessment 11 (2010). *See also* Janna R. Willoughby et al., *The Reduction of Genetic Diversity in Threatened Vertebrates and New Recommendations Regarding IUCN Conservation Rankings*, 191 Biological Conservation 495, 495-503 (2015) (discussing the incorporation of genetic diversity into the listing criteria of an international species protection program).

145. Jurriaan M. De Vos et al., *Estimating the Normal Background Rate of Species Extinction*, 29 Conservation Biology 452, 452-62 (2014).

146. *Id.*

Adaptive processes that occur in large populations or in isolated segments of populations are not captured by a focus on persistence. Genetic drift, the random fixation of an allele in a population, does not increase fitness but is a powerful force in evolution, and it is ignored by a persistence-focused model of genetic diversity. Further, disruptive selection and directional selection are disfavored in relation to stabilizing selection. The ESA is backward-looking by design.[147] By looking backward, the ESA focuses on only one process of genetic change, extinction, while the other, equally vital importance of genetic change, evolution, is left unaddressed.[148]

Still, future evolutionary changes would be a difficult process to protect by administrative action. Evolution and extinction happen at different speeds. Right now, extinction is happening much faster than evolution.[149] Tools exist to measure extinction in animal species with reliability and high predictive power. However, speciation occurs on the time frame of millennia in most animal species,[150] and even with the increased selective pressure of human perturbations, tools to quantify future genetic change are bound by future uncertainty. Discrete standards to list and protect populations necessary for future evolutionary change would not have the same predictive power as standards to predict persistence.

The SPR clause may form the best tool to address these challenges. Expanding the DPS listing to protect these processes would face the challenge of uncertainty twice. First, the agencies must identify the population restrictions that slowed the change in genetic diversity. Next, the agency would need to list and protect only those areas that are necessary to protect the evolutionary processes. In contrast, the SPR-proposed structure could simply identify the threats to a portion of the species range that are sufficiently large to hamper genetic change. Having established this point, the agency could protect the species wherever found. Under such broad protections, evolutionary change would be protected even in shifting ranges or life histories. However, it may not be reasonable to expect that the ESA will be law long enough for speciation to matter. A law on species protection that imagines its effects over millennia may be wishful or naive.

As suggested above, a standard could be crafted based on the SPR's contribution to its ecosystem, not its species. However, the phrase "significant portion of its range" refers to the range of the species, not the ecosystem. Because ecosystem health lacks a binary observable feature such as extinction, it will also be more difficult to create a definition based on scientific and commercial data.[151] Binary standards could be created, but would lack the simplicity or uniformity of extinction. In addition, a very small portion could be important to a certain ecosystem, and that would confer protection range-wide. Most of the range may not be important to those ecosystems outside of the SPR. Such a listing would be possible, but may be considered bad policy.

Finally, and most plausibly, the standard for an SPR could be a percentage basis of the range in danger of extirpation. This would not be the same as a percentage chance of extinction, but rather a percentage of the geographic range that already meets the criteria for listing. For example, a species could be listed under the SPR clause when the species is restricted to 5% of its historical range but is not endangered. This species could be listed and protected throughout the 5%. The other 95% of the historical range would not be listed under current agency procedures because "range" is interpreted as the current range and afforded deference.[152] Courts have shown antipathy to the percentage-based proposal. The arbitrary and capricious test would pose a high barrier. Industry and stakeholders will present opposing percentage thresholds and the agency must support the supremacy of their standard. The Ninth Circuit in *Norton* expressly denied the proposal.[153]

Still, the percentage-based standard of delineating an SPR could provide a predictable, uniform framework for listing.[154] It would allow for natural evolutionary processes to occur without monitoring and recognition from the agency. Under the current listing process, a species with an extremely restricted and reduced range can be refused protection because of an inability to identify an immediate extinction risk. This would allow species to be protected in such situations and may allow for the diversity necessary to deal with future changes better than the "minimum viable population size" standard used today. It would preclude the reduction of ranges to ecologically insignificant but statutorily sufficient refugia. Further, the additional protection

147. 16 U.S.C. §1531(2)(b), stating that the purposes of the Act are
> to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of this section.

148. *See also* Craig Moritz, *Strategies to Protect Biological Diversity and the Evolutionary Processes That Sustain It*, 51 Systematic Biology 2 (2002).

149. De Vos et al., *supra* note 145, at 452-62.

150. J. John Sepkoski, *Rates of Speciation in the Fossil Record*, 353 Phil. Transactions: Biological Sci. 315, 315-26 (1998).

151. The extinction of a symbiotic species could be a binary standard to create an ecosystem-focused definition of the SPR clause. In this definition, a portion of a species range is considered "significant" if the extirpation of that portion puts another species at risk of extinction. This definition would provide unique meaning, but it would also protect many areas of a species range not essential to the goals of the ESA.

152. Humane Soc'y of the United States v. Zinke, 865 F.3d 585, 603 (D.C. Cir. 2017). Not all commentators agree with this interpretation. *See*, *e.g.*, Carmen Thomas Morse, *Listing Under the Endangered Species Act: How Low Can You Go?*, 47 Idaho L. Rev. 559, 560 (2011).

153. The court stated in *Norton*:
> [T]he percentage of habitat loss that will render a species in danger of extinction or threatened with extinction will necessarily be determined on a case-by-case basis. Furthermore, were a bright line percentage appropriate for determining when listing was necessary, Congress could simply have included that percentage in the text of the [Act].

258 F.3d 1136, 1144 (9th Cir. 2001). *Norton* invalidated the past listing policy employed in the marbled murrelet population finding an SPR because one-third of the species was at risk. *See also* Determination of Threatened Status for the Washington, Oregon, and California Population of the Marbled Murrelet, 57 Fed. Reg. 45328, 45330 (Oct. 1, 1992).

154. Kalyani Robbins, *Strength in Numbers: Setting Quantitative Criteria for Listing Species Under the Endangered Species Act*, 27 UCLA J. Envtl. L. & Pol'y 1, 3 (2009) (arguing for a quantified definition of "endangered through a significant portion of its range").

of a species range beyond the minimum viable population size would further the goal of ecological preservation put forward in §2(b) of the Act but not currently addressed by species protections.

Altogether, the structure of the SPR clause listing is counterintuitive. Range-wide protection for partial endangerment will entail some inefficiencies. However, by understanding the purposes of the ESA and its current statutory and administrative defects, the SPR clause listing can be structured to accomplish the unrealized goals of the Act. The administration of the clause will face difficulty in identifying quantifiable standards for listing. However, a careful examination of biological and ecological processes allows for the development of a useful new tool in species protections.

V. Conclusion

The ESA protects species in danger of extinction throughout all of their range and in danger of extinction throughout a significant portion of their range. However, the current definition of "significant portion" renders the phrase redundant and restricts the Act to protect species in danger of extinction throughout all of their range. FWS and NMFS must craft a policy that affords protections to species endangered in a significant portion, but not all, of their range. The policy will afford protection to the species range-wide. This seeming contradiction—range-wide protection based on partial endangerment—can be overcome by considering the purposes of the ESA, modern biological and ecological sciences, and effective public policy.