



United States Department of the Interior

OFFICE OF THE SOLICITOR

M-37017

OCT 03 2008

Memorandum

To: Secretary

From: Solicitor

Subject: Guidance on the Applicability of the Endangered Species Act's Consultation Requirements to Proposed Actions Involving the Emission of Greenhouse Gases

On May 14, 2008, the U.S. Geological Survey (USGS) issued a memorandum entitled "The Challenges of Linking Carbon Emissions, Atmospheric Greenhouse Gas [GHG] Concentrations, Global Warming, and Consequential Impacts." Based on a review of "the best scientific and commercial data available," which is a requirement of the Endangered Species Act (ESA),¹ the memorandum reached the following conclusion:

It is currently beyond the scope of existing science to identify a specific source of CO₂ emissions and designate it as the cause of specific climate impacts at an exact location.

In response, the U.S. Fish and Wildlife Service (FWS or Service) issued guidance laying out an analytical framework within which the Service would be able to assist Federal action agencies (including the Service itself when intra-Service consultation is appropriate) in achieving procedural and substantive compliance with the Act. In that memorandum, the FWS Director stated:

GHG that are projected to be emitted from a facility would not, in and of themselves, trigger section 7 consultation for a particular action unless it is established that the emissions from the proposed action cause an indirect effect to listed species or critical habitat. To constitute an indirect effect, the impact to the species must be later in time, must be caused by the proposed action, and must be reasonably certain to occur.²

¹ Endangered Species Act of 1973 § 7(a)(2), 16 U.S.C. § 1536(a)(2).

² Memorandum from H. D. Hall, Director, U.S. Fish and Wildlife Service, on "Expectations for Consultations on Actions that Would Emit Greenhouse Gases" to Regional Directors. May 14, 2008.

Based on the above statement by USGS, I concur with the guidance provided by the FWS and conclude, for the reasons explained below, that where the effects at issue result from climate change potentially induced by GHGs, a proposed action that will involve the emission of GHG cannot pass the “may affect” test, and is not subject to consultation under the ESA and its implementing regulations.³

I. The “May Affect” Test

Section 7(a)(2) of the ESA requires Federal agencies to ensure, in consultation with either the Secretary of the Interior or the Secretary of Commerce and based on “the best scientific and commercial data available,” that their proposed actions will not be “likely to jeopardize the continued existence of any [listed] species or result in the destruction or adverse modification of the critical habitat of such species.” However, not all proposed actions of Federal agencies are subject to the consultation requirement. The section 7 regulations state that consultation is required only when a Federal agency determines that its proposed action “may affect listed species or critical habitat.” 50 C.F.R. § 402.14(a).

The regulations do not establish any criteria for determining when the “may affect” test is satisfied. The Final ESA Section 7 Handbook describes “may affect” as:

The appropriate conclusion when a proposed action may pose any effects on listed species or designated critical habitat.⁴

Based in part on this guidance, it is generally understood that a proposed action passes the “may affect” test when an agency determines there is some likelihood the proposed action will have an effect on listed species or designated critical habitat. Effects of a proposed action on listed species or critical habitat that are “beneficial, discountable or insignificant,” are still considered to be effects of the action. Final ESA Section 7 Handbook, page xv.

In determining whether a proposed action “may affect” a listed species, or, conversely, whether there will be “no effect,” a Federal agency must go through a multi-step process. First, the agency must determine what activities are encompassed by its proposed action. Second, it must determine, in at least a preliminary way, what the effects of those activities are likely to be on the environment. Third, the agency must determine whether those effects will “pose any effects” on a listed species or critical habitat—i.e., whether there are listed species or critical habitat within the reach of those effects.

³ The proposed action may, of course, involve activities other than the emission of GHG that could have effects that would trigger the consultation requirements. Such other effects are not the focus of this memorandum.

⁴ *Endangered Species Consultation Handbook*, Glossary of Terms used in Section 7 Consultation, at xvi, issued by U.S. Fish and Wildlife Service and the National Marine Fisheries Service, March 1998. (Final ESA Section 7 Handbook).

A. Activities Encompassed by the Proposed Action

In determining what activities are encompassed by a proposed action, agencies are subject to the definition of “action” found in the regulations. The regulations define an “action” as “all activities or programs of any kind ... carried out, in whole or in part, by Federal agencies,” and “all activities or programs of any kind authorized [or] funded ... in whole or in part by Federal agencies.” 50 C.F.R. § 402.02. Activities “authorized or funded” by Federal agencies will typically be carried out by persons or organizations other than the agency itself.

B. “Effects of the Action”

In determining what the effects of a proposed action are likely to be, agencies are subject to the definition of “effects of the action” found in the regulations. Our regulations define “effects of the action” as follows:

Effects of the actions refers to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. 50 C.F.R. § 402.02

There are thus two types of effects that need to be identified and evaluated to determine if a proposed action will “pose any effects” to a listed species or critical habitat: direct and indirect.⁵

1. “Direct Effects”

While “direct effects” are not defined in the regulations, they are commonly understood to be the immediate effects on a listed species or critical habitat that will result from the carrying out by the Federal agency of the proposed action itself or from the carrying out by third parties of the activities authorized or funded by the Federal agency. In other words, if the agency does what it is proposing to do, the “direct effects” are the effects that are the immediate and natural consequences of the taking of the proposed action. The Final ESA Section 7 Handbook states:

⁵ This analysis would include the evaluation of direct and indirect effects of interrelated and interdependent actions.

Direct effect: the direct or immediate effects of the project on the species or its habitat, e.g., driving an off road vehicle through the nesting habitat of piping plover may destroy its ground nest; building a housing unit may destroy the habitat of an endangered mouse. Final ESA Section 7 Handbook at 4-25.

2. “Indirect Effects”

“Indirect effects” are defined in the regulations as “those that are caused by the proposed action and are later in time, but still are reasonably certain to occur.” 50 C.F.R. § 402.02. Indirect effects may involve the subsequent actions of others parties, but must ultimately be caused by the proposed agency action. Like “direct effects,” they must be “caused by” the proposed action, but because they are effects that are “later in time,” they are not necessarily inevitable. Thus, before concluding that an anticipated effect is an “indirect effect,” the agency must determine not just whether it is “caused by” the proposed action, but also whether it is “reasonably certain to occur.”

C. “Action Area”

Once the direct and indirect effects from the proposed action have been determined, the agency must next determine whether a listed species or its critical habitat may be affected by those effects. To do that, the agency must determine the “action area” of its proposed action. Any listed species or critical habitat not present in the “action area” will, by definition, not be affected by the proposed action. *See, e.g.*, 50 C.F.R. § 402.12(c) and (d).

“Action area” is defined in the regulations as all “areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” 50 C.F.R. § 402.02.

D. “Cumulative Effects”

It is important to note that “cumulative effects,” as defined in the regulations, are not considered at the “may affect” stage as they are not “effects of the action” because they are not “caused by” the proposed action. “Cumulative effects are those effects of future State or private activities, not involving any Federal activities, that are reasonably certain to occur within the action area of the Federal action.” 50 C.F.R. § 402.02 [emphasis added]. In other words, they are effects that would be “reasonably certain to occur” even if the proposed action was not taken.

Under the regulations, “cumulative effects” are taken into account at the formal consultation stage, which, in turn, is triggered as a result of an agency’s threshold determination that the direct and/or indirect effects of its proposed action may have an effect on listed species or critical habitat. 50 C.F.R. § 402.14(c) and (g)(4). Thus, if the direct and/or indirect effects of a proposed action will themselves have no effects on a listed species or critical habitat, the effects of other unrelated actions in the action area—

i.e., the cumulative effects—are of no relevance in determining whether a proposed action “may affect listed species or critical habitat.”

II. The “May Affect” Test and GHG Emissions

As the primary administrator of the Clean Air Act, the Environmental Protection Agency (EPA) has developed considerable expertise in current global climate change research and has substantial expertise in using the available models to analyze the fate of GHG emissions. Before applying the legal framework discussed above to a proposed action that will involve the emission of GHGs, we note as background the following statement that was recently made by the EPA:

To date, research on how emissions of CO₂ and other GHGs influence global climate change and associated effects has focused on the overall impact of emissions from aggregate regional or global sources. This is primarily because GHG emissions from single sources are small relative to aggregate emissions, and GHGs, once emitted from a given source, become well mixed in the global atmosphere and have a long atmospheric lifetime. The climate change research community has not yet developed tools specifically intended for evaluating or quantifying end-point impacts attributable to the emissions of GHGs from a single source, and we are not aware of any scientific literature to draw from regarding the climate effects of individual, facility-level GHG emissions.⁶

A. Direct effects

For climate change to be considered a “direct effect” of a proposed action involving the emission of GHGs, it would have to be an immediate effect that will result from that emission. As noted above, at the “may affect” stage, the direct effects of the proposed action are considered and define the action area along with the indirect effects. While the emission of GHGs from a single source may ultimately constitute an extremely small constituent of the aggregate global concentration of GHGs, such an emission by itself does not have a direct or immediate climate change effect. That being the case, it is proper to conclude, for purposes of the “may affect” test, that there will be no “direct effect” in the form of climate change from such emissions.

B. Indirect effects

For climate change to be considered an “indirect effect” on a member of a listed species or its habitat from a proposed action, the observed effect would have to be “caused by” the proposed action, occur later in time than the “direct effects” of the proposed action,

⁶ Letter from Robert J. Meyers, Principal Deputy Assistant Administrator, Office of Air and Radiation, EPA, to H. Dale Hall, Director, U.S. Fish and Wildlife Service, and James Lecky, Director of Protected Resources, National Marine Fisheries Service, on “Endangered Species Act and GHG Emitting Activities” (October 3, 2008) (Meyers Letter).

and be “reasonably certain to occur.”⁷ When these three tests are met, an agency considers the indirect effects of the proposed action and uses those effects, along with the direct effects, to define the action area. As with “direct effects,” however, “indirect effects” are considered in determining if an agency action “may affect a listed species or critical habitat” while “cumulative effects,” that are not a part of the agency action are evaluated in the subsequent formal consultation, once the “may effect” determination has been made. Again, the “cumulative effects” are effects from independent actions that are “reasonably certain to occur” within the action area defined by the direct and indirect effects.

The statement from the Director of the USGS quoted at the outset of this memorandum indicates that the requisite causal connections cannot be made between the emissions of GHGs from a proposed agency action and specific localized climate change as it impacts listed species or critical habitat. Given the nature of the complex and independent processes active in the atmosphere and the ocean acting on GHGs, the causal link simply cannot currently be made between emissions from a proposed action and specific effects on a listed species or its critical habitat. Specifically, science cannot say that a tiny incremental global temperature rise that might be produced by an action under consideration would manifest itself in the location of a listed species or its habitat. Similarly, any observed climate change effect on a member of a particular listed species or its critical habitat cannot be attributed to the emissions from any particular source. Rather it would be the consequence of the collective greenhouse gas accumulation from natural sources and the world-wide anthropogenically produced GHG emissions since at least the beginning of the industrial revolution.

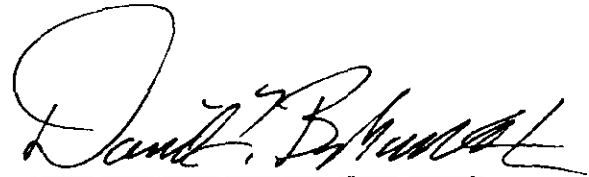
Moreover, even if a theoretical link between emissions and effects is hypothesized, a question arises as to the magnitude of the effect that might occur from that emission at the location of the listed species. The EPA has recently modeled global climate change impacts from a model source emitting 20% more GHGs than a 1500 MW coal-fired steam electric generating plant. It estimated a hypothetical maximum mean global temperature value increase resulting from such a project. The results ranged from 0.00022 and 0.00035 degrees Celsius occurring approximately 50 years after the facility begins operation. These values provide a way of understanding the scale of the issues involved. Not only are these modeled changes extremely small, the downsizing of these results to interpolate local applications would be a novel and untested application of the model, with even greater uncertainty in the predicted outcomes. The EPA concluded that

⁷ The regulatory requirement of a causal connection between the proposed agency action and the ultimate effect on a listed species has been upheld consistently by the courts. The Ninth Circuit recognized the need for a causal connection between the proposed agency action and a specific impact to a specific species or critical habitat when it held that an “Agency action can only ‘jeopardize’ a species’ existence if that agency action causes some deterioration in the species’ pre-action condition.” *Nat’l Wildlife Fedn v. Nat’l Marine Fisheries Serv.*, 524 F.3d 917, 930 (9th Cir. 2008). In an earlier decision, the Ninth Circuit concluded that the Service could not speculate about effects or the causal connection between the agency action and those “effects.” *Arizona Cattle Growers’ Association v. U.S. Fish and Wildlife Service*, 273 F.3d 1229 (9th Cir. 2001).

even assuming such an increase in temperature could be downscaled to a particular location, it “would be too small to physically measure or detect.”⁸

III. Conclusion

Based on the USGS statement, and its continued scientific validity, we conclude that where the effect at issue is climate change in the form of increased temperatures, a proposed action that will involve the emission of GHG cannot pass the “may affect” test and is not subject to consultation under the ESA and its implementing regulations.⁹

A handwritten signature in black ink, appearing to read "David Longly Bernhardt". The signature is fluid and cursive, with a large initial "D" and "B".

David Longly Bernhardt

⁸ Meyers Letter at 8.

⁹ Correspondence from USGS Director to Solicitor, October 3, 2008.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240



In Reply Refer To:
FWS/AES/DCHRS/036143

MAY 14 2008

Memorandum

To: Regional Directors, Regions 1-8

From: Director

Subject: Expectations for Consultations on Actions that Would Emit Greenhouse Gases

Recently, questions have been raised regarding compliance with section 7 of the Endangered Species Act concerning emissions of greenhouse gases (GHG), how these emissions contribute to global climate change, and any effects they may cause to listed species and designated critical habitats. These questions became evident as we analyzed the climate change information relevant to the polar bear listing determination. Based on our review of the information and issues considered during the analysis of the polar bear's status, I am writing to establish an analytical framework within which the Service will be able to assist Federal action agencies (including the Service itself when intra-Service consultation is appropriate) in achieving procedural and substantive compliance with the Act.

We recognize the primacy of a Federal action agency's role in determining how to conform its proposed actions to the requirements of section 7 and its responsibility to make the initial determination as to whether consultation is required on its action. As part of its ESA responsibilities, an action agency must examine the effects of its action in order to determine if consultation is necessary. Based on the attached memorandum to me from the Director of the U.S. Geological Survey, however, the Service does not anticipate that the mere fact that a Federal agency authorizes a project that is likely to emit GHG will require the initiation of section 7 consultation. Consultation is required for proposed Federal actions that may affect a listed species. The determination of whether consultation is triggered requires an examination of whether the direct and indirect effects of a particular action reach the regulatory threshold of "may affect". GHG that are projected to be emitted from a facility would not, in and of themselves, trigger section 7 consultation for a particular action unless it is established that the emissions from the proposed action cause an indirect effect to listed species or critical habitat. To constitute an indirect effect, the impact to the species must be later in time, must be caused by the proposed action, and must be reasonably certain to occur. The best scientific data available today do not allow us to draw a causal connection between GHG emissions from a given facility



and effects posed to listed species or their habitats, nor are there sufficient data to establish that such impacts are reasonably certain to occur. Without sufficient data to establish the required causal connection—to the level of reasonable certainty—between a new facility's GHG emissions and impacts to listed species or critical habitat, section 7 consultation would not be required to address impacts of a facility's GHG emissions.

A question has also been raised regarding the possible application of section 7 to effects that may arise from oil and gas development activities conducted within the habitat of listed species. It is clear that any direct effects of oil and gas development operations, such as drilling activities, vehicular traffic to and from drill sites, and other on-site operational support activities that pose adverse effects to listed species and their critical habitat would need to be evaluated through the section 7 consultation process. It is also clear that any indirect effects from oil and gas development activities, such as impacts from the spread of contaminants (accidental oil spills, or the unintentional release of other contaminants) that are caused by the oil and gas development activities under consultation and that are reasonably certain to occur, (e.g., that are outside of the footprint of the action and spread into habitat areas used by listed species) would also need to be evaluated through the section 7 consultation process.

However, the future effects of any emissions that may result from the consumption of petroleum products refined from crude oil pumped from a particular drilling site would not constitute indirect effects and therefore would not be considered during section 7 consultations. The best scientific data available to the Service today do not provide the degree of precision needed to draw a causal connection between the oil produced at a particular drilling site, the GHG emissions that may eventually result from the consumption of the refined petroleum product, and a particular impact to listed species or their habitats. At present there is a lack of scientific or technical knowledge to determine a relationship between oil and gas leasing, development, or production activity and the effects of the ultimate consumption of petroleum products (GHG emissions). There are discernible limits to the establishment of a causal connection, such as uncertainties regarding the amount of production from a field; whether any or all of that production will be refined for plastics or other products that will not be burned; what mix of vehicles or factories might use the product; and what mitigation measures might offset consumption. Furthermore, there is no traceable nexus between the ultimate consumption of the petroleum product and any particular effect to listed species or their habitats. In short, the emissions effects resulting from the consumption of petroleum derived from an oil field would not constitute an indirect effect of any Federal agency action to approve the development of that field.

As we move into and adapt to this new field of consultations, we must recognize the needs of our fellow agencies for assistance and consultation in the broadest sense. While the foregoing discussion describes our expectations with regard to certain types of Federal actions, you need to be prepared to respond to any Federal agency that believes it may have a compliance duty under section 7 for its programs or actions affecting the production of GHGs. As new information and knowledge about emissions and specific impacts to species and their habitats is developed, we will adapt our framework for consultations accordingly. This is particularly important as more

regionally-based models are developed and refined to the level of specificity and reliability needed for the Service to execute its implementation of the Act's provisions ensuring consistency with the statute's best available information standard. Regional Directors are expected to brief the Director as these new models and sources of information ripen at the appropriate scale prior to incorporation into implementing the Act.

Any questions regarding this consultation should be directed to Bryan Arroyo, Assistant Director, Endangered Species, at (202) 208-4646.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington, D.C. 20240

DEC 22 2010



In Reply Refer To:
FWS/AES/047069

Memorandum

To: Polar Bear Listing Determination File
From: Acting Director *David M. Ashe*
Subject: Supplemental Explanation for the Legal Basis of the Department's May 15, 2008, Determination of Threatened Status for Polar Bears

I Introduction

The Court's November 4, 2010 Memorandum Opinion and Order, remanded to the U.S. Fish and Wildlife Service ("Service") its Final Listing Determination under the Endangered Species Act ("ESA") for the Polar Bear "for the limited purpose of providing additional explanation for the legal basis of its listing determination, and for such further action as it may wish to take in light of the Court's finding that the definition of an 'endangered species' under the ESA is ambiguous." The Service respectfully submits this supplemental explanation of the meaning of the statutory phrase "in danger of extinction" as applied in the Polar Bear Listing Rule ("Listing Rule").¹ In view of the Court's findings that the meaning of the phrase "in danger of extinction" cannot be discerned from the plain language of the ESA, and that the agency failed to adequately explain its interpretation of the phrase as part of the legal basis of the Listing Rule, the Service provides this supplemental explanation. As explained herein, the Service's interpretation of the ESA was founded upon long-standing Service practice and usage and its scientific expertise and experience. Furthermore, because this general understanding comports with the text, structure, and legislative history of the ESA, as well as judicial interpretations of the ESA and the ESA's policy objectives, it represents a permissible construction of the statute.

As a supplemental explanation of the listing decision that was made previously for the Court to consider along with the administrative record in evaluating the Listing Rule, this explanation does not set forth a new statement of agency policy, nor is it a "rule" as defined in the Administrative Procedure Act. Indeed, given the narrow scope of the remand, the Court determined that notice-and-comment procedures were not required. As the Court explained in ordering this remand, it was not "requir[ing] the agency to adopt independent, broad-based

¹ Based upon the statements made by the Court at the October 20, 2010 hearing, the Oct 20, 2010 Minute Order, and the November 4, 2010 Memorandum and Order, the Service understands the Court to have found that a portion of the statutory definition of "endangered species" is ambiguous, specifically the phrase "in danger of extinction." Thus, this explanation submitted on remand is confined to the Service's interpretation of the phrase "in danger of extinction" in the context of the polar bear listing determination.



criteria for defining the statutory term ‘in danger of extinction.’” Mem. Op. at 24 n.18. Thus, the explanation set forth in this memorandum does not represent a new interpretation of the statute and is not a prospective statement of agency policy. Furthermore, consistent with the Court’s remand order, the Service did not conduct additional fact-finding in the development of this supplemental explanation. The interpretation used in the Listing Rule is supported by the administrative record already lodged with the Court, as demonstrated more fully in this memorandum.

In clarifying the legal basis for our determination on the status of the polar bear under the ESA, we first explain the general understanding of the phrase “in danger of extinction” that the Service used in the Listing Rule. Following this explanation, we discuss how the Service’s general understanding of the meaning of “in danger of extinction” fully conforms with past agency practice. Then, we discuss how this general understanding is consistent with the text, structure, policy objectives, and legislative history of the ESA, as well as judicial interpretations of the statute. Lastly, we show that the polar bear administrative record evidences that we, in fact, properly applied this general understanding of “in danger of extinction” in making our determination that the polar bear should be protected as a threatened species under the ESA.

II. The Service Implicitly Employs a General Understanding of “In Danger of Extinction”

A. Background: Statutory Text and Structure

The ESA, 16 U.S.C. § 1531 *et seq.*, was enacted in 1973 “to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of such endangered species and threatened species.” 16 U.S.C. § 1531(b). The terms “conserve” and “conservation” are defined by the statute to mean “the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary.” 16 U.S.C. § 1532(3). Once the Service² designates a species as endangered or threatened, statutory prohibitions help provide for the recovery of the species. *See, e.g.*, 16 U.S.C. § 1536(a)(2) (federal agencies’ duty to avoid jeopardizing the continued existence of listed species); *id.* § 1538 (prohibitions against illegal or unauthorized “taking” of endangered species, which may also be applied to threatened species, *see id.* § 1533(d)).³

² Congress delegated the responsibility to determine whether a species is threatened or endangered to the Secretaries of the Interior and Commerce. At the Department of the Interior, the Secretary has delegated the authority to make listing determinations to the U.S. Fish and Wildlife Service. The Secretary of the Interior has jurisdiction over the polar bear. *See* 50 C.F.R. § 402.01(b). In this memorandum, the term “Service” will be used to refer both to the U.S. Fish and Wildlife Service and the Secretary of the Interior.

³ Pursuant to ESA section 4(d), the Secretary may extend the section 9 prohibitions to threatened species. For the polar bear, the Service issued a rule pursuant to this section, which is codified at 50 C.F.R. § 17.40(q) and is being challenged separately from the Listing Rule cases; therefore, the section 4(d) special rule for the polar bear is not the subject of this memorandum.

Section 4 of the statute directs the Service to determine which species should be designated as endangered or threatened. An “endangered species” is “any species which is *in danger of extinction* throughout all or a significant portion of its range.” *Id.* § 1532(6) (emphasis added). A “threatened species” is “any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” *Id.* § 1532(20). As the term “endangered species” is included in the definition of “threatened species,” the meaning of “endangered species,” is part of the definition of “threatened species.” Thus, a species may be listed as “threatened” if it is likely to qualify for endangered status in the foreseeable future, or in other words, likely to become “in danger of extinction” within the foreseeable future. Thus, the Service’s understanding of the meaning of the phrase “in danger of extinction” is implicit in the agency’s determinations of whether a species is endangered or threatened.

B. The Service’s General Understanding of “In Danger of Extinction”

As discussed below, the legislative history indicates Congress did not provide any quantitative measures for the Service to apply when determining whether a species is “in danger of extinction.” Rather, it left to the discretion of the Service the task of giving meaning to these terms through the process of case-specific analyses, which must necessarily depend upon the Service’s scientific expertise. Due to the complexity of biological systems and processes, the diversity of the life histories of individual species, and differences in the amount and quality of data to inform individual listing determinations, those determinations are contextual and fact-dependent; as a result, the Service has not promulgated a binding interpretation of “in danger of extinction” or even explicit non-binding guidance on the meaning of the phrase that may be applied uniformly in those determinations.

As a practical matter, however, the Service’s listing determinations implicitly begin with a general understanding of what “in danger of extinction” means, subject to modification with its application to the particular facts at issue. This general understanding can most simply be expressed in a very similar manner to how the legislative history of the ESA expressed it: a species is “in danger of extinction” if the species is *currently on the brink of extinction in the wild* (as opposed to in captivity). We apply this general understanding when analyzing whether a species is in danger of extinction throughout all of its range or in danger of extinction in a significant portion of its range.

Although the Service employs the concept of being on the brink of extinction in the wild as its general understanding of “in danger of extinction,” it does not do so in a narrow or inflexible way. As implemented by the Service, to be currently on the brink of extinction in the wild does not necessarily mean that extinction is certain or inevitable, or even that it is more likely than not. Rather, a species can be on the brink of extinction indefinitely without becoming extinct. Ultimately, whether a species is currently on the brink of extinction in the wild, and the timing of the extinction event itself, depends on the life history and ecology of the species, the nature of the threats, and the species’ response to those threats. As the next section shows, the Service has performed that task in a thoughtful, consistent manner over the history of the implementation of the ESA.

C. The Service's Administrative Practice Reflects a Consistent Approach to the Determination of Which Species Are on the Brink of Extinction and Therefore Appropriately Listed as Endangered

To say, as the legislative history of the ESA does, that Congress intended “in danger of extinction” to mean “on the brink of extinction,” provides some clarification to whatever ambiguity exists in the former term. However, because of the fact-specific nature of listing determinations, as discussed above, there is no single metric for determining if a species is “in danger of extinction.” Nonetheless, the practice of the Service over the past four decades has been remarkably consistent. Species that the Service has determined to be in danger of extinction, and therefore appropriately listed as endangered, generally fall into four basic categories. Each of those categories is consistent with the general understanding described above, and thus each is based on consideration of the life history and ecology of the species, the nature of the threats (particularly the timing of the threats), and the species’ response to those threats (particular the timing of the response).

i. Species facing a catastrophic threat from which the risk of extinction is imminent and certain. The most widely familiar of these is the snail darter, a fish whose discovery came after the Tennessee Valley Authority had begun construction of Tellico Dam on the Little Tennessee River, precisely where the fish lived. At the time of its listing, it was known from only a single, swift flowing stretch of river that was slated to be inundated by the impounded waters of an about-to-be completed dam. The completion of the dam threatened total and virtually immediate obliteration of the species, as recounted in TVA v. Hill, 427 U.S. 153 (1978). On the basis of the imminent construction of the dam and projected destruction of the sole population of the snail darter, the snail darter was clearly “in danger of extinction.” The Service determined it to be an endangered species under the ESA (October, 9, 1975; 40 FR 47505). The snail darter faced catastrophic threats that were both imminent and certain. The conditions for this species made it obvious that it was currently on the brink of extinction and fell well within our general understanding and application of “in danger of extinction.”

ii. Narrowly restricted endemics that, as a result of their limited range or population size, are vulnerable to extinction from elevated threats. This category applies to species whose vulnerability to threats has increased beyond natural levels to the extent that they are currently on the brink of extinction as a result of their limited ranges and populations sizes. Thus, in the absence of increased threats, rarity or extremely limited ranges alone do not necessarily require listing as endangered or threatened.

A large portion of the endangered species list is made up of such localized endemics. The best known of these is undoubtedly the Devil’s Hole pupfish, which lives in a single sinkhole in the southern Nevada desert. Its vulnerability to extinction as a result of a minor drop in groundwater level is described at length by the Supreme Court in the case Cappaert v. United States, 426 U.S. 128 (1976). Although the threats that the pupfish faced were less predictable and certain than those for species discussed above in the first category, its extreme rarity made it highly vulnerable to threats that would have only a minor impact on a more-wide spread species. As a consequence, the Service determined it to be an endangered species under the ESA (March 11, 1967, 32 FR 4001).

Similarly, the Service determined that *Phyllostegia hispida*, a plant only known from 24 individuals in a small, remote area of Hawaii, whose habitat was being significantly affected by feral pigs, was endangered because the impacts from the feral pigs and demographic effects from its small population size resulted in the species being “in danger of extinction.” The species was subsequently listed as an endangered species (March 17, 2009, 74 FR 11319).

The Devil’s Hole pupfish and *Phyllostegia hispida* are narrowly restricted endemics and are highly vulnerable to threats as a result of their extreme rarity and elevated threats. The Service’s determined that these species were currently on the brink of extinction. These decisions fell well within our general understanding and application of “in danger of extinction.”

iii. Species formerly more widespread that have been reduced to such critically low numbers or restricted ranges that they are at a high risk of extinction due to threats that would not otherwise imperil the species. Range reduction in and of itself does not necessarily mean that a species is in danger of extinction; however, a severe range reduction combined with ongoing threats can put a species on the brink of extinction. Well-known examples of species in this category include California condors, black-footed ferrets, whooping cranes, and many vernal pool species. All of these were once relatively widespread and abundant, but suffered catastrophic range reductions and population crashes that made their extinction seem all but certain without the additional protections of the ESA. Indeed, the extinction of the condor was averted only because the few remaining wild condors were brought into captivity to form the nucleus of a thus-far successful captive breeding and reintroduction program. The black-footed ferret was formerly found throughout the mid-west and western states, but by the late 1970s, the ferret was thought to have gone extinct. Ultimately, a single small colony was discovered in Wyoming in 1981 on a privately-owned ranch. These animals were left on the ranch where they were closely monitored until a plague and canine distemper outbreak caused population numbers to plummet to 18 individuals (October 1, 1998; 63 FR 52823).

In the case of the vernal pool species in California, in excess of 95 percent of vernal pool habitat has been lost to development and other factors. Plant and animal species endemic to these vernal pools, in many cases, had become so restricted in their ranges — some even restricted to a single vernal pool complex — that they were highly vulnerable to a multitude of threats, including stochastic or chance events. On the basis of the extremely restricted ranges, ongoing and projected threats, the Service determined that many of these species were in situations consistent with our general understanding and application of a species being “in danger of extinction.” Many of these species were subsequently listed as endangered species (September 19, 1994; 59 FR 48136 and February 3, 1997; 62 FR 4925).

The California condor, black-footed ferret, and numerous vernal pool species in California, like many other species, previously had widespread distributions and larger abundances. However, due to many factors, their distributions and populations were so severely curtailed that on-going threats and chance events resulted in them being currently on the brink of extinction. As a consequence, the listing determinations for these species fell well within our general understanding and application of “in danger of extinction,” and the Service listed them as endangered species.

iv. Species with still relatively widespread distribution that have nevertheless suffered ongoing major reductions in its numbers, range, or both, as a result of factors that have not been abated. Once again, the endangered list is populated with many examples of species in this category, including such relatively familiar ones as the red-cockaded woodpecker of the Southeast and the Indiana bat of the eastern United States.

The red-cockaded woodpecker was formerly a common bird distributed continuously across at least 12 states in the southeastern United States. However, by the time it was listed in 1970, the species had declined to fewer than 10,000 individuals in widely scattered, isolated, and declining populations. This precipitous decline, caused by an almost complete loss of its primary longleaf pine habitat resulted in the species being currently on the brink of extinction due to reproductive isolation, and demographic threats due to only small, isolated populations remaining (October 13, 1970; 35 FR 16047).

Threatened species typically have some of the characteristics of the fourth category above, in that they too have generally suffered some recent decline in numbers, range, or both, but to a less severe extent than endangered species. Whether a species in this situation is ultimately an endangered species or a threatened species depends on the specific life history and ecology of the species, the nature of the threats, and population numbers and trends. Even species that have suffered fairly substantial declines in numbers or range are sometimes listed as threatened rather than endangered, such as the desert tortoise, northern spotted owl, and the southwest distinct population segment of the northern sea otter⁴. For example, the wider distribution, greater abundance, and numerous populations of the southwest distinct population segment (DPS) of the northern sea otter influenced the resiliency and resistance to threats making the species currently less vulnerable to threats. The Service found that even though threats were generally significant and ongoing across the range of the DPS and the numbers of otters significantly declined from approximately 80,000 animals to 40,000, the DPS was not currently on the brink of extinction. The DPS as a whole had numerous isolated populations that were affected by threats at differing levels. The result was that some populations were in danger of extinction while others appeared stable, indicating that the DPS as a whole was not in danger of extinction, although the Service could foresee the species reaching the brink of extinction. The Service determined that the DPS should be listed as threatened. (August 9, 2005, 70 FR 46366).

III. The Service's Understanding of the Meaning of the Phrase "In Danger of Extinction" is a Permissible Construction of the ESA

In the context of the decision to list the polar bear as a threatened species, and in light of the Service's administrative history in applying the definitions of "endangered species" and "threatened species" described above, the Service's understanding of the phrase "in danger of extinction" is a permissible construction of the ESA. The Service's understanding of the

⁴ Indeed, some species that have suffered fairly substantial declines in numbers or range do not warrant listing. The projected trend based on those declines does not lead the Service to determine that a species is currently on the brink of extinction or likely to become so, e.g., cerulean warbler (December 6, 2006; 71 FR 70717)

pertinent phrase comports with the text, policies, purposes, and legislative history of the statute, as well as judicial interpretations of the ESA.

A. The Text of the ESA

In terms of the statutory text, section 4 of the ESA directs the Service to determine which species should be designated as endangered or threatened. An “endangered species” is “any species which *is in danger of extinction* throughout all or a significant portion of its range.” 16 U.S.C. § 1532(6) (emphasis added). A “threatened species” is “any species which is *likely to become* an endangered species within the foreseeable future throughout all or a significant portion of its range.” *Id.* § 1532(20) (emphasis added). Thus, a species may be listed as “threatened” if it is likely to qualify for endangered status in the foreseeable future, or in other words, likely to become “in danger of extinction” within the foreseeable future.

Despite the similarity of these statutory definitions, there is a crucial temporal distinction between them. Under the ESA, the statutory definition of “endangered species” as a species that “is in danger of extinction” clearly connotes an established, present condition. In contrast, the definition of a “threatened species” as one that is “likely to become an endangered species within the foreseeable future” equally clearly connotes a predicted or expected future condition. Thus, in the context of the ESA, an “endangered species” may be viewed as a species that is presently at risk of extinction. A “threatened species,” on the other hand, is not currently at risk of extinction, but is likely to become so. In other words, a key statutory difference between a threatened and endangered species is the timing of when a species may be in danger of extinction (i.e., currently on the brink of extinction), either now (endangered) or in the foreseeable future (threatened).

In the context of the listing determination for the polar bear, the Service’s application of its general understanding that an endangered species is one that is currently on the brink of extinction, whereas a threatened species is likely to become so in the foreseeable future, recognizes this temporal distinction between the threatened and endangered categories that is evidenced in the text of the ESA. As will be explained in more detail below, the Service found that the bear is not currently on the brink of extinction because its established, present condition was stable or increasing in most of the populations for which data was available, and declining slightly in a minority of such populations. Overall, both its range and its numbers were relatively constant. As to its expected future condition, however, the Service predicted, based upon a number of modeling scenarios, that the bear’s numbers and range would over time contract to the point that it would become in danger of extinction, thus justifying the May 15, 2008, determination as “threatened.”

B. The Policies and Purposes of the ESA

As reflected in the text of the statute and the legislative history, the purposes of the ESA are not merely to prevent the extinction of species but also to recover them to the point at which the provisions of the ESA are no longer needed. The ESA seeks to do that through a variety of means, including prohibitions or restrictions on activities generally detrimental to the well being of imperiled species. For endangered species, these prohibitions are stringent and apply automatically through the operation of section 9. For threatened species, on the other hand, the

ESA imposes no automatic prohibitions through section 9. Rather, it vests the Secretary with the discretion, under section 4(d) to extend the section 9 prohibitions to threatened species or to issue such other regulations as he deems necessary and advisable for the conservation of the species.

This structural distinction between stringent prohibitions that apply automatically to the most imperiled species, and more flexible restrictions that can be applied flexibly and as needed to less imperiled species comports well with the Service's distinction between species currently on the brink of extinction and those not yet there. The former, by virtue of their recent dramatic declines or near-term catastrophic threats, generally need stringent protection. For species not yet on the brink of extinction, particularly for those that have yet to experience any notable decline in numbers or range, section 4(d) offers the flexibility to fashion restrictions according to the needs of the species, which reflects the generally longer time frames available to test differing conservation strategies.

The Service has been employing its expertise and experience in implementing the ESA for almost forty years. In doing so, the Service has concluded that this conception of the relationship between threatened species, endangered species and the resulting protections is the most effective manner in which to implement the purposes and policies of the ESA to conserve imperiled species. This conception, consistent with Congress's intent in passing the ESA, enables the Service to act to protect species before they are on the brink of extinction (through listing as a threatened species), and mandates application of more stringent protections if a species reaches the point of being currently on the brink of extinction. The propriety of this general understanding and application of "in danger of extinction" is reflected in the legislative history, discussed in the section below.

C. The Legislative History of the ESA

Prior to 1973, federal endangered species legislation recognized only one category of imperilment, not two. Both the Endangered Species Preservation Act of 1966 ("1966 Act"), Pub. L. No. 89-669, 80 Stat. 926 (1966), and the Endangered Species Conservation Act of 1969 ("1969 Act"), Pub. L. No. 91-135 (1969), had a single category of "endangered species" that, like the 1973 law, was based upon an established, present condition. The 1966 Act defined "endangered species" as any species whose "*existence is endangered* because its habitat is threatened with destruction, drastic modification, or severe curtailment, or because of overexploitation, disease, predation, or because of other factors, and that its survival requires assistance." 1966 Act, §1(c) (emphasis added). Similarly, the 1969 Act defined "endangered species" as those "*deemed to be threatened* with worldwide extinction whenever the Service determines, based on the best scientific and commercial data available to him,... that the continued existence of such species or subspecies of fish or wildlife *is... endangered.*" 1969 Act, § 3(a) (emphasis added).

In response to perceived inadequacies of the 1966 and 1969 Acts, the Nixon Administration introduced proposals beginning in 1972 to comprehensively overhaul existing federal endangered species law. One of the key perceived shortcomings of the ESA's predecessors was that both the 1966 and 1969 Acts provided protections only to species that were already in

danger of extinction. President Nixon pointed this out in his environmental message of 1972, in which he stated that “[w]e have found that even the most recent act to protect endangered species, which dates only from 1969, simply does not provide the kind of management tools needed to act *early* enough to save a vanishing species.” 8 Weekly Comp. Pres. Doc. 218, 223-24 (Feb. 8, 1972) (emphasis added).

To remedy this and other defects, the Department of the Interior issued proposals that would expand the scope of species protected under federal endangered species law. In 1972, the Administration’s bills expanded the definition of “endangered species” to include any species “either *presently threatened* with extinction or [that] will *likely become threatened* with extinction, throughout all or a significant portion of its range.” S. 3199 and H.R. 13081, 92d Cong. § 2(c)(1) (1972). The Administration again proposed bills in 1973 with an identical definition. *See* S. 1592 and H.R. 4758, 93d Cong. § 2(c)(1) (1973). Although the Administration’s bills were not enacted, their history is relevant to understanding the textual evolution and meaning of the phrase “in danger of extinction” now found in the ESA, because their definition of “endangered species” was nearly identical to the definitions contained in H.R. 37 and S. 1983, the bills that would eventually become the ESA.⁵ Indeed, both the Administration’s bills and the ESA, as enacted, recognized species with two distinct degrees of imperilment based on the temporal proximity of the risk of extinction.

In 1973, the Department of the Interior issued a final Environmental Impact Statement (EIS) on H.R. 4758, the Administration’s original bill. In its EIS, the Department explained how the term “endangered species” was defined under the ESCA to include “species or subspecies that are *imminently* threatened with extinction.” Final Environmental Statement on the Proposed Endangered Species Conservation Act of 1973, H.R. 4758, U.S. Department of the Interior, at 1 (emphasis added). The Department further explained that under the Administration’s proposed legislation, “endangered is considerably broadened to include not only those animals *threatened*

⁵ As first introduced by Congress, H.R. 37 and S. 1983 contained the same definition for “endangered species” found in the Administration’s bill, H.R. 4758. *See* H.R. 37, 93d Cong. § 4(a) (January 3, 1973) and S. 1983, 93d Cong. § 4(a)(1) (June 12, 1973) (“A species or subspecies of fish or wildlife shall be regarded as an endangered species whenever the Secretary ... determines ... such species or subspecies of fish or wildlife throughout all or a significant portion of its habitat or range, is either presently threatened with extinction or will likely within the foreseeable future become threatened with extinction.”). In the bills reported out of the House Committee on Merchant Marine and Fisheries and the Senate Committee on Commerce, H.R. 37 and S. 1983, respectively, this expanded definition of “endangered species” was later broken into two definitions for species protected under the proposed legislation—“endangered species” and “threatened species.” *See* H.R. 37, 93d Cong. § 3(2), § 3(12) (July 27, 1973) and S. 1983, 93d Cong. § 3(2), § 3(13) (July 1, 1973). On July 24, 1973, the Senate considered and passed S. 1983. *See* Cong. Rec., Senate Consideration and Passage of S. 1983 (July 24, 1973), reprinted in Legislative History of the Endangered Species Act of 1973, As Amended in 1976, 1977, 1978, and 1980 (“Leg. Hist.”) at 410. On September 18, 1973, the House of Representatives passed S. 1983 with amendments by way of substituting all of its provisions for those of H.R. 37. *See* Leg. Hist. at 224. The Senate conferees to S. 1983 agreed to the House’s amendments with some minor changes, and the Senate and House of Representatives passed the Conference bill on December 19, 1973 and December 20, 1973, respectively. *Id.* at 455, 474, and 486. As signed into law, S. 1983 became Public Law 92-205, the Endangered Species Act of 1973, as enacted. *Id.* at 486.

with extinction but also any species or subspecies *likely within the foreseeable future to become threatened with extinction throughout all or a significant portion of its range.*" *Id.* (emphasis added). The EIS referred to these two categories of endangered species as "Group 1" (threatened with extinction) and "Group 2" (likely within the foreseeable future to become threatened with extinction). These categories would soon be redesignated as "endangered species" and "threatened species" in H.R. 37 and S. 1983, the two principal bills leading to the enactment of the ESA.⁶

Throughout the EIS, the Department referred in various ways to the more imperiled (Group 1) category, but almost always in ways that emphasized the timing of the peril. For example, the Department referred to species that were considered to fall under the Group 1 (endangered) category as those that are "in immediate danger," and as species that are "now critically threatened with extinction." *Id.* at 9, 65, and 75.

The EIS includes comments from several States noting the ambiguity in the listing standard for the Group 2 (threatened) category. The Washington Department of Game highlighted the vagueness of the phrase "likely within the foreseeable future to become threatened with extinction" in stating:

A more definitive explanation of "likely within the foreseeable future to become threatened with extinction" is needed. The phrase is extremely speculative and vague; judgements [sic] made on this criterion would lack credibility. Also this phrase when tied to the words "subspecies" and "extinction" ... lacks the preciseness required in a scientific approach to this important problem.

Id. at 207. In its response, the Department acknowledged the imprecision of the phrase, but offered the following explanation:

As to the scientific preciseness of the term "likely within the foreseeable future to become threatened with extinction," we are satisfied there are no terms which adequately describe the point at which a species or subspecies reaches *the step just prior to the brink of extinction* and at the same time means the same thing to all who are witness to the term. If the objective of this particular program is to prevent the extinction of the species ... a degree of discretion or judgment must be allowed the Secretary [sic] to deal with the needs of each species or subspecies Some of the unavoidable vagueness of the term is mitigated by provisions in the proposed legislation for Secretarial consultation with States, countries, interested persons and organizations and interested Federal agencies."

Id. at 211-12 (emphasis added). In short, Group 2 (threatened) species were at "the step just prior the brink of extinction," while Group 1 (endangered) species were already on the brink.

⁶For a description of Congress' consideration of H.R. 37 and S. 1983 as part of the process leading to enactment of the ESA, see *supra* note 5.

The Arizona Department of Economic Planning and Development also recommended that the Department define the circumstances that would govern whether a species is likely to become threatened with extinction. *See Id.* at 72. In response, the Department explained:

It is recognized that criteria provided in the proposed legislation do not spell precisely which species fell under terms of the definitions. Purpose [sic] of the action is not only to protect and restore only those species that now are critically threatened with extinction but to head off the ultimate plight of species that will soon reach the same point *even though they are not rare now.*

Id. at 75 (emphasis added).

In sum, the Department's EIS indicated the timing of the risk of extinction was intended to be the key distinction between the endangered and threatened classifications contained in the Administration's bill. The EIS suggested that Category 1 species (endangered) were to be comprised of the species that "*now* are critically threatened with extinction." *Id.* (emphasis added). According to the Department, the Administration's proposal sought to extend protections to Category 2 species (threatened) that were at a "step just prior to the brink," *Id.* at 211, "even though they were not now rare." *Id.* at 75. In explaining the temporal distinction between the two protected categories as to the proximity of the risk of extinction, the Department acknowledged that it could not provide precise terms to describe which species fell under either classification. *Id.* at 75. In evaluating whether species are a "step just prior to the brink of extinction" or "now are critically threatened with extinction," the Department further indicated that such a determination would necessarily involve discretion and judgment. *Id.* at 211. In addition, the Department stated that the determination would require a species-specific consideration of multiple factors. *Id.*

Floor debate on the Administration's original bill and the bills leading up to enactment of the ESA also reveal the temporal distinction between the two status classifications that Congress would eventually adopt. However, as in the EIS, none of the statements provide more definitive explanations of the phrases "in danger of extinction" and "likely to become an endangered species in the foreseeable future."

Highlighting the temporal distinction between the two classifications of protected species, Senator Williams of New Jersey again used the "brink of extinction" terminology from the EIS to describe the "endangered" category:

An animal's continued existence *must actually be in peril* before it may be considered endangered. It is absolutely essential that a species of wildlife be afforded protection before it reaches the endangered list and thereby the *brink of extinction* The endangered list will be composed of those species *which are in danger* of extinction. The threatened [sic] list will be composed of those species which are not *presently* in danger of extinction, but which are likely to become endangered if protective measures are not taken.

Cong. Rec., Senate Consideration and Passage of S. 1983 (July 24, 1973), reprinted in Legislative History of the Endangered Species Act of 1973, As Amended in 1976, 1977, 1978, and 1980 (“Leg. Hist.”) at 375 (emphases added). Like the EIS, this statement indicates that “endangered species” include species that are presently at risk of extinction, whereas “threatened species” include species that are likely to become at risk of extinction in the foreseeable future. It is instructive to consider that what members of Congress and the Department of the Interior likely meant by species on the “brink of extinction” or “in present danger of extinction” is suggested by the list of protected native species that was in effect when Congress was considering enactment of the Endangered Species Act. That list consisted of 101 species identified in 1970 and eight others added in 1973. See 35 Fed. Reg. 16047 (Oct. 13, 1970) and 38 Fed. Reg. 14678 (June 4, 1973). All of these had either suffered dramatic reductions in range or numbers (e.g., California condor, black-footed ferret, red wolf, whooping crane, Florida panther, and Key deer), or were restricted to very small populations in very small areas (e.g., Devil’s Hole pupfish). Indeed, some were either thought to be possibly extinct in the wild already, or would be soon thereafter (e.g., ivory-billed woodpecker, eastern cougar, northern Rocky Mountain wolf, dusky seaside sparrow, Maryland darter, and blue pike).

Both Senate and House Committee Reports on the 1973 bills emphasize Congress’ intent to provide the Service with discretion in determining which species to list. For example, the Senate Commerce Committee Report on S. 1983 indicated:

The bill must provide the Secretary with sufficient discretion in listing and delisting animals so that he may afford present protection to those species which are either in present danger of extinction or likely within the foreseeable future to become endangered.

S. Rep. No. 93-307, at 3 (July 1, 1973). The Committee further explained that the ability to forecast population trends was also envisioned by Congress as being part of the Service’s determination of whether a species is likely to become in danger of extinction in the foreseeable future. The report indicates:

The bill provides a broadened concept of an “endangered species” by affording the Secretary the additional power to list animals which he determines are likely within the foreseeable future to become threatened with extinction. This gives effect to the Secretary’s ability to *forecast population trends by permitting him to regulate these animals before the danger becomes imminent* while long-range action is begun. By creating two levels of protection, regulatory mechanisms may more easily be tailored to the needs of the endangered animals.

Id. at 3 (emphasis added). The use of the term “forecast” is instructive because it recognizes that the Service will use predictive judgment to look beyond the present to determine whether a species is threatened; in contrast, the necessary implication of this language is that the danger of extinction is already imminent for an endangered species.

As the legislative history indicates, Congress did not provide any quantitative measures for the Service to apply when determining whether a species is “in danger of extinction” or “likely to become in danger of extinction.” Rather, it left to the discretion of the Service the task of giving meaning to these terms through the process of species-by-species listing determinations. As the section describing the Service’s past agency practice in applying the definitions of “endangered species” and “threatened species” shows, the Service has performed that task in a thoughtful, consistent manner.

D. Judicial Interpretations of “Endangered Species”

An examination of case law on the ESA reveals that courts have not provided an interpretation of the phrase “in danger of extinction” in the context of a listing determination under the ESA. Nevertheless, the Service’s practice of using its professional scientific judgment in determining whether a species is endangered or threatened and, thereby, according meaning to the phrase “in danger of extinction” on a species-by-species basis is consistent with judicial interpretations indicating that Congress intended to delegate broad responsibility to the Service in designating whether a species is “in danger of extinction” or “likely to become in danger of extinction in the foreseeable future.” Furthermore, courts have also noted the temporal distinction between the endangered and threatened classifications as to the proximity of the risk of extinction, a distinction that courts have found to be evidenced in the statutory text and legislative history of the ESA. In sum, although these cases shed limited light on the appropriate meaning of the phrase “in danger of extinction,” these cases are consistent with the Service’s general understanding and application of the listing standard in the polar bear listing determination and previous listing determinations.

Defenders of Wildlife v. Norton, 258 F.3d 1136, 1146 (9th Cir. 2001), involved a challenge to the Service’s decision to withdraw the proposed rule to list the flat-tailed horned lizard as a threatened species. Although the issue in the case centered on the meaning of the phrase “significant portion of its range,” the court found the phrase “in danger of extinction” when read with the remainder of the statutory definition “throughout a significant portion of the range” created an internal inconsistency, because the term “‘extinction’ suggests total rather than partial disappearance.” *Id.* at 1141. Thus, the court concluded that the “statute is therefore inherently ambiguous, as it appears to use language in a manner in some tension with ordinary usage.” *Id.*

In that case, the Service argued that in recognition of extinction as “a gradual process,” Congress authorized the Service to list a species in its entirety when it faces threats so severe in a significant portion of the range that the viability of the species is threatened throughout its range. *Id.* at 1142. In other words, according to the Service, because Congress recognized that “extinction is a gradual process,” the Service need not demonstrate that a species faces threats so severe throughout its range that it is in danger of extinction in every portion of its range. *Id.*

In light of its examination of the statutory text and legislative history, the court agreed with the Service that Congress recognized “extinction is a gradual process”; however, the court found that Congress’s desire to provide “incremental protection to the species in varying degrees of danger” was incorporated in the ESA’s protection for threatened species (species likely to become in danger of extinction), rather than in the “significant portion” phrase. *Id.* at 1142-43.

The court's reasoning in the flat-tailed horned lizard decision provides some insight into Congress's meaning of the phrase "in danger of extinction." The court found support in the statutory text and legislative history that Congress understood there is a process leading up to extinction and that process is gradual in time such that it allows the Service to identify species that may not be presently in danger of extinction, but are likely to become so in the foreseeable future. In suggesting this temporal distinction between endangered and threatened species as to the proximity of the risk of extinction, the court noted the following statement made by Senator Tunney of California during Senate floor debate on the ESA:

[The ESA] provides protection to a broader range of species by affording the Secretary the power to list animals which he determines are likely *in the foreseeable future* to become extinct, as well as those animals which are presently threatened with extinction. This gives the Secretary and the States which adopt endangered species management plans, the ability not only to protect the last remaining members of the species but to take steps to insure that species which are likely to be *threatened* with extinction never reach the state of being presently endangered.

Id. at 1142 (quoting 120 Cong. Rec. 25,668 (1973) (emphasis in the original)). This "gradual process of extinction" identified by the court to be incorporated in the threatened classification aptly describes the established, current conditions of the polar bear that formed the basis of the Service's listing determination. As will be described in more detail later, the Service found that loss of sea ice habitat was currently affecting some populations of bears, with gradual declines verified in a minority of these populations.

In *Trout Unlimited v. Lohn*, 559 F.3d 946, 959 (9th Cir. 2009), which involved challenges to NMFS's decision to reclassify a population of Upper Columbia River steelhead from endangered to threatened in accordance with the agency's 2005 Hatchery Listing Policy, the court rejected plaintiffs' argument that NMFS's policy of making distinctions between hatchery and naturally spawned fish during the listing process, which limited analysis of the hatchery fish to their contributions to conserving natural self-sustaining populations, violated the plain language of the ESA. *See* 559 F.3d at 960. The court discarded that argument on the grounds that there was nothing in the statutory text and legislative history as to how status reviews are to be conducted by the agency. *Id.* Because the statute is silent as to how a status review should be conducted, the court maintained that "[b]y leaving an 'explicit gap' for agency promulgated regulations, the ESA expressly delegates authority to the NMFS to decide how such listing determinations should be made." *Id.* at 961.

In sum, the case law confirms that Congress intended the two categories of protected species to be distinguishable based upon the proximity of the risk of extinction, as evidenced in both the statutory text and legislative history of the ESA. However, with the exceptions that status determinations be based solely on the best scientific evidence available and on the five-factor analyses, Congress did not provide any additional criteria for how the Service determines whether a species is "in danger of extinction" or "likely to become endangered (in danger of extinction) in the foreseeable future." Rather, Congress gave the Service broad discretion to provide meaning to the phrase, which the Service has done so on a species-by-species basis.

Indeed, the Ninth Circuit has held that Congress has expressly delegated authority to the Service to exercise discretion in conducting status determinations. *See* 559 F.3d at 961.

IV. The Service Properly Applied its Understanding of the Meaning of “In Danger of Extinction” to the Polar Bear Listing Determination

In making the listing determination for the polar bear, the Service applied the general understanding of “in danger of extinction” discussed above. It did not do so expressly (nor has it in any listing determination to date), but the record is replete with discussion of the life history and ecology of the species, the nature of the threats (particularly with the timing of the threats), and the species’ response to those threats (particularly the timing of the response). The Service’s analysis in the polar bear determination turned on the temporal distinction between an endangered species and a threatened species derived from the statutory language and legislative history, as reflected in the Service’s general understanding that a species that is in danger of extinction is currently on the brink of extinction in the wild.

As the administrative record clearly shows, polar bears fit into none of the four categories for species currently on the brink of extinction. They do not face a sudden and calamitous threat analogous to that of Tellico Dam. They are not a narrowly endemic species vulnerable to extinction from elevated threats. They are instead a widespread, indeed circumpolar, species that has not been restricted to a critically small range or critically low numbers, and has yet to suffer any substantial reduction in numbers or range. Thus, they are unlike any of the species described in those four categories. They face a serious threat, the loss of sea ice habitat, as the Service found when it made its listing determination, but they currently are not rare, on the brink of extinction, or critically imperiled. They are, however, likely to become an endangered species in the foreseeable future.

The Administrative Record fully details the process (from the initial finding on the petition to list the species through the final listing determination, including the Polar Bear Status Review (ARL 139236)) by which we arrived at our determination that the threatened category was appropriate for the polar bear. Nonetheless, this document provides a summary illustrating how our analysis, consistent with the general understanding discussed above, demonstrated to us that the polar bear was likely to become “in danger of extinction” in the foreseeable future. The polar bear was considered to be widely-distributed in 19 populations and numbered in abundance between 20,000 to 25,000 individuals (ARL 117219). As reflected in the Administrative Record, 14 of the 19 polar bear populations identified by the IUCN’s Polar Bear Specialist Group were considered to be stable, increasing, or data deficient (ARL 117221). Of these 19 populations, only one population, the Western Hudson Bay, was verified to be in a statistically significant decline (ARL 117300). However, this decline in the Western Hudson Bay population was not found to be precipitous, and reproduction and recruitment were still occurring within that population (ARL 117300). Due to the continued fragmentation and retraction of sea ice habitat, some changes in the distribution had been currently documented at “an early onset stage for a number of polar bear populations”; however, the potential for large-scale shifts in distribution were anticipated within the foreseeable future, but was not occurring at the time of the listing determination (ARL 117261). In short, there is simply no information in the Administrative Record to suggest that the species had experienced significant population declines or severe

retractions in its range such that the species was currently on the brink of extinction, or that it faced a sudden and calamitous threat analogous to that of Tellico Dam.

The Service's evaluation of the polar bear's status under the ESA considered both the current and probable future sea ice habitat available to the species. We found that while loss of sea ice habitat was currently affecting some populations of polar bears, especially populations located at the southern extent of the species' range where some polar bear populations occur in seasonally ice-free areas, such impacts did not currently result in the species failing to maintain essential life functions, such as reproduction (ARL 117300 ("[W]e note that the Western Hudson Bay population remains greater than 900 bears, and that reproduction and recruitment are still occurring in the population.")). Thus, based on the Service's analysis of the timing of the threat from sea ice loss and the relationship of that threat to polar bear life history (ARL 132083, ARL 132207, ARL 131546, ARL 130272, and ARL 128241), the Service determined that although sea ice loss was occurring throughout the range of the polar bear and was affecting some polar bear populations, these impacts were not to the degree that the species was currently "in danger of extinction," or on the brink of extinction.

Despite the fact that the Service found the polar bear was not currently on the brink of extinction, the Service could reliably foresee that the species would likely be on the brink of extinction in the future. Based on a pattern of presently demonstrated adverse effects of habitat loss on some polar bear populations (specifically the Western Hudson Bay, Southern Hudson Bay, Southern Beaufort Sea, and Baffin Bay populations) and the predicted increase in habitat loss throughout the range, we concluded that the predicted loss of available sea ice habitat would in the future likely result in the disruption of life-history processes of the polar bear such as reproduction. (ARL 039960). Thus, the Service appropriately found that the polar bear qualified as a threatened species.

In addition, the Service further analyzed each of these populations, three of which—the Western Hudson Bay, Southern Beaufort Sea, and Baffin Bay populations—the Service found were actually or potentially declining (ARL 117300). With respect to the Western Hudson Bay population, Regehr et al. documented a statistically significant decline in this population of 22 percent (ARL 131546). For this period, the mean annual growth rate was 0.986 (with a 95 percent confidence interval of 0.978-0.995), indicative of a gradual population decline (ARL 131552). That decline had been attributed primarily to the effects of climate change (earlier break-up of sea ice in the spring) (ARL 131553). Thus, we determined that a population decline would likely continue as a result of progressively earlier break-up of sea ice and corresponding longer fasting periods of bears on land (ARL 132207).

Similarly, a sophisticated demographic analysis of the Southern Beaufort Sea population (ARL 129595) predicted a variety of outcomes, from a gradual population decline to various rates of dramatic declines depending on input parameters for the model projections (ARL 129595). Because the Service found that there were some measures of uncertainty in Hunter et al., the Service was able to give greater confidence in the general direction and magnitude of the trend in the model outcomes than in the specific percentages associated with each outcome. (ARL 131517 and 129595). Furthermore, the Southern Beaufort Sea population exhibited declines in a number of indices such as cub survival and adult male stature, and declines in these categories

were recorded for a number of years in the Western Hudson Bay populations before a statistically significant decline in that population was confirmed (ARL 117272).

With respect to the population located in the Baffin Bay, the IUCN's Polar Bear Specialist Group projected a declining population trend, most likely as a result of overharvest; however, there was no reliable estimate of population trend based on valid population survey results. Nevertheless, the Service recognized the work of Stirling and Parkinson (ARL 132207), which documented earlier spring sea ice break-up dates since 1978, and, thus, predicted that the earlier ice breakup was likely to lead to longer periods of fasting onshore for bears with concomitant effects on body condition, as documented in other populations.

In the Southern Hudson Bay, Obbard et al. found that declines in some survival estimates of polar bears located in this population, while not statistically significant, combined with the evidence of significant declines in body condition for all age and sex classes, suggested that the Southern Hudson Bay population may be currently under increased stress. (ARL 117272). Such declines in measures of survival rates and body condition are considered to be precursors to later population declines. (ARL 117270).

On an ecoregional level, the Bayesian network modeling (BM) exercises by Amstrup et al. provided information suggesting that the viability of polar bear populations in the Seasonal Ice and Polar Basin Divergent ecoregions may be highly at risk (ARL 146810). In particular, the BM exercise results suggest that polar bear populations in the Seasonal Ice and Polar Basin Divergent ecoregions may be lost by the mid-21st Century given rates of sea ice recession projected in general circulation models (GCMs). However, the BM analysis was a preliminary effort that required additional development (ARL 146810) and input from additional polar bear experts to advance the model beyond the alpha prototype stage. There were also uncertainties associated with statistical estimation of various parameters such as the extent of sea ice or size of polar bear populations (ARL 146810). In addition, the BM needed further refinement to develop variance estimates to go with its outcomes. Because of these uncertainties associated with the complex BM, we determined it was more appropriate to focus on the general direction and magnitude of projected outcomes rather than the actual numerical probabilities associated with each outcome. We believed that such a focus was consistent with other available scientific information, including results of the carrying capacity model (Durner et al 2007) and quantitative evidence of the gradual rate of population decline in three populations within the ecoregions (ARL 131546, ARL 131675, ARL 129525). Although these Seasonal Ice and Polar Basin Divergent ecoregions face differential threats, both ecoregions were estimated to have large numbers of polar bears, and there was no evidence of any population undergoing a precipitous decline (ARL 0531676). Because of these limitations, we concluded that the BM model outcomes were not a sufficient basis, in light of the other available scientific information, to find that threats to polar bears currently warrant a determination of endangered status for the two ecoregions. In other words, the polar bear was not currently on the brink of extinction in either the Seasonal Ice ecoregion or the Polar Basin Divergent ecoregion.

In sum, because the best scientific information available indicated that the future loss of sea ice habitat was anticipated to be incremental, the Service found that the polar bear's ability to sustain itself would also decrease over time. However, at the time of listing, the species was currently

able to meet its life-history requirements, no populations were found to be in precipitous decline, and no contractions of the species' range had been detected. Thus, neither the species as a whole nor any of the populations discussed above were then currently on the brink of extinction.

Because the best scientific information available indicated that sea ice habitat was projected to continue to recede throughout the polar bear's range, with positive feedback loops (e.g., albedo effect) expected to hasten sea ice retreat, and that some polar bear populations were already being negatively affected such that population declines were found in a few of the populations, the Service properly found that the polar bear was not currently "in danger of extinction" but likely to become so in the foreseeable future. At the time of the listing determination, the Service found that for most of the polar bear populations in which sufficient data was available, population numbers were stable. However, based on the best scientific information available, the Service could reliably predict that significant population declines and contractions in the species' range would occur in the foreseeable future, eventually resulting in the species reaching the point in which it would likely be "in danger of extinction" or "on the brink of extinction" in the foreseeable future. In other words, it is likely to qualify, within the foreseeable future, as an endangered species. Accordingly, at the time of the listing determination, the appropriate designation was as a threatened species.

V. Conclusion

For the reasons stated herein, the Service's general understanding of the meaning of the phrase "in danger of extinction," as part of the legal basis for the polar bear's listing determination, is consistent with the text, structure, purposes, and legislative history of the ESA. An evaluation of the legislative history surrounding the meaning of the phrase "in danger of extinction" indicates that Congress gave the Service discretion in assigning meaning to this pertinent phrase. As previously explained, the Service's application of the statutory terms "endangered species" and "threatened species" necessarily depends upon a species-specific analysis. In the 37 years of administering the ESA, the Service has applied its meaning of the phrase consistently, as evidenced by the four categories in which the Service has found endangerment for a species. The Service properly found that the polar bear did not meet the definition of an endangered species and appropriately determined it to be a threatened species under the ESA.

cc: Assistant Secretary for Fish and Wildlife and Parks
Solicitor