What about the Polar Bears - The Future of the Polar Bears as Predicted by a Survey of Success under the Endangered Species Act

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WHAT ABOUT THE POLAR BEARS? THE FUTURE OF THE POLAR BEARS AS PREDICTED BY A SURVEY OF SUCCESS UNDER THE ENDANGERED SPECIES ACT.

I. Introduction

Touted by some as the symbol of human-caused global warming and its impact on the Earth, the polar bears face significant danger of extinction. The proposed plan to ease the plight of the polar bear cites to studies that assume greenhouse gases and their buildup in the atmosphere contribute to the problem of melting ice.1 Some warn that “the continued buildup of these gases, [if] left unchecked, could create ice-free arctic summers later this century. . . .”2 The buildup of greenhouse gases, including carbon dioxide, reduces the amount of solar radiation that can be reflected back into outer space and causes the Earth’s climate to become warmer.3

In its Third Assessment Report, the Intergovernmental Panel on Climate Change (IPCC) concluded that average global temperatures will likely rise 2.0° to 4.5°C (2.5° to 10.5°F) between 1990 and 2100.4 Satellite data reveals the impact that this predicted temperature increase is already having on the ecosystems and Arctic species: “average Arctic sea ice cover has been declining at a staggering 9 [percent] per decade. . . .”5 Some models predict the complete

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2. Id. (discussing reasons polar bears are proposed for listing as threatened species).


5. Center for Biological Diversity, supra note 3 (showing impact on sea ice cover).
disappearance of summer sea ice by the end of the century. The slow loss of sea ice is one of the reasons the polar bear is being considered for listing under the Endangered Species Act (Act).

On December 27, 2006, the United States Department of the Interior proposed listing polar bears as a threatened species under the Act. The proposal came in response to the Center for Biological Diversity's February 2005 petition, which focused on the concern that rapid environmental changes in the Arctic are threatening the polar bears with extinction. Specifically, the primary threat to the polar bears' survival as a species is the slow loss of their primary habitat: the sea ice, which "may literally be melting."

The proposed listing of polar bears raises questions about what that listing might mean for the polar bears as a species, and how successful conservation efforts will or can be. This Comment explores these and other questions implicated by the proposed listing of polar bears as an endangered species under the Act.

Part II examines the operation of the Act, its requirements for listing, and the interaction between the Act and non-governmental organizations, such as the Center for Biological Diversity. Part III analyzes successes under the Act, exploring plans that have been enacted to conserve or restore species populations. The successes discussed in Part III are of

6. See id. (discussing petition for listing polar bears as threatened species and reasons for concern).
11. For examination of Act, see infra notes 15-31 and accompanying text (analyzing purposes and implementations of Act).
12. For in-depth analysis of various Act successes, see infra notes 32-76 and accompanying text (examining successful plans implemented under Act).
note because they contain common elements that may indicate the potential success of a recovery plan.

Part IV discusses in greater detail the effect that climate change is having on polar bears, and why exactly the receding sea ice is such a threat to the species. Part V explores potential options and plans the United States may take to preserve the species. In addition, Part V also looks at issues the United States will have to address to be successful in its conservation efforts. Finally, Part VI predicts the success of potential preservation efforts, in light of past successes and past legal instruments specifically aimed at the protection of polar bears.

II. THE ENDANGERED SPECIES ACT

The Act was enacted in 1973 for the purpose of providing a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, providing a program for the conservation of such endangered species and threatened species, and taking such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of this section.

13. For detailed discussion of why polar bears are eligible for listing under Act, see infra notes 77-89 and accompanying text (discussing criteria making polar bears eligible for “endangered” or “threatened” classifications under Act).

14. For discussion of potential plans that may be undertaken for conservation of polar bears, see infra notes 90-123 and accompanying text (examining potential avenues of protection for polar bears).

15. For prediction of what Act listing will mean for polar bears, see infra notes 125-137 and accompanying text (parenthetical).


The “treaties and conventions” referred to in section 1531(b) include any migratory bird treaties with Canada and Mexico, the Migratory and Endangered Bird Treaty with Japan, the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, the International Convention for the Northwest Atlantic Fisheries, the International Convention for the High Seas Fisheries of the North Pacific Ocean, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and any other international agreements to which the United States may become a party. 16 U.S.C. § 1531(a)(4)(A)-(G) (2000) (setting forth treaties that ACT upholds).
The Act specifically encourages state action by providing federal financial assistance, and by creating an incentive system for states that cooperate with the Act. Additionally, the Act gives National effect to any international treaties or conventions to which the United States is a party.

The Act contains two different listing classifications: "endangered species" and "threatened species." An "endangered species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range. . . ." A "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."

To list a particular species as endangered or threatened, the Secretary of the Interior or the Secretary of Commerce must determine whether the species falls within one of the two categories. The Secretary must consider five factors in making the determination: "(A) the present or threatened destruction, modification, or curtailment of [the species'] habitat or range; (B) over-utilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting [the species'] continued existence."

In considering these factors, the Secretary must base any determinations on "the best scientific and commercial data available to him [or her]," and must account for any efforts by states or foreign nations to protect the species at issue. The Secretary must also give consideration to species that have been previously designated by any foreign nation or international agreement as requiring pro-

17. See id. § 1531(a)(5) (encouraging state action in conservation efforts). The incentive system involves the appropriation of federal funds to states participating in approved conservation programs under the Act. See generally id. § 1535(a)-(d) (setting forth provisions for financial assistance and incentive programs for cooperative states).
18. See id. § 1531(b) (implementing international conservation agreements).
19. Id. § 1532 (setting forth relevant terms under Act).
20. Id. § 1532(6) (defining "endangered species").
22. See id. § 1532(15) (defining "Secretary" as "Secretary of the Interior" or "Secretary of Commerce" as found in § 1538 of Act).
23. Id. § 1533(a)(1)(A)-(E) (setting forth factors used by Secretary in making determination). Whether it is the Secretary of the Interior or the Secretary of Commerce that makes a determination is dependent upon the task at hand.
24. Id. § 1533(b)(1)(A) (listing additional requirements for Secretary to follow in making determination).

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tection. Similar consideration is given to those species that have been identified "as in danger of extinction, or likely to become so within the foreseeable future" by agencies of any state or foreign nation responsible for conservation.

Under the provisions of the Act, interested parties are entitled to petition to add or remove species from the endangered or threatened species lists. In particular, the Act grants non-governmental organizations, such as the Center for Biological Diversity (Center), the power to make such petitions. Pursuant to this power, the Center has been at the forefront of non-governmental action, successfully petitioning for 329 species to be added to the protected species list under the Act. In fact, the Center is directly responsible for the proposal to list the polar bears. The Center's success in obtaining Act protection for so many threatened and endangered species is a strong indication that non-governmental organizations play a significant role in protecting such species.

25. See id. § 1533(b)(1)(B)(i) (setting forth additional requirements to be followed in making listing determination).
26. 16 U.S.C. § 1533(b)(1)(B)(ii) (2000) (setting forth requirements Secretary must meet when making listing determination for placement of species on list). Following a determination that a species is endangered or threatened, there are certain procedural requirements that the Secretary must follow, such as publishing a proposed regulation and a public notice of the determination within a specified period of time after making such determination. See id. § 1533(b)(5)-(6) (setting forth procedural requirements for listing).
27. See id. § 1533(b)(3)(A) (allowing interested persons to submit petitions to Secretary).
28. See id. (granting interested non-governmental organizations power to make Act petition by presenting substantial scientific or commercial information warranting petition).
III. Successes Under the Endangered Species Act

For the purposes of this Comment, a success under the Act is the actual or proposed delisting of the species at issue. Such action indicates that the species at issue has been fully recovered, or no longer is in the specific danger that initially called for its listing under the Act. Delisting under the Act requires that the Secretary of Commerce determine whether the species at issue should be removed from the list or be reclassified as a "threatened" species.32 Once such a determination is made, the Secretary of Commerce must inform the Secretary of the Interior of the determination; the Secretary of the Interior may then take appropriate action to remove the species from the list or reclassify its status.33 At least once every five years, the Secretary of Commerce must review the status of each listed species by applying the same factors used to determine whether to initially list a species under the Act.34 In accordance with the delisting provision, the determination to delist or reclassify must be made using "the best scientific and commercial data available to [the Secretary of Commerce]," and must also account for any efforts made by a state or foreign nation to protect the species at issue.35

A species is often delisted because of efforts made through recovery plans, which are geared towards protecting the species and its habitat.36 A recovery plan is a plan that establishes a framework within which interested parties can cooperate and coordinate with each other in conservation efforts.37 Recovery plans generally

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33. See id. § 1533(a)(2)(C) (providing means for delisting or changing status for eligible species).
34. See id. § 1533(c)(2) (outlining requirements for review of listed species). This provision requires that "[e]ach determination under subparagraph (B) [including those to delist or reclassify] shall be made in accordance with the provisions of subsections (a) and (b)," the subsections which set forth the factors and grounds on which a determination to list a species must be based. Id.
35. Id. §§1533(a)-(b) (setting forth factors and grounds on which to base Secretary's determinations).
identify the population levels and distribution necessary for a species to be considered recovered. When a species reaches recovery criteria, the U.S. Fish and Wildlife Service reviews the population status to determine whether reclassification or delisting is appropriate. Recovery criteria differ among populations depending on the threats to the species, the connectivity of the populations, and local ecological circumstances.\footnote{38. United States Fish & Wildlife Service, supra note 36 (describing how recovery plans work).
40. See id. (providing reasons for removal of various species from list of endangered or threatened species).
41. See id. (listing species that have been removed from list and reasons for removal).
42. Id. (providing species that have been removed from lists due to recovery plans).
45. Id. (providing list of species removed from list).}

Since the Act’s inception, a number of species have been removed from the threatened and endangered species lists.\footnote{39. See United States Fish & Wildlife Service, USFWS Threatened and Endangered Species System, http://ecos.fws.gov/tess_public/DelistingReport.do (last visited Oct. 18, 2007) (noting species that have been removed from list).} In some instances extinction was the cause for removal, while other species have been removed because there was an error in the original data about the species.\footnote{40. See id. (providing reasons for removal of various species from list of endangered or threatened species).} Most importantly, however, a number of species have been removed from the lists due to recovery and conservation plans that were implemented pursuant to the Act.\footnote{41. See id. (listing species that have been removed from list and reasons for removal).}

Species recovered in the United States include: the North American gray wolf, the peregrine falcon, and the Columbian White-Tailed Douglass County deer.\footnote{42. Id. (providing species that have been removed from lists due to recovery plans).} Other species, such as the red-cockaded woodpecker, have not been delisted, but are making a faster-than-anticipated recovery.\footnote{43. See Press Release, United States Fish and Wildlife Service Southeast Region, Fort Bragg Reaches Recovery Milestone for the Endangered Red-cockaded Woodpecker Five Years Earlier than Expected: First Recovery of a Population Segment for the Species (June 7, 2006), available at http://www.fws.gov/southeast/news/2006/r06-035.html (discussing faster-than-anticipated recovery of particular species).} Protection under the Act, however, is not limited to species indigenous to the United States.\footnote{44. See United States Fish & Wildlife Service, USFWS Threatened and Endangered Species System, http://ecos.fws.gov/tess_public/DelistingReport.do (last visited Oct. 17, 2007) (listing species that have been removed from list and reasons for removal).} Other species, such as the red, western gray, and eastern gray kangaroos indigenous to Australia, were listed and subsequently delisted due to successful recovery under the Act.\footnote{45. Id. (providing list of species removed from list).}
of successful plans is warranted because such an examination can reveal common elements, which should be incorporated into any recovery plan that hopes to achieve the protection and recovery of the polar bears.

A. The North American Gray Wolf

The North American gray wolf, mostly found in Minnesota, was initially listed under the Act in 1978 because by then "[o]nly several hundred gray wolves in Minnesota and an isolated population on Michigan’s Isle Royale remained. . . ." 46 On February 8, 2007, the species was subsequently delisted due to species population recovery. 47 After successful recovery programs, and natural migration from Canada, more than 5,000 gray wolves currently live in the continental United States. 48

In a press release, the United States Fish & Wildlife Service (USFWS) said that species’ recovery was made possible because of the model levels of cooperation, flexibility, and hard work exhibited in the efforts to save the wolves from extinction. 49 Some critics might consider this recovery to be one of the greatest successes of the Act, because

"[t]his same spirit of collaboration has helped gray wolves in the Northern Rockies exceed their recovery goals to the point where they are biologically ready to be delisted. States, tribes, conservation groups, federal agencies and citizens of both regions can be proud of their roles in saving this icon of wilderness." 50

The 1987 Gray Wolf Recovery Plan was "intended to provide direction and coordination for recovery efforts." 51 The plan followed

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46. UNITED STATES FISH & WILDLIFE SERVICE, supra note 36 (discussing initial reasons for listing gray wolves under Act).

47. See id. (showing time and reason for delisting North American Gray Wolf).

48. Id. (discussing reasons for species recovery). Natural migration from Canada was made possible by the recovery programs in place at the time. See id.


50. Id. (announcing recovery of gray wolves). The Interior Department emphasizes the involvement of multiple parties, "[s]tates, tribes, conservation groups, federal agencies and citizens of both regions can be proud of their roles in saving this icon of wilderness." Id.

the guidelines of the Act and encouraged state responsibility for many of the plan items concerning species recovery.\footnote{52. See id. (discussing delegation of recovery effort responsibilities to states).}

The Michigan Gray Wolf Recovery and Management Plan (Michigan Plan) is an excellent example of a state recovery plan because it provided a very specific set of methods intended to better achieve the goal of species recovery.\footnote{53. See generally MICHIGAN GRAY WOLF RECOVERY TEAM, MICHIGAN GRAY WOLF RECOVERY AND MANAGEMENT PLAN (1997), http://www.fws.gov/midwest/WOLF/state-plans/mi-wolf-plan.pdf (last visited Oct. 18, 2007) (setting forth Michigan state recovery plan for gray wolves).} These methods included: (1) obtaining public support, facilitated by "information and education efforts designed to exchange information with Michigan residents[;]" (2) monitoring of the wolf population to measure progress toward restoration, to determine limiting factors, and direct management at all wolf population levels; and (3) maintaining "large tracts of land with relatively low human densities and accessibility" to ensure adequate wolf habitat, as well as future land management.\footnote{54. Id. (summarizing steps to achieve population recovery goals).}

The Michigan Plan further encouraged (1) restricting land use around wolf home sites to protect pups; (2) protecting wolves through coordinated law enforcement and cooperation with tribal leaders, landowners, hunters, trappers, and livestock farmers; and (3) developing preventive measures to minimize wolf depredation on livestock, and to ameliorate any occurrences of depredation by providing compensation for livestock losses caused by wolves.\footnote{55. Id. (listing additional steps facilitating population recovery goals).} The Michigan Plan also provided for a wolf steering committee to direct the short and long-term aspects of the plan, and to determine a specified timeframe for review.\footnote{56. See id. (reviewing elements necessary to attain achieve population recovery objectives). The time frame for review was five years after the plan was implemented, or at a time when federal reclassification (from ‘endangered’ to ‘threatened’ or ‘recovered’) was proposed. See id.}

The gray wolf population’s recovery was also assisted by the 1994 re-introduction of gray wolves, as experimental non-essential wolves, into Yellowstone National Park pursuant to section 1539 of the Act.\footnote{57. See Establishment of a Nonessential Experimental Population of Gray Wolves in Yellowstone National Park in Wyoming, Idaho, and Montana, 59 Fed. Reg. 60,252, 60,252 (Nov. 22, 1994) (to be codified at 50 C.F.R. pt. 17), available at http://montanafieldoffice.fws.gov/Endangered_Species/Recovery_and_Mgmt_...} The USFWS prepared a plan that included provisions for...
experimental populations, and recommended natural recovery.\textsuperscript{58} The plan also considered other conservation measures if, after five years, two wolf packs had not established themselves in a particular area of Idaho.\textsuperscript{59}

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\textsuperscript{59} See id. (providing for other measures if natural recovery did not occur within particular time period); see also \textit{UNITED STATES FISH & WILDLIFE SERVICE, NORTHERN ROCKY MOUNTAIN WOLF RECOVERY PLAN} (1987), http://www.fws.gov/mountain-prairie/species/mammals/wolf/NorthernRockyMountainWolfRecoveryPlan.pdf (last visited Oct. 18, 2007) (setting forth recovery plan).
Notably, the 1987 Gray Wolf Recovery Plan and the Michigan Plan focused on educating the public, obtaining cooperation from residents, maintaining habitats for the wolves, and working cooperatively with law enforcement agencies. These plans also attempted to deal with the leading causes of wolf population decline, such as hunting or resident-led "revenge" against wolves that attacked and killed livestock. The interaction of each of these aforementioned elements, and the cooperative efforts undertaken to ensure the elements’ effectiveness led to the success of the recovery plans and the ultimate delisting of gray wolves.

B. The Red, Western Gray, and Eastern Gray Kangaroos of Australia

Success under the Act is not limited to species that exist solely in the United States; listing under the Act has obtained protection for species, existing outside of the United States, which are affected by the international trade of species. For example, the red, western gray and eastern gray kangaroos of Australia were listed as threatened species under the Act on December 30, 1974; the species were subsequently delisted on March 9, 1995 after a successful recovery. In support of the Australian Government, the Secretary of the Interior gathered extensive information on the species and determined that such information substantially justified the species’
classification as "threatened" under the Act. The Secretary's determination focused on the five categories set forth in section 4(a)(1) of the Act, including the over-utilization of the species for commercial, sporting and other purposes, and the inadequacy of current regulatory mechanisms.

In particular, the Secretary considered 4 factors: (1) the threat of continued habitat loss caused by the "ever increasing expansion of agricultural interests"; (2) the effects of commercial harvest and exploitation of the species because of the species' high commercial value; (3) the lack of uniformity among Australian states' regulatory and management policies, as well as the difficulty and expense of gathering data on the species; and (4) other circumstances, such as the lack of preserves for kangaroos and the growing kangaroo-hide industry. While the Secretary did not find that these factors were severe enough to justify an "endangered" classification under the Act, the Secretary nevertheless found it appropriate to classify the kangaroos as "threatened." This determination also acknowledged the efforts of the Australian government to ensure future adequate protection of the species. These efforts included a total ban on kangaroo exports and the Australian Government's expressed intent to add these three types of kangaroos to the list of protected species under the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

Following the kangaroos' listing under the Act, the United States implemented a plan focusing on trade barriers and restrictions in order to assist the Australian government in protecting the

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65. See id. at 44,990-92 (discussing evidence justifying listing kangaroo as threatened under Act). For a full listing of the categories considered in the Secretary's determination, see 16 U.S.C. § 1533(a), and see supra notes 23-6 and accompanying text (setting forth factors for Secretary's determination).


67. See id. at 44,991 (determining species is properly classified as threatened and not endangered).

68. See id. (acknowledging efforts of Australian government to preserve kangaroos).

69. See id. (recognizing Australian government's efforts and concern for protection of kangaroos).
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kangaroos. Specifically, Congress amended the rule protecting kangaroos to include a prohibition on (1) the importation of kangaroos for any commercial purposes; and (2) the delivery, receipt, carrying, transportation, or shipping “in interstate or foreign commerce any such wildlife imported unlawfully[,]” in the course of commercial activities. These prohibitions contained a single exception that allowed a government-appointed director to grant a permit for the importation of kangaroos in order to prevent economic hardship.

In 1995, the Secretary of the Interior determined that the kangaroo could be delisted; this was determined despite objections that kangaroos should retain the “threatened” classification in order to allow the USFWS to act as a “watchdog” on the international stage to ensure that the commercial kangaroo industry “behaves.” The Secretary’s determination was based on the USFWS’s findings that extensive kangaroo habitats remain in mainland Australia, that management for pastoral industries may favor kangaroo production, and that an extensive series of National Parks and Reserves have been established (some of which are important to kangaroos). . . . [and] that adequate kangaroo management plans have been developed and implemented[, the application of which] has demonstrated their effectiveness in both drought and non-drought conditions.

70. See id. at 44,991-92 (implementing trade prohibitions to further protect kangaroos).

71. See Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife: Miscellaneous Amendments, 39 Fed. Reg. 44,990 at 44,991-92 (Dec. 30, 1974) (to be codified at 50 C.F.R. pt. 17) (prohibiting importation of kangaroos and related activity). It should be noted that the import prohibitions were lifted in 1981 after the United States Fish & Wildlife Service accepted management plans from four Australian States and it was shown that population management techniques and plans had been strengthened. See Endangered and Threatened Wildlife and Plants; Removal of Three Kangaroos From the List of Endangered and Threatened Wildlife, 60 Fed. Reg. 12,887, 12,888 (Mar. 9, 1995) (to be codified at 50 C.F.R. pt. 17) (discussing steps taken after kangaroos were initially listed under Act).


74. Id. at 12,904 (explaining why delisting is appropriate for kangaroos). Of the management plans, the Service said
Because the primary concern underlying the initial rule (the importation prohibitions) had already largely been relieved, the rule that operated to delist kangaroos noted that delisting would have negligible effects on the population.\textsuperscript{75} Import prohibitions did, however, play an important role in the actual implementation of the initial kangaroo population management plan; a plan dealing with trans-national species would benefit from taking note of the impact import prohibitions can have.

The implemented plan regarding kangaroos is an important example of how listing under the Act can help to protect species populations in countries other than the United States.\textsuperscript{76} Because polar bears are present in United States territories and in other countries, it is important to recognize that listings under the Act can be beneficial to protect the species in all locations.

IV. THE POLAR BEARS’ DILEMMA

Sea ice is an integral part of the polar bears’ habitat; when increased global warming temperatures cause the sea ice to recede, the polar bears’ habitat is compromised.\textsuperscript{77} In the proposal to list the species as threatened, the receding sea ice is cited as one of the main threats to the survival of polar bears.\textsuperscript{78} Scientific models have been used to “predict the impact of the loss of sea ice on bear populations over the next few decades[;]” the resulting predictions do

\begin{footnotes}
\item[k] Kangaroo populations are systematically and periodically assessed, and population data, environmental conditions, and public consultation inputs are weighed in the development of harvest quotas. The harvest operation is found to be a licensed action that occurs on individual properties at the request and permission of landholders. Authorities within the States and the Commonwealth government have the responsibilities and capabilities to monitor the harvest so that overutilization will not threaten the substantial kangaroo populations existing within individual States. Disease and/or predation do not threaten these kangaroos species. The management of kangaroos in New South Wales, Queensland, South Australia, and Western Australia is based on legal protection and regulations controlling the kangaroo harvest.
\item[Id.] (reviewing management plans in place).
\item[75.] See id. at 12,905-06 (discussing effects of delisting).
\item[76.] See generally id. at 12,888-93 (showing how import prohibitions can play role in protecting species not found in United States).
\item[77.] For a brief discussion of the effect of global warming on sea ice, see supra notes 3-6 and accompanying text.
\end{footnotes}
not bode well for the polar bears’ survival. The relationship between the polar bears and sea ice is one of dependence: the sea ice (1) serves as a place on which the polar bears can hunt and eat; (2) allows them to travel to other areas for maternity denning; and (3) serves as a location for such denning. When the extent and type of sea ice changes, polar bear distribution and foraging success is negatively affected. These and other effects of warming, discussed above, have been widely documented.

The authors of the Arctic Climate Impact Assessment (Assessment) note that the later formation and earlier break-up of sea ice has been directly linked to an increase in mortality rates among the polar bear population due to the collapse of polar bear dens. This later formation and earlier break-up of sea ice has also been linked to longer periods of fasting each year; longer fasting periods carry dangerous implications, because a shorter feeding period decreases polar bears’ fat stores. Poor conditions, such as decreased fat stores, can lead to smaller litters and smaller cubs “that are less likely to survive.” The smaller cubs can drown when they are forced to swim extremely long distances between breeding and feeding areas. These distances increase when den sites separate from spring feeding areas because the sea ice breaks up earlier in the spring than usual.

The Assessment’s authors predict that if summer sea ice cover reaches zero, “the survival of polar bears as a species is difficult to envisage.” Greenpeace has interpreted this statement to mean

79. Id. (citing receding sea ice as main reason for proposed listing of polar bears as threatened species).
81. See ARCTIC CLIMATE IMPACT ASSESSMENT, REPORT, IMPACTS OF A WARMING ARCTIC at 545 (Cambridge Univ. Press, 2005) available at http://www.acia.uaf.edu/PDFs/ACIA_Science_Chapters_Final/ACIA_Ch10_Final.pdf (analyzing effect of global warming on sea ice and Arctic’s biodiversity, including polar bears). For a discussion of the effects of global warming on sea ice, see supra notes 2-6, see also infra 81-5 and accompanying text.
82. See id. (reviewing specific problems caused by global warming).
83. See id. (analyzing effect of global warming on sea ice and Arctic’s biodiversity including polar bears).
84. Id. (examining impact of global warming on polar bears and their habitat).
85. See id. (discussing consequences of global warming on Arctic’s biodiversity).
86. See ARCTIC CLIMATE IMPACT ASSESSMENT, REPORT, IMPACTS OF A WARMING ARCTIC at 545 (Cambridge Univ. Press, 2005) available at http://www.acia.uaf.edu/
that polar bears are “unlikely to survive as a species if there is an almost complete loss of summer sea-ice cover;” this concurs with some climate change models that predict such devastating loss of sea ice cover will occur by the end of this century.\textsuperscript{87} The Center for Biological Diversity took a similar stance in its petition to list the polar bears as threatened, saying that “[b]y century’s end the combined effects of these demographic changes will likely result in population declines and extirpations, and possible global extinction of the species.”\textsuperscript{88} In light of the uncertainty surrounding the issue of climate change, these predictions are particularly grim.\textsuperscript{89}

V. PROPOSED RULES FOR PRESERVING THE SPECIES

When developing a plan to assist in the conservation or recovery of a species, the focus of the plan is one of the first issues to consider. Various reports suggest that in addition to habitat preservation, any plan to protect polar bears should consider at least four things: (1) the impact of global warming and climate change on the species; (2) human development in polar bear habitat areas; (3) harvesting of the species; and (4) user participation among Arctic Natives and other nations that currently exercise control over the Arctic region.\textsuperscript{90} Because polar bears are found not only in Alaska, but also in Canada, Russia, Denmark and Greenland, any plan to protect the species might gain insight from the plan implemented for the protection of Australian kangaroos. In doing so, a plan should impose similar trade restrictions on United States traders, such as importation prohibitions.\textsuperscript{91}


\textsuperscript{89} For a discussion of climate change uncertainty and current debate about causes of climate change, see infra notes 92-95, 127-32 and accompanying text.

\textsuperscript{90} For a discussion of these issues, see infra notes 96-110 and accompanying text.

The draft of the status report, ultimately published pursuant to the requirements of section 1533 (a)-(b) in title 16 of the United States Code, agreed that any proposed rule would also have to consider the effects of climate change; specifically, the draft states that "uncertainty about effects of climate change on polar bears must be included in future management and conservation plans."92 While stressing the importance of dealing with climate change, the draft acknowledged the uncertainty that inherently accompanies the problem of climate change.93 This uncertainty surrounds the cause and effect relationship between climate change and the polar bears, and makes "the evaluation and quantification... extremely difficult [because it requires series of data gathered over long periods of time] that are only available for a few populations." Any plan dealing with climate change would also have to grapple with the issue of uncertainty of climate change.94

A potentially successful plan will also have to consider the effects of human development in habitat areas, such as activities related to oil and gas exploration.96 Because polar bears use their habitats for denning, feeding, and seasonal movements, the species is especially sensitive to detrimental changes to the habitat caused by human development.

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93. See id. at 73 (acknowledging uncertainty surrounding climate change).


95. See generally id. at 57-8 (discussing uncertainty surrounding global climate change generally).

by human consumption and activity. The United States Fish and Wildlife Service of Alaska notes that over the last decade, polar bears have more frequently used certain areas of the Arctic region such as the Beaufort Sea region; this increased use has created a rise in the potential impact of human activities on the polar bears, such as “increased exposure to contaminants, hunting, or other bear-human interactions. . . .”

Efforts are underway to minimize the effects of human interaction on polar bears in this region, namely by attempting to: (1) identify distribution and abundance of the species in that region; (2) describe the habitat use “concentrated around hunter-harvested bowhead whale carcasses[;]” and (3) minimize the impacts of oil and gas activities on the habitat. The interaction between polar bears and humans also implicates the effects of over-harvesting, which is “[i]n many cases. . . the major cause of mortality for bears.”

Another crucial issue that a proposed plan should address is user participation. The Assessment notes that participation by Artic residents “should receive major emphasis in the design of systems for conservation and management of wildlife in all regions of the Arctic where indigenous people reside.” This population management system is often referred to as “co-management.” Co-management is extremely important, and is often preferred among wildlife users, because it improves biological and harvest in-

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97. See id. (discussing effects of human development on habitat of polar bears).
98. Id. (analyzing causes of habitat loss, including human development).
99. Id. (discussing effects of human activities on habitat). The United States Fish and Wildlife Service provides examples of these efforts:

[i]n the Bering/Chukchi seas, the majority of denning occurs on Wrangel and Herald islands and the Chukotka Peninsula (Russia). Wrangel Island Nature Reserve provides protection status for denning bears; monitoring denning in these areas may be used to monitor population status and trends. Increased harvest of polar bears in Chukotka is a concern. Id.


102. Id. (noting importance of Native participation in conservation and population management efforts).
103. Id. (recognizing impact Native participation can have on efforts to conserve polar bear populations).
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formation that is available on the species at issue, while serving as a mechanism for “integrating traditional knowledge and science[]” it can also increase efficiency in managing wildlife for “sustained harvest and conservation.”

Co-management systems have been successful in the past, as noted by the United States Fish and Wildlife Service of Alaska in reference to the co-management agreement between the Secretary of Commerce and the Alaska Eskimo Whaling Commission. Full and equal participation from the Alaska Natives is extremely important because they, like other Arctic Natives, have “a long history of self-regulation, based on their need to ensure a sustainable take of marine mammals for food and handicrafts.” Without such cooperation from the Natives, conservation efforts may be partially blighted.

Similarly, cooperation among nations that currently exercise control over parts of the Arctic is an important issue to consider; past agreements have recognized and provided for such cooperation. Cooperation among the nations is critical because polar bears are present in many Arctic regions, and they are not stationary. As a result, if one nation pursues conservation efforts while others do not, a polar bear that is protected in one area that it uses for denning may not be protected in another region that it may use for other purposes. In the present case, such cooperation is likely to be easily achieved. This is significant because of the history, noted in the 1994 Alaska Polar Bear Conservation Plan, of cooperation among Arctic nations to conserve polar bears in the 1970s.

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104. Id. (noting importance of Native participation in conservation and population management efforts).


106. Id. at 21 (examining impact Native participation can have on population management efforts).

107. See id. (analyzing importance of Native participation in conservation efforts).

108. See id. at 6-7 (discussing importance of international agreement about conservation efforts).


A. The 1994 Polar Bear Conservation Plan of Alaska

The 1994 Polar Bear Conservation Plan of Alaska (Alaska Plan), promulgated prior to the proposed listing of the species under the Act, sought to maintain polar bear population levels in Alaska and to ensure that the polar bears remained healthy.\(^{111}\) The Alaska Plan focused on six factors: (1) protecting the species' habitat; (2) controlling harvesting of the species; (3) controlling industrial development in areas inhabited by polar bears; (4) monitoring sport hunting (especially to protect cubs and female polar bears); (5) regulating wasteful taking; and (6) developing educational and informational programs on polar bears and polar bear outreach programs to increase awareness and interest in the species.\(^{112}\) The plan was ahead of its time because it noted the importance of studying the relationship between polar bears and the sea ice making up the polar bear habitat.\(^{113}\) The plan also included a short provision for creating an emergency response plan in the event of an oil spill; this indicated an understanding of the relationship between human industrial development and the impact on polar bear populations.\(^{114}\)

B. The Proposed Rule for Polar Bear Protection Under the Act

The current proposed rule to protect polar bears under the Act was published on January 9, 2007; it lists several conservation measures of threatened or endangered species that are made available under the Act.\(^{115}\) These measures include "recognition, recovery actions, requirements for Federal protection, and prohibitions against certain activities."\(^{116}\) The proposed rule identifies various provisions of the Act that could be used to form a recovery plan for polar bears. These provisions include a prohibition on the "take and import into or export out of the United States of listed species[;]" "take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any larnear/pdf/THEFINALplan.pdf (examining history of international cooperation in area of polar bear conservation).

111. See generally id. (setting forth 1994 plan for conservation of polar bears in Alaska).
112. See id. at 24-31 (setting forth points of focus for conservation plan).
113. See id. at 31-2 (acknowledging need for more detailed understanding of relationship between polar bears and their habitat).
114. See id. at 36 (discussing important points of focus for conservation plan).
116. Id. (listing measures available under Act).
such conduct."\textsuperscript{117} The proposed rule further recognizes the Act's exemption for Alaskan Natives, which would allow them to "take" polar bears if it were for subsistence and not wasteful.\textsuperscript{118} The incorporation of this provision into a recovery plan would allow cooperation from Natives to be achieved much more easily and quickly.\textsuperscript{119} Beyond this, however, the proposed rule does not explicitly reference how the recovery plan will be structured.\textsuperscript{120} Rather, it merely states that "the plan will set recovery priorities, identify responsibilities, and estimate the costs of the tasks necessary to accomplish the priorities. . . [and] will also describe site-specific management actions necessary to achieve the conservation of the polar bear."\textsuperscript{121}

In achieving the goal of protecting the polar bear as a species, the recovery plan will deal with the issues that were described earlier in this section, including: climate change, human interaction and development in polar bear habitat areas, user participation and international agreement, and harvesting.\textsuperscript{122} It may be beneficial to model the recovery plan after the 1994 Alaska Plan, as well as other successful recovery plans, because the Alaska Plan has already taken into account some of the issues impacting polar bears and their habitat.\textsuperscript{123}

\section*{VI. A Polar Bear Recovery Plan's Chance for Success}

Critics of polar bear recovery plans are likely to question how the success of recovery plans will be measured or defined. Will success be defined as the recovery (complete or otherwise) of the species, or by preventing the species from going extinct? A natural follow-up inquiry to this question goes to the potential a recovery plan has for success.

Some may say that the Act has failed because only thirteen of over 1300 species have been recovered; however, others say that the

\begin{footnotesize}
\begin{enumerate}
\item 117. \textit{Id.} (identifying definitions available for use when formulating recovery plan).
\item 118. \textit{See id.} (recognizing various provisions under Act).
\item 119. For a discussion of the importance of obtaining cooperation from Natives in the conservation of the polar bears, \textit{see supra} notes 101-07 and accompanying text.
\item 121. \textit{Id.} at 1097 (describing what recovery plan will generally cover).
\item 122. For a discussion of these issues, including climate change and user interaction, \textit{see supra} notes 90-110 and accompanying text.
\item 123. For a description of the recovery plan implemented for the North American gray wolf, \textit{see supra} notes 46-61 and accompanying text.
\end{enumerate}
\end{footnotesize}
Act’s prevention of the extinction of hundreds of species is an accomplishment in and of itself. Researchers have found that listing under the Act actually enhances recovery over time, and that the designation of a critical habitat, which is required for all species with few exceptions, often promotes survival and recovery. In light of this, as well as other successful recovery plans implemented pursuant to a listing under the Act, polar bears may be able to rebound.

Due to the uncertainty surrounding the effects of climate change, however, it may be especially difficult to gauge the potential success of a recovery plan. Much of this uncertainty arises from the difficulty in separating the causes and effects of earlier periods of time when the concentration of greenhouse gases was higher or lower than present levels. Feedback loops are another cause of uncertainty in making accurate climate change predictions; feedback loops are characterized as the phenomenon where “the warmer the planet becomes, the more water is evaporated from the oceans making more clouds, which trap still more heat.” Particular areas of debate are: “(1) the extent to which any climate changes are caused by greenhouse gas emissions from human activity; and (2) how much and when the changes in the climate will disrupt agriculture, forestry, and other human activities as well as natural ecosystems beyond a level that can be easily adapted to.”


125. See id. (analyzing effects of listing polar bears as threatened under Act).

126. For a discussion of successful recovery plans implemented pursuant to listings under the Act, see supra notes 46-75 and accompanying text.


128. Id. (discussing science of global climate change surrounded by inherent uncertainty). “Another example, at higher atmospheric carbon dioxide concentrations plants may grow faster and consume more carbon dioxide.” Id. Different feedback loops are given different weight depending on the climate change model, and the effects of this can lead to “markedly different predictions in the earth’s climate.” Id. (discussing another leading cause for uncertainty surrounding global climate change).

129. Id. (discussing uncertainty surrounding global climate change). The Kyoto Protocol to the United Nations Framework Convention on Climate Change attempts to deal with these uncertainties and points of debate, and it also obligates developed countries to reduce collective emissions of greenhouse gases in order to protect the global climate system. See Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 11, 1997, 37 I.L.M. 22, available at http://unfccc.int/resource/docs/convkp/kpeng.html (discussing that Kyoto Pro-
Despite this uncertainty, and despite the United States' failure to ratify the Kyoto Protocol, which would obligate it to reduce greenhouse emissions, the United States is not entirely blind to the implications of global warming. The Administration has acknowledged that it "agree[s] that human activity contributes to global warming" and that it is "committed to reducing greenhouse gas emissions," having already made "tremendous investments in reducing emissions." This acknowledgement is an important one for the polar bears, because regardless of all the uncertainty surrounding climate change, any plan for the conservation of the polar bears will have to address the impacts of climate change. This is a special focus for any recovery plan geared towards polar bears, given that "[i]t is unclear whether such a recovery plan could avoid addressing the link between manmade emissions of heat-trapping gases and the increase in Arctic temperatures.

"Wild law" may further help to strengthen any attempts to recover and protect polar bears; wild law would allow interested parties to assert the polar bears' right "to exist as part of an intact Arctic community" in order to obtain injunctions against various activities that might infringe on that right. One of the benefits of using wild law to assist in the conservation of the polar bears is that...
it provides a different approach to the problem: it is "not going to solve [the] problem using the same thinking that caused it in the first place."\textsuperscript{134}

Ultimately, it is impossible to predict the exact success of a polar bear recovery plan. The issue of polar bear population depletion is not one that is dealt with simply by prohibiting wasteful killing or limiting human interaction with the polar bears' habitat.\textsuperscript{135} There are many variables affected by global climate change that impact the polar bears' sea ice habitat; these variables are compounded by the inherent uncertainty of global climate change.\textsuperscript{136} In light of this uncertainty, the best hope for polar bear conservation is a recovery plan that actively attempts to deal with climate change factors, and issues regarding human development in polar bear habitat areas. Gaining international and Native cooperation in the implementation of such a recovery plan is extremely crucial to a plan's success.\textsuperscript{137} Ideally, any recovery plan implemented pursuant to the polar bears' proposed classification as "threatened" will take these factors into account and give the polar bears a chance to survive.

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\footnote{reservation/story/0,,1941609,00.html (last visited Oct. 18, 2007) (discussing implications of wild law on protection of polar bears).}

\textsuperscript{134} Id. (discussing usefulness of wild law approach).

\textsuperscript{135} For a discussion of various issues suggested for consideration in a recovery plan, see supra notes 89-109 and accompanying text.


\textsuperscript{137} For a discussion of these climate change factors and why a recovery plan should focus on them, see supra notes 90-114 and accompanying text.