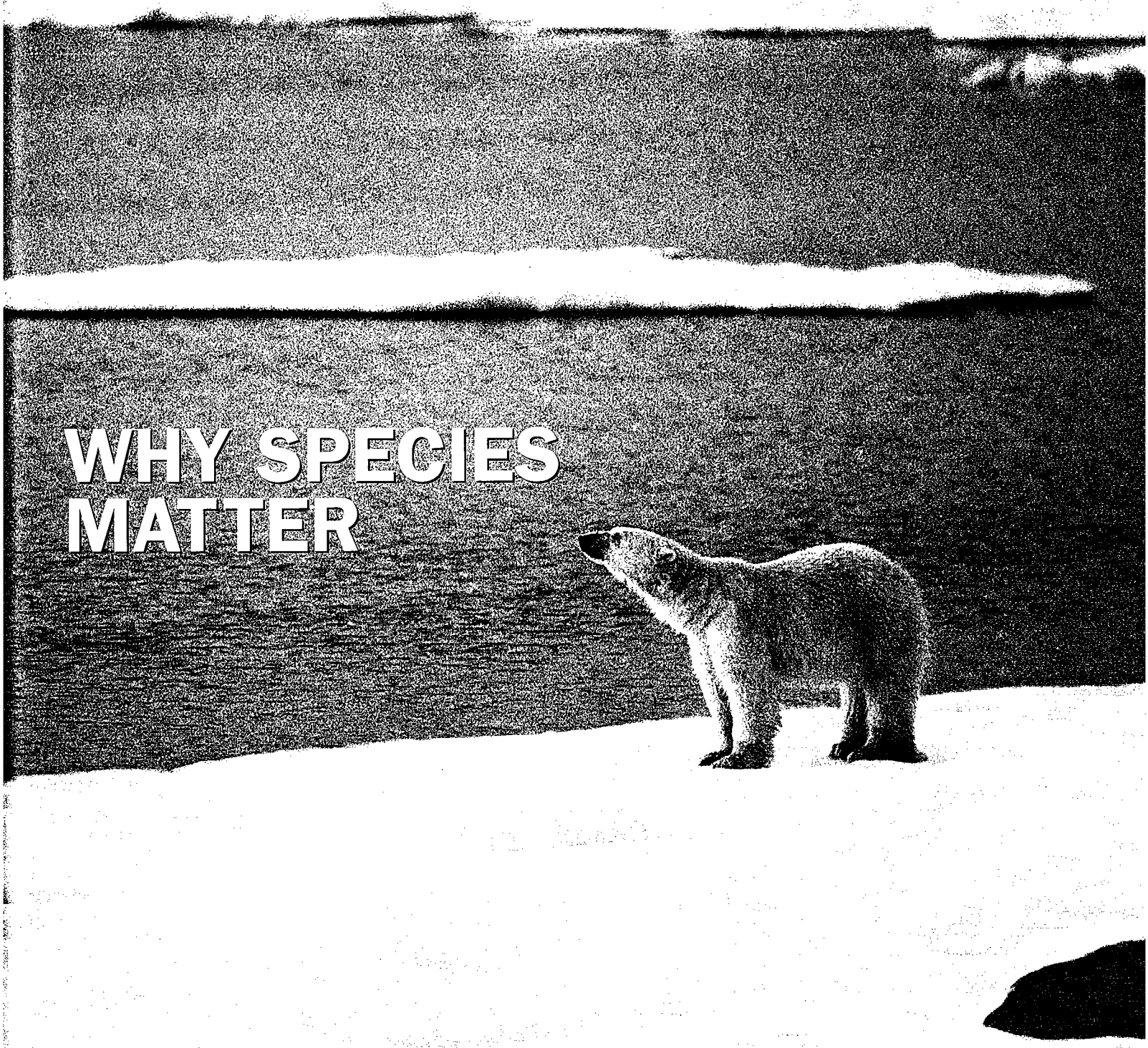
NATURAL RESOURCES & ENVIRONMENT

ABA SECTION OF ENVIRONMENT, ENERGY, AND RESOURCES



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- PROTECTING SPECIES TO PROTECT ECOSYSTEMS
- SPECIES AND CLIMATE CHANGE
- FARMING THE OCEANS
- DEVELOPMENT BANKS AND BIODIVERSITY

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Ursus maritimus: Polar Bears on Thin Ice

Brendan R. Cummings and Kassie R. Siegel

On December 27, 2006, Secretary of Interior Dirk Kempthorne held a press conference to announce that the U.S. Fish and Wildlife Service (FWS) would propose to list the polar bear (*Ursus maritimus*) as a threatened species under the Endangered Species Act (ESA), 16 U.S.C. §§ 1531–1544, due to the loss of the bear's sea-ice habitat from global warming.

The proposed listing of a high-profile species threatened by global warming, and with it the potential application of the regulatory power of the ESA to greenhouse gas (GHG) emissions, came from an administration that has listed fewer species under the ESA than any previous administration and that had, until recently, steadfastly refused to recognize the reality of global warming. Needless to say, the proposed listing rule for the polar bear did not come easily.

The announcement of the proposed listing rule triggered a whirlwind of media attention, resulting in more than 250 television stories, 1,000 print stories, and 240 editorials. The continuing media frenzy associated with listing proposal has cemented the polar bear as *the* iconic example of the devastating impacts of global warming on the Earth's biodiversity. By the time the official comment period on the proposed listing rule closed in April 2007, over half a million comments had been submitted to FWS urging protection of the species, the most ever for any rulemaking under the ESA.

A final determination on the proposed listing rule for the polar bear is due January 9, 2008. While the polar bear will not be the first species that is threatened by global warming to be protected under the ESA, it has the first listing rule in which the impacts of global warming are cited as the sole reason for the listing. As such, the listing process for the polar bear highlights the possibilities and limitations of using the ESA to address otherwise unregulated GHG emissions, as well as the challenges of endangered-species management in a changing climate.

In the seminal ESA case, *Tennessee Valley Authority v. Hill*, 437 U.S. 153 (1978), the Supreme Court held that the ESA's unequivocal mandate that federal agencies "insure" that their actions do not "jeopardize" any species protected by the statute meant that a multimillion dollar dam project already near completion could not proceed because its completion threatened the existence of the snail darter, a small endemic fish of no known economic value. In so doing, the Supreme Court elevated a little-known statute that had passed Congress with near unanimity to one of the most powerful and controversial environmental statutes in the United States. In the nearly three decades since *TVA* was decided, courts enforcing the ESA have halted such activities as logging to protect threatened owls, commercial fishing and military activities to protect marine mammals, oil and gas development to protect wolves and grizzly bears, pesticide authorizations to protect imperiled salmon, and numerous other habitat-damaging activities that threatened a particular protected species. Whether GHG emissions can be halted to protect polar bears will be a test of the statute's continuing relevance in the twenty-first century.

The two primary mechanisms by which the ESA protects listed species are contained in Sections 7 and 9 of the statute. 16 U.S.C. §§ 1536, 1538. Section 7 directs all federal agencies to "insure through consultation" with FWS (or the National Marine Fisheries Service (NOAA Fisheries) if the listed species is a marine species under that agency's jurisdiction) that all actions authorized, funded, or carried out by such agencies are "not likely to jeopardize the continued existence" or "result in the destruction or adverse modification of habitat" of any listed species. 16 U.S.C. § 1536(a)(2). In contrast to the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321–4375, which requires only informed agency decision making and not a particular result and is therefore strictly procedural, Section 7 of the ESA contains both procedural mandates (e.g., "through consultation") and substantive mandates (e.g., "insure" the action does not "jeopardize") for federal agencies. 16 U.S.C. § 1536(a)(2). As such, the statute, and litigation under it, can force analysis through the consultation process of the environmental effects of a given project, and if the project is determined to jeopardize a listed species or adversely modify its critical habitat, the statute can trigger modification or cancellation of the project so as to avoid such impacts.

Consultation under Section 7 results in the preparation of a biological opinion by FWS or NOAA Fisheries that determines whether the proposed action is likely to jeopardize the continued existence of a listed species or adversely modify its critical habitat. If the action is determined to jeopardize a species or adversely modify its critical habitat, FWS or NOAA Fisheries must provide "reasonable and prudent alternatives" that would allow the action to proceed in a manner that avoids jeopardy and adverse modification. In making the jeopardy and adverse modification determinations, FWS or NOAA Fisheries must utilize the "best available science." *Id.*

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While Section 7 applies only to the actions of federal agencies, the prohibitions of Section 9 apply to "any person," including federal, state, and local agencies and entities, individuals, and corporations. Section 9 prohibits the "taking" of any endangered species in the United States or upon the high seas. Regulations promulgated pursuant to Section 4(d) apply most of the take prohibitions applicable to endangered species to threatened species as well. "Take" means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19). "Harm" includes "significant habitat modification or degradation where it . . . injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering." 50 C.F.R. § 17.3.

Consistent with the ESA's legislative history, courts have broadly interpreted the take prohibition and have found violations of Section 9 in instances such as direct intentional killing of a listed species, harm that resulted from habitat degradation, and government authorizations of private activities that inevitably would result in prohibited take, including pesticide use or commercial fishing. In perhaps the most expansive reading of Section 9's reach to date, one appellate court found that inadequate regulation of light pollution could make a local government liable for the take of listed sea turtles.

In addition to the prohibitions against jeopardy and take provided by Sections 7 and 9, the ESA mandates an array of affirmative conservation actions for listed species. These include the designation of "critical habitat," the development and implementation of recovery plans, the acquisition of land, and the release of federal funding for domestic and international conservation programs. However, no matter how imperiled a species might be, none of the protections of the ESA apply to it unless it is officially listed, via regulation, as threatened or endangered under the statute. A species is "endangered" if it "is in danger of extinction throughout all or a significant portion of its range," while a species is "threatened" if it is "likely to become an endangered species within the foreseeable future." 16 U.S.C. § 1532(6), (20).

The listing process for a given species may be initiated either by FWS or NOAA Fisheries on the agency's own volition, or, more often, by petition from an interested party. Under either scenario, once the listing process is initiated, strict timelines apply, with an initial finding due within ninety days of the petition, a proposed rule within twelve months of the petition, and a final rule within a year from the proposed rule. A negative finding by FWS or NOAA Fisheries at any of these three stages of the process terminates the rulemaking. If all the deadlines for petition processing and subsequent listing actions are met, the species should in most cases be officially protected under the ESA no later than two years from the date of the petition. Unfortunately, such timely protection is rarely the case, and most petitions are processed only following litigation.

Critically important for the polar bear and any other species threatened by global warming is that all listing decisions are to be made "solely" on the basis of the "best scientific . . . data available." 16 U.S.C. § 1533(b)(1)(A). A decision not to list a petitioned species is subject to judicial review. It is this "best available science" standard that provides a vehicle through the petitioning process to force a federal agency such as FWS to squarely address the science of global warming. The polar bear proved to be the perfect species for such an effort.

Polar bears are completely dependent upon Arctic sea-ice habitat for survival. Polar bears need sea ice as a platform from which to hunt ringed seals and other prey, to make seasonal migrations between the sea ice and their terrestrial denning areas, and for other essential behaviors such as mating. Unfortunately, the polar bear's sea-ice habitat is quite literally melting away.

Global warming is impacting the Arctic and Antarctic more than any other places on the planet. In Alaska and western Canada, winter temperatures have already increased by as much as 3–4°C in the past fifty years. Over the next one hundred years, under a moderate emissions scenario, annual average temperatures are projected to rise an additional 3–5°C over land and up to 7°C over the oceans. ARCTIC CLIMATE IMPACT ASSESSMENT (ACIA), IMPACTS OF A WARMING ARCTIC 26 (2004), http://amap.no/acia/ [hereinafter ACIA IMPACTS]. This ongoing warming has already severely reduced and projected warming will continue to reduce the extent of sea-ice coverage. Over the past thirty years, the annual average sea-ice extent has decreased by about 8 percent, or nearly one million square kilometers—an area larger than Texas and Arizona combined—and the melting trend is accelerating. *Id.* at 25. In 2005, summer sea-ice extent reached a new minimum, and in March 2006 winter sea ice was the lowest ever recorded. Under relatively optimistic future GHG emissions scenarios, summer sea ice will likely decline 50–100 percent by the end of the century. Under increasingly likely scenarios, summer sea ice will be gone before mid-century. Under any scenario, the future of ice-dependent species such as the polar bear is grim.

Canada's Western Hudson Bay polar bear population, at the southern edge of the species' range, is perhaps the best-studied of the nineteen polar bear populations and was the first to show the impacts of global warming. Breakup of the annual ice in Western Hudson Bay is now occurring on average two and one half weeks earlier than it did thirty years ago. Andrew E. Derocher, Nicholas J. Lunn & Ian Stirling, *Polar Bears in a Warming Climate*, 44 INTEGRATED COMPARATIVE BIO. 163 (2004). Earlier ice breakup is resulting in polar bears having less time on the ice to hunt seals. Polar bears must maximize the time they spend on the ice feeding before they come ashore, as they must live off built-up fat reserves for up to eight months before ice conditions allow a return to hunting on the ice. By early 2004, Hudson Bay bears' reduced hunting season had translated into thinner bears, lower female reproductive rates, and lower juvenile survival rates.

Although scientific papers speculating on the future of polar bears in a warming climate appeared as early as 1993, it was not until 2004 that peer-reviewed studies were published that clearly articulated the threat facing the entire species,

not just the Western Hudson Bay population. Both studies, one by Canadian researchers and the other by the ACIA (a multinational effort associated with the Arctic Council), concluded that polar bears would be unlikely to survive as a species in the wild if summer sea ice were to disappear completely as some climate models predicted. *Id.* at 163; ACIA IMPACTS.

Even short of complete disappearance of sea ice, projected impacts of global warming on polar bears will affect virtually every aspect of the species' existence. These impacts include the above-mentioned reduction in the hunting season caused by delayed ice formation and earlier breakup that translates to reduced fat stores, reduced body condition, and the resulting reduced survival and reproduction rates; reductions in sea ice resulting in increased distances between the ice edge and land, which makes it more difficult for bears to reach preferred denning areas; increased energetic costs from traveling farther between ice and land and through fragmented sea ice; and reduction in ice-dependant prey, such as ringed and bearded seals. Global warming will also increase the rates of human/bear interactions, as greater portions of the Arctic become more accessible to people and as polar bears are forced to spend more time on land waiting for ice formation. Increased human/bear interactions will almost certainly lead to higher polar bear mortality rates.

In sum, changes in sea-ice extent, thickness, movement, fragmentation, location, duration, and timing will have significant, adverse impacts on polar bear feeding, breeding, and movement. Such impacts will likely result in reduced reproductive success, higher juvenile mortality rates, and, in some cases, higher adult mortality rates. By century's end, the combined effects of these demographic changes will likely result in population declines and extirpations—and possibly global extinction of the species.

In response to the increasingly recognized threat of global warming on the polar bear, in 2004 the Center for Biological Diversity began preparing a petition seeking listing of the species under the ESA. Since the petition was filed, new reports of polar bear drownings, cannibalism, starvation, and population declines have been published. Jon Aars, Nicholas J. Lunn & Andrew E. Derocher, POLAR BEARS PROCEEDINGS OF THE 14TH WORKING MEETING OF THE IUCN/SSC POLAR BEAR SPECIALIST GROUP, 20–24 JUNE 2005, SEATTLE, WASHINGTON, USA 44–45 (2006). Impacts predicted for the coming decades have already occurred, with five of the nineteen populations now considered likely to be declining. The status of the polar bear has grown more dire and the need for protection all the more compelling.

On February 16, 2005, the day the Kyoto Protocol went into effect with the United States' participation conspicuously absent, the Center for Biological Diversity submitted a petition to FWS to list polar bears as a threatened species under the ESA. The 170-page petition discussed the status of the species, the science of global warming, and the observed and projected impacts of global warming on the polar bear's sea-ice habitat. The petition argued that the polar bear, although not yet endangered, was likely to become so in the foreseeable future given global warming trends and the inadequacy of U.S. and international measures to combat GHG emissions.

In contrast with previous Center petitions for global-warming-impacted species (the Kittlitz's murrelet submitted to FWS in 2001 and two Caribbean corals submitted to NOAA Fisheries in 2004), where the case for protected status could be made on already documented declines, the decline of the polar bear (at least at the time of the petition) was something projected for the future. Other than the Hudson Bay population, polar bears generally were not yet known to be showing the effects of global warming. As such, the petition was heavily dependent on the forecasts of climate scientists about what conditions for polar bears would be in the coming decades. So while, for example, NOAA Fisheries could skirt the issue of the causal mechanisms of warming oceans and consequent coral decline, acceptance or rejection of the polar bear petition would require the FWS to squarely address the science of global warming. Whatever action FWS took in response to the polar bear petition would then represent either an explicit agency acceptance of anthropogenic global warming, something the Bush administration has been loath to do, or a rejection of the consensus on the science of global warming, in which case the science of global warming would end up in the courts under the "best available science" standard of the ESA.

Studies concluded that polar bears would be unlikely to survive as a species in the wild if summer sea ice were to disappear completely.

When FWS failed to make a ninety-day finding on the petition, on October 11, 2005, the Center, now joined by Greenpeace and the Natural Resources Defense Council (Plaintiffs), filed a formal notice of intent to sue as required by the citizen-suit provision of the ESA. On December 15, 2005, the organizations filed suit in federal district court in San Francisco to compel FWS to make the overdue ninety-day finding.

Given the case was fundamentally about agency noncompliance with a statutory deadline, Plaintiffs promptly filed a motion for summary judgment. In response, FWS rushed to make a ninety-day finding prior to the scheduled hearing date so as to moot the case. On February 9, 2006, FWS published its finding in the Federal Register. 71 Fed. Reg. 6,745 (Feb. 9,

2006).

The ninety-day finding made by FWS recites the statutory boilerplate that "the petition presents substantial scientific or commercial information indicating that the petitioned action of listing the polar bear may be warranted," but is otherwise devoid of any information or statement that could be interpreted as an acknowledgment of the existence of global warming. *Id.* The closest the agency comes to acknowledging the primary threat to the species is to solicit information "on the effects of climate change and sea-ice change on the distribution and abundance of polar bears and their principal prey over the short- and long-term." *Id.* So while the polar bear cleared this important first hurdle on the path toward listing, FWS managed to avoid directly confronting the issue of global warming in the finding.

Within a week of the ninety-day finding being made, the one-year deadline from the date of the petition for FWS to make its now required twelve-month finding passed. Plaintiffs submitted a required sixty-day notice of intent to sue, and following the running of the notice period, on June 28, 2006, filed an amended complaint to address the now-delinquent twelve-month finding. The parties in the interim negotiated a settlement and, following the filing of the amended complaint, filed a stipulation setting forth a date for FWS to make the twelve-month finding. On July 5, 2006, the federal court issued an order approving the stipulation and setting December 27, 2006, as the judicially enforceable deadline for FWS to make the finding as to whether listing the polar bear under the ESA is or is not warranted.

A decision not to list would be immediately condemned as a denial by the Bush administration of global warming.

On December 27, 2006, FWS announced that listing of the polar bear was in fact warranted and that the agency would be publishing a proposed listing rule. FWS published the proposed rule in the Federal Register on January 9, 2007. 72 Fed. Reg. 1,063 (Jan. 9, 2007). As with the ninety-day finding, the proposed rule never uses the phrase "global warming," nor does it mention "greenhouse gases." The rule, however, does go into great depth about the polar bear's dependence on sea ice and ultimately concludes that "polar bear populations throughout their distribution in the circumpolar Arctic are threatened by ongoing and projected changes in their sea ice habitat." 72 Fed. Reg. at 1,081. Although the underlying status review prepared by FWS scientists for the listing decision treats in detail the causes of global warming and the inadequacy of the U.S. and global response to the problem, in the Federal Register notice FWS never explicitly acknowledges why the sea ice is retreating. Nevertheless, the listing proposal acknowledges that the best available science indicates that temperatures will continue to rise and sea-ice extent will continue to decline.

The petition filing, sending of the formal notice of intent to sue, subsequent lawsuit, positive ninety-day finding, and eventual proposed listing rule for the polar bear were all accompanied by press releases and all garnered significant media attention. The FWS was under sufficient enough public scrutiny that the agency could not simply quietly deny listing as it had done with the vast majority of listing petitions processed under the Bush administration. A decision not to list would be immediately condemned as a denial by the administration of global warming, something that was becoming increasingly politically difficult to do. And given the now overwhelming science on the issue, such a decision would likely be overturned by a reviewing court. In contrast, any decision to list the species would be viewed as a major step toward the administration acknowledging global warming, and, perhaps, beginning to do something about it.

Ultimately, the Bush administration chose a rather convoluted middle ground. It proposed to list the polar bear, acknowledging that the sea ice was retreating, but simultaneously claimed that the cause of the sea-ice retreat was beyond the scope of FWS's analysis. However, given that the status review upon which the proposed rule was based did in fact contain such an analysis, this attempt to dodge the global warming issue largely failed. Perhaps more importantly, Secretary Kempthorne and FWS claimed that addressing the cause of the sea-ice decline, GHG emissions, was beyond the reach of the ESA. Once the polar bear listing is finalized (if not before, as the two Caribbean corals are now listed, and global warming is impacting numerous species already listed) this assertion will be put to the test.

As the TVA *v. Hill* decision exemplifies, the Section 7 consultation process is the heart of the ESA. The Supreme Court stated that Section 7 "admits of no exception," and affords endangered species "the highest of priorities." 437 U.S. at 173–174. There is no reason GHG emissions, which jeopardize polar bears, should be treated any differently than pesticides that harm salmon or logging that harms owls.

Section 7 consultation is required for "any action [that] may affect listed species or critical habitat." 50 C.F.R. § 402.14. Agency "action" is defined in the ESA's implementing regulations to include

> all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to: . . . *actions directly or indirectly causing modifications to the land, water, or air.*

50 C.F.R. § 402.02 (emphasis added). This regulatory defi-

nition of "action" should be broad enough to encompass actions that result in GHG emissions, as it would be hard to argue that such emissions are not "causing modification to the land, water, or air." *Id.* The remaining question with respect to the triggering of these requirements for an action resulting in GHG emissions is whether that action "may affect" the listed species. 50 C.F.R. § 402.14. While it is clear that global warming affects listed species, attributing an individual action's contribution to global warming is more difficult.

Because the goal of Section 7 consultation is to avoid jeopardizing any listed species, the regulatory definition of "jeopardy" offers some guidance as to how the consultation requirement for a GHG-emitting action may be interpreted. To "jeopardize" a species means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce *appreciably* the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." 50 C.F.R. § 402.02 (emphasis added). If an action "appreciably" contributed to global warming, that action could then be found to jeopardize a listed species. "Appreciably" is defined in the Oxford English Dictionary as being "to the degree that can be estimated," while something is "appreciable" if it is "large or important enough to be noticed." OXFORD ENGLISH DICTIONARY ONLINE, http://www.askoxford.com/concise_oed/appreciable?view=uk. So if an action contributes an appreciable amount of GHG emissions to the atmosphere, that action should undergo the consultation process.

While many federal actions may not contribute appreciable amounts of GHGs to the atmosphere, many clearly do. For example, the corporate average fuel economy (CAFE) standards for sport-utility vehicles and light trucks are set via regulation by the National Highway Transportation Safety Administration. Because the transportation sector represents a large component of United States GHG emissions, the volume of GHGs represented by this single rulemaking are certainly "appreciable." Similarly, every five years the Minerals Management Service approves a program for all offshore oil and gas leasing for the entire United States. Again, the GHGs generated through the lifecycle of the production and use of these billions of barrels of oil are very appreciable. The GHG emissions from numerous other actions present in the approval of new coal-fired power plants, oil shale leasing programs, limestone mines for cement manufacturing, and dozens, perhaps hundreds, of other projects are individually and cumulatively having an appreciable effect on the atmosphere. These are all agency "actions" as defined by the ESA, which "may affect" listed species, and therefore trigger the consultation requirements of Section 7.

Of course, federal agencies are not yet consulting on the impacts of GHG emissions and global warming on ESA-listed species. They will likely not do so until and unless a court explicitly orders them to do so. With the polar bear listing likely to be finalized by January 2008, that day is likely not far away.

While Section 7 only applies to federal actions and agencies, the prohibitions of Section 9 apply far more broadly, reaching the actions of private entities and corporations. Section 9 prohibits the "take" of listed species, which includes "harming" and "harassing" members of the species in addition to simply killing them directly. Both the legislative history and case law support "the broadest possible" reading of "take." *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 704-05 (1995). Whether that reading is broad enough to encompass GHG emissions remains to be seen.

While it is clear that global warming affects listed species, attributing an individual action's contribution to global warming is more difficult.

In addition to the prohibitions of Sections 7 and 9, global warming will be implicated in virtually every other aspect related to the listing of the polar bear. Critical habitat will have to be designated for the species. Sea ice is obviously essential to the species' survival so such areas will ultimately have to be designated as critical habitat. The ESA requires that a recovery plan for the polar bear be prepared and *implemented.* There is no hope for recovery, much less survival, of the polar bear absent substantial reductions in GHG emissions. Any legally adequate recovery plan must therefore include mandates to reduce such emissions.

Of course the polar bear listing is not yet final, and it is possible that the Bush administration will listen to the protests raised by the carbon lobby, reverse course, and withdraw the listing proposal. However, no matter how vociferous the opponents of the listing become, they will not be able to refute the clear science showing the dire consequences of global warming on the polar bear and its sea-ice habitat. Since the petition was filed, global warming's adverse impacts on the polar bear have gone from predicted to documented. Scientific articles, and subsequent popular press reports, on polar bears drowning from lack of sea ice, starving from lack of access to food, and engaging in cannibalism presumably triggered by food stress, all phenomena without precedent, have appeared with alarming frequency. Global warming has clearly arrived in the Arctic and, if the polar bear is to survive, requires an immediate response. In the absence of any U.S. regulatory scheme to control GHG emissions, the ESA may be the polar bear's best hope.