Melting Ice and Tangled Nets: Litigation and Conservation Policy in the US, Australia, and Canada

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How effective are courts as policymaking institutions? To investigate this issue, I examine two species – polar bears, and loggerhead sea turtles – as they navigate the conservation regimes in the US and Canada and the US and Australia, respectively. Generally speaking, courts play a far greater role in the American endangered species protection process than they do in Australia and Canada, allowing me to examine the impact of the courts in a comparative context.

Overall, the results of this study are fairly positive. In both the polar bear and the loggerhead sea turtle cases, the American system functioned at least as well as, and sometimes better than, the biodiversity programs in the other two countries I examine. For both species, litigation helped enforce important legal provisions and forced government officials to address critical shortcomings in their regulatory agendas. In addition, contrary to the predictions of other scholars, lawsuits did not appear to slow the American policymaking process significantly, at least compared to the Canadian and Australian systems. In these cases, then, litigation acted as a productive and useful part of the policymaking process.

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Over the last several decades, much of the scholarship on the American legal system has been decidedly pessimistic. To many authors, the US courts provide a powerful and responsive source of policy change, but they also impose a significant set of additional costs onto the political process. Robert Kagan's *Adversarial Legalism* provides one of the most prominent examples of this sort of work. According to Kagan, US courts are remarkably accessible, but also adhere to a decision-making process that "tends to be particularly complex, protracted, and costly."[1] Major statutes like the US Endangered Species Act (ESA), which rely heavily on "citizen suit" provisions for their enforcement, have been common targets of this kind of criticism. As argued by Federico Cheever, courts tend to "[enforce] the [Endangered Species] Act's specific prohibitions at the expense of the Act's larger purpose," creating suboptimal policy outcomes and fostering resistance to the Act amongst members of the public.[2]

Contrary to other scholarship on this topic, in this paper I argue that the American legal system actually functions remarkably well as a part of the policymaking apparatus. In particular, through a comparative analysis of endangered species policy in the US, Australia, and Canada, I conclude that the US judiciary seems to provide important oversight functions sometimes lacking in other nations. Though courts do impose delays and other costs onto the policymaking process, the magnitude of these costs does not appear to be as great as other scholars have sometimes suggested. At least in the realm of biodiversity protection, judicial intervention does not seem to slow the policymaking process to an unacceptable pace, nor does it appear to impact the substantive quality of the American biodiversity protection system. Though the procedural "price" of judicial intervention is not insignificant, and though judicial intervention may not be ideal in all instances, the evidence presented in this paper suggests that the policy benefits of

[1] Robert Kagan, *Adversarial Legalism* (Cambridge: Harvard University Press, 2001), 9.
[2] Federico Cheever, "The Road to Recovery: A New Way of Thinking About the Endangered Species Act," *Ecology Law Quarterly* 23 (1996): 1-78, 5, 27-34.

citizen suits can be substantial, especially compared to systems without comparable review options.

The remainder of this paper will be divided into four primary parts. Firstly, I provide an overview of the literature on the American legal system in general, as well as a specific look at some of the criticisms of the ESA expressed over the last several years. Next, I describe my methodology and goals in this study, explaining the metrics I use to assess the relative effectiveness of the different endangered species laws I examine. Afterwards, I compare and contrast the mechanics of the biodiversity protection statutes in each of my three countries of interest. Finally, I turn to a close examination of the conservation experiences of two species – loggerhead sea turtles and polar bears – in the US and Australia and the US and Canada, respectively. In particular, I differentiate between the *procedural* and the *substantive* effectiveness of each of these three systems, assessing each nation along both criteria and assessing the merits of adversarial legalism in the comparative context.

I. Environmental Policy and the American Legal System

In the literature on law and environmental policy, the US Endangered Species Act (ESA) has often been described as the most powerful and ambitious biodiversity statute in the world.[3] Enacted in 1973, the law allows citizens and government officials to nominate species or subspecies for legal protection, which initiates a lengthy finding and investigation procedure known informally as the "listing process." If government officials determine that a species is in danger of extinction, that species can be formally "listed" under the Act as either "threatened" or

[3] Holly Doremus, "Patching the Ark: Improving Legal Protection of Biological Diversity," 18 *Ecology Law Quarterly* (1991): 268-334.

"endangered," providing members of that species with an array of legal safeguards. Specifically, the ESA forbids the "take" of protected species,[4] and contains strong recovery plan requirements[5] and critical habitat provisions for listed taxa.[6] In most areas, the Act's evidentiary standards require policymakers to take scientific evidence into account, usually placing biological considerations above political ones.[7] Finally, the law also contains strong citizen-suit provisions, allowing private groups and individuals to sue to force agencies to carry out the Act's mandates.[8]

Ambitious as the statute may be, scholars have often been critical of the ESA's effectiveness as an actual piece of public policy. At the most basic level, some analysts have claimed that the ESA has simply failed to achieve its stated goals, doing little to help endangered species to recover from the brink of extinction.[9] Others have taken a different approach, arguing that ESA protections have slowed the *rate* of extinction amongst listed species compared with non-listed groups.[10] In a related manner, Holly Doremus and Joel Pagel have argued that full recovery and "delisting" from the ESA's endangered species list may not be a realistic goal for many endangered populations.[11] In policy terms, several writers have argued that agencies ought to try harder to bring species to the point of self-sufficiency, working to wean them off of legal

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[4] 16 U.S.C § 1532(19)
[5] 16 U.S.C § 1533(f)
[6] 16 U.S.C § 1533(a)
[7] 16 U.S.C § 1533(b)
[8] 16 U.S.C § 1540(g)
[9] Ray Vaughan, "State of Extinction: The Case of the Alabama Sturgeon and Ways Opponents of the Endangered Species Act Thwart Protection for Rare Species," *Alabama Law Review* 46 (1995): 569-640 (arguing that private landowners can often destroy populations of endangered taxa on their land without repercussions); Charles C. Mann and Mark L. Plummer, *Noah's Choice: The Future of Endangered Species* (New York: Alfred A. Knopf, 1995) (arguing that the ESA has done very little to help preserve biodiversity while incurring heavy societal costs)
[10] Mark Schwartz, "The Performance of the Endangered Species Act," *Annual Reviews of Ecology, Evolution, and Systematics* 39 (2008): 279-99; Jeffery J. Rachlinski, "Noah by the Numbers: An Empirical Evaluation of the Endangered Species Act," *Cornell Law Review* 82 (1997): 356-389.
[11] Holly Doremus and Joel Pagel, "Why Listing May Be Forever: Perspectives on Delisting under the U.S. Endangered Species Act," *Conservation Biology* 15, no. 5 (2001): 1258-1268.

protections.[12] Others have pointed out that these goals may not be realistic.[13] Similarly, John Charles Kunich and others have called for officials to take a more preventative approach, characterizing the ESA's reactive stance as "deathbed conservation."[14] Taking this idea further, a number of authors have asserted that regulators ought to abandon the species-centric model of biodiversity conservation altogether. Instead, these writers claim, officials ought to work to preserve ecosystems and landscapes, safeguarding the overall health of broad swathes of habitat rather than focusing on individual species.[15]

In this paper, though, I focus on a particular segment of this debate: specifically, the argument over the role of judicial intervention and the effectiveness of citizen suits in the broader biodiversity protection framework. Robert Kagan's 2001 book *Adversarial Legalism* provides one of the best-known statements on the topic. In it, Kagan claims that the adversarial processes used in American courts have helped produce "the world's most responsive legal system […] [but] not necessarily the world's most reliable legal system or the world's most responsive system of government."[16] Compared with other such systems around the world, Kagan argues that the American judiciary has helped produce a policymaking process marked by

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[12]Timothy H. Tear et al., "Status and Prospects for Success of the Endangered Species Act: A Look at Recovery Plans," *Science* 262, no. 5136 (November, 1993): 976-977; Federico Cheever, "The Road to Recovery: A New Way of Thinking About the Endangered Species Act," *Ecology Law Quarterly* 23 (1996): 1-78.

[13] Holly Doremus and Joel Pagel, "Why Listing May Be Forever: Perspectives on Delisting under the U.S. Endangered Species Act," *Conservation Biology* 15, no. 5 (2001): 1258-1268; J. Michael Scott, et al., "Recovery of Imperiled Species Under the Endangered Species Act: the Need For a New Approach," *Frontiers in Ecology and the Environment* 3, no. 7 (2005): 383-389

[14] John Charles Kunich, "The Fallacy of Deathbed Conservation Under the Endangered Species Act," *Environmental Law Review* 24 (1994): 501-580. For a similar argument, see Federico Cheever, "The Road to Recovery: A New Way of Thinking About the Endangered Species Act," *Ecology Law Quarterly* 23 (1996): 1-78.

[15] Holly Doremus, "Patching the Ark: Improving Legal Protection of Biological Diversity," 18 *Ecology Law Quarterly* (1991): 265-334; Jacqueline Leslie Brown, "Preserving Species: The Endangered Species Act Versus Ecosystem Management Regime, Ecological and Political Considerations, and Recommendations for Reform," *Journal of Environmental Law and Litigation* 12 (1997): 151-172. See Oliver A. Houck, "On the Law of Biodiversity and Ecosystem Management," *Minnesota Law Review* 81 (1997): 869-979, for a balanced approach, arguing for the use of carefully chosen "indicator species" to gauge the health of broader economic communities.

[16] Robert Kagan, *Adversarial Legalism* (Cambridge: Harvard University Press, 2001), 16.

a more complex set of legal rules, more costly forms of decision-making, more fragmented and uncertain policy structures, and a higher degree of political controversy.[17] By this logic, though American judges possess the power and influence to improve policy choices, the procedural and political "price" adversarial legalism extracts in exchange appears to be unacceptably high.

A variety of scholars have applied similar criticisms to major environmental statutes in the United States. In general, critics of court involvement have argued that lawsuits tend to constrict agency discretion in complex matters, creating an inflexible and inefficient policymaking apparatus. In a study of EPA litigation, for example, Rosemary O'Leary argues that lawsuits have forced EPA officials to focus on high-profile issues, preventing the government from addressing less publicly salient problems.[18] Similarly, Alden Abbott has argued that court-ordered deadlines tend to force agencies to rush their decisions, reducing the overall quality of governmental decisions.[19] Extending these ideas to endangered species law, Michael Greve has asserted that judicial involvement in biodiversity management has produced results that "have only rarely and coincidentally generated enforcement choices close to those that would result from an impartial, disinterested assessment of the public environmental benefits to be gained from enforcement."[20]

Other writers, however, have taken a very different approach. Rather than focusing on the costs of judicial intervention, these commentators have emphasized the danger of regulatory "capture" by anti-environmental interest groups, and the role of the courts in keeping agencies

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[17] *Ibid*, 7.

[18] Rosemary O'Leary, "The Impact of Federal Court Decisions on the Policies and Administration of the US Environmental Protection Agency," *Administrative Law Review* 41 (1989): 549-574, 562. For a more aggressive version of this argument – asserting that powerful judicial review mechanisms may allow interest groups to force agencies to misdirect and waste scarce resources – see Mark Seidenfeld, "A Big Picture Approach to Presidential Influence on Agency Policy-Making," *Iowa Law Review* 80 (1994): 1-50, 7.

[19] Alden F. Abbott, "The Case Against Federal Statutory and Judicial Deadlines: A Cost-Benefit Analysis," *Administrative Law Review* 39 (1987): 171-204, 186-200.

[20] Michael S. Greve, "The Private Enforcement of Environmental Law," *Tulane Law Review* 65 (1990): 339-394. 365

independent. To the optimists, citizen suits and other judicial oversight mechanisms play a critical role in keeping environmental agencies accountable to the public at large, preventing them from being unduly influenced by business and other anti-environmental organizations.[21] The results of at least one empirical study of ESA procedure support this viewpoint emphatically. After comparing species suggested by outside interest groups (through petitions and lawsuits) with those selected by governmental experts, Eric Biber and Berri Brosi conclude that private groups are no less adept at identifying at-risk species than agency officials. As a result, they argue, citizen suits and petitions "can contribute meaningfully to agenda-setting in a productive and rational way" without necessarily producing the kinds of inefficiencies predicted by critics of petitions and judicial review.[22]

As this review has demonstrated, scholarly opinion on the impact of citizen suits has been mixed. To many authors, encouraging private litigation produces a tradeoff between agency autonomy and agency accountability, enhancing one priority at the expense of the other.[23] More judicial review of agency decisions produces a more accountable and more transparent decision-making process, but also undermines independent agency judgment. Conversely, discouraging judicial review means sacrificing some agency accountability, but strengthens the agency's own decision-making procedures. In addition, expanding the role of judicial review often involves imposing a new set of costs onto the policymaking process, both in policy delays and in actual

[21] Robert L. Glicksman, "The Value of Agency-Forcing Suits to Enforce Non-Discretionary Duties," *Widener Law Review* 10 (2004): 353-393, 383-385; Katherine Renshaw, "Leaving the Fox to Guard the Henhouse: Bringing Accountability to Consultation Under the Endangered Species Act," *Columbia Environmental Law Journal* 32 (2007): 161-207, 164-5.

[22] Eric Biber and Berry Brosi, "Officious Intermeddlers or Citizen Experts? Petitions and Public Production of Information in Environmental Law," *UCLA Law Review* 58, no. 2 (December 2010): 321-400, 378.

[23] Daniel P. Selmi, "Jurisdiction to Review Agency Inaction Under Federal Environmental Law," *Indiana Law Journal* 72 (1996): 65-156, 138-142; Robert L. Glicksman, "The Value of Agency-Forcing Suits to Enforce Non-Discretionary Duties," *Widener Law Review* 10 (2004): 353-393, 387-392.

fiscal costs for the protagonists in a particular case.[24] However, the magnitude of these costs is not always so great, and the benefits are – at least potentially – substantial.[25] Thus, at least in the context of biodiversity law, the policy effectiveness of citizen suits and other forms of judicial intervention seems relatively unclear.

II. Endangered Species Law in a Comparative Context

In an effort to resolve this uncertainty, I assess the effectiveness of citizen suits through a comparative study of two species – polar bears, and loggerhead sea turtles – as they navigate the biodiversity management systems in the US, Australia, and Canada. As noted above, much of the scholarship on the American legal system attempts to perform a kind of cost-benefit analysis, weighing the procedural and transactional costs of litigation against its supposed benefits. Though these efforts are useful, assessing the performance of citizen suit provisions from an international perspective provides significant added value to the discussion. As noted by authors like Robert Kagan, the adversarial process constantly "lurk[s] in the bushes" in the American legal system, influencing official behavior in both implicit and explicit ways.[26] In studies that focus exclusively on the United States, assessing the nature of these subtler impacts is a difficult task. Without a non-adversarial system to compare with the American program, the specific impacts of litigation are nearly impossible to isolate, making it easy to confuse the effects of lawsuits with the constraints imposed by a particular policy problem.

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[24] Robert Kagan, *Adversarial Legalism* (Cambridge: Harvard University Press, 2001), 7.
[25] Eric Biber and Berry Brosi, "Officious Intermeddlers or Citizen Experts? Petitions and Public Production of Information in Environmental Law," *UCLA Law Review* 58, no. 2 (December 2010): 321-400, 371-3.
[26] Robert Kagan, *Adversarial Legalism* (Cambridge: Harvard University Press, 2001), 231.

International comparisons can help resolve this difficulty. By providing an actual, real-life alternative to the US system of law, studying the systems used in other countries can help give scholars a better idea of the broader impacts of judicial review. Focusing on the experiences of two individual species limits this study's generalizability, but also allows me to examine the mechanics of the three statutes I examine at a greater level of detail. As a result, the conclusions I generate will hopefully provide scholars with a different perspective on the strengths and weaknesses of judicial review, and help generate hypotheses and guide future research in this area.

To structure my analysis, I utilize two primary criteria to compare the states and cases I examine. The first criterion, which I call *procedural* effectiveness, refers to the tendency of an institution to make decisions quickly, transparently, and with a minimum of transactional costs. For the most part, these tendencies are based in common-sense goals for good government; all else being equal, virtually everyone would agree that government ought to maintain a clear, obvious, and straightforward set of decision-making procedures, which guarantee a certain level of procedural regularity and speed for the participants. Similarly, ensuring the ability of affected stakeholders to participate in the policymaking process is also important, forming a more-or-less explicit tenet of American administrative law.[27]

Often, these kinds of principles are made explicit in administrative rules and laws, which provide an easy way to identify the procedural priorities in a particular legal system. In biodiversity law, for example, major statutes like the ESA usually lay out a variety of deadlines and reporting requirements, which must be followed by the relevant officials. Agencies themselves also commonly publish guidelines and decision rules, which form a part of this

[27] Richard B. Stewart, "The Reformation of American Administrative Law," *Harvard Law Review* 88, no. 8 (June, 1975): 1667-1813. See especially 1769-70, 1805-1813.

procedural framework as well. Regardless of the source, though, if a country's institutions follow these sorts of stipulations closely, the biodiversity protection system in that country would be *procedurally* effective.

My other criterion, *substantive* effectiveness, is intended to assess the quality of the policy choices made by a particular endangered species management program. As I explain in the next section of this paper, the biodiversity statutes in the US, Australia, and Canada all prioritize biological evidence very highly, often barring policymakers from using political and economic factors to make their decisions. My formulation of "substantive effectiveness" is derived from these kinds of rules. For the purposes of this paper, if an endangered species management system is able to make policy decisions that are broadly in line with the recommendations of the relevant scientific experts, that system will be classified as a *substantively* effective one. By contrast, if an agency or other system routinely distorts or ignores scientific information, that institution would be a *substantively* ineffective one.

As methods of measuring institutional effectiveness, these criteria are clearly imperfect. For starters, procedural and substantive requirements often cut against each other, preventing agencies from creating programs that accomplish both sets of goals. In particular, understanding and analyzing the scientific evidence takes a great deal of time, sometimes more than the relevant statutes allow. As a result, administrators must often choose between these two standards, prioritizing either the timeliness or the quality of the proposed policy.

In addition, "substantive effectiveness" itself is a difficult concept to measure. For starters, designations like "threatened" and "endangered" are often poorly defined, making it difficult for courts and agencies to use these terms in a consistent manner.[28] To compound the

[28] Compared with the US, Australia and Canada do a somewhat better job of defining their terms. For example, when outlining designations like "threatened" and "endangered," the scientific advisory committees in both

problem, scientific studies often conflict, with different experts drawing different conclusions and offering different policy recommendations. Because of these problems, most US judges are extremely reluctant to intervene on substantive scientific questions, deferring to agency judgment in all but the most extreme instances.[29] As a result, some commentators have argued that recalcitrant agencies can embark on a kind of "science charade," selectively presenting scientific evidence to fool lay judges into supporting a scientifically suspect policy program.[30] Even for well-meaning officials, though, arriving at an empirically "correct" decision in an endangered species case is often very difficult, with few clear guidelines or standards from which to work.

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nations employ quantitative criteria based on those used by the International Union for Conservation of Nature (IUCN), a biodiversity advocacy group. For the specific systems used by each nation, see Australian National Audit Office, "The Conservation and Protection of National Threatened Species and Ecological Communities," Last modified 2007, http://www.anao.gov.au/~/media/Uploads/Documents/2006%2007_audit_report_311.pdf, 50; COSEWIC, "COSEWIC's Assessment Process and Criteria," last modified August 11th, 2010, http://www.cosewic.gc.ca/eng/sct0/assessment_process_e.cfm, 8-10.
For further reference on American problems in this area, see Holly Doremus, "Listing Decisions Under the Endangered Species Act: Why Better Science Isn't Necessarily Better Policy," *Washington University Law Quarterly* 75 (1997): 1029-1153;

[29] According to the Administrative Procedures Act, government decisions are subject to judicial review and reversal if they are "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law." For endangered species cases, courts have operationalized this standard through a "rational basis" test, which requires an agency or other government defendant to prove that its decision has a rational connection to the relevant evidence in a particular case. Importantly, a "rational" decision need not be the *best* possible decision, or even a *good* decision. In order to pass a "rational basis" test, a government defendant needs only to prove that its policy choice was a *possible* decision that a rational evaluator *could have* reached, rather than the *most correct* decision in a given situation. 5 U.S.C § 706(2) (A); *In re Polar Bear Endangered Species Act Listing and § 4(d) Rule Litigation*, No. 08-764 (US Cir. filed July 6, 2011), citing *Balt. Gas & Elec. Co. v. Natural Res. Def. Council, Inc.,* 462 US 87 (1983). See also *Citizens to Preserve Overton Park v. Volpe*, 401 US 402 (1971) (describing arbitrariness review as an attempt to determine "whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment") and *Motor Veh. Mfrs. Ass'n v. State Farm Ins.*, 463 US 29 (1983) ("an agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise").

[30] Sara A. Clark, "Taking a Hard Look at Agency Science: Can the Courts Ever Succeed," *Ecology Law Quarterly* 36 (2009): 317-354, 342-354; Holly Doremus, "Use and Abuse of Information: Scientific and Political Integrity in Environmental Policy," *Texas Law Review* 86 (2008): 1601-1653. On the other hand, scientists themselves also sometimes present biased information, particularly in politically controversial cases. See, e.g., Holly Doremus, "A Challenge for the Obama Team: Put Science and Federal Scientists to Better Use," *Ecology Law Currents* 36 (2009): 151-158.

Despite these issues, the procedural/substantive framework remains the best possible way to judge the effectiveness of a particular biodiversity protection system. In any government, policy programs and institutions are established for specific purposes, with a particular set of ideas in mind. Any study of institutional effectiveness must take these goals into account, judging the effectiveness of a particular program based on its ability to accomplish its explicitly-stated ends. Or, as phrased by political scientist Robert Putnam, a measure of institutional performance "must correspond to the objectives and evaluations of the institution's protagonists […] we must beware of imposing alien standards that are uncongenial to those constituents."[31] In endangered species law, the goals are usually quite clear; within a given timeframe and according to certain reporting requirements, administrators must decide which species are in danger of extinction, and how best to help those species to recover. As noted earlier, biodiversity statutes often frame these decisions in exclusively scientific terms, restricting policymakers from using non-biological information in their considerations. Weighing the relative importance of these criteria is not always easy, but remains the only realistic way to judge the success of an endangered species protection program. By comparing an agency's responsiveness to its procedural mandate and to the policy recommendations of expert scientists and biologists, we can at least begin to assess the effectiveness of a particular biodiversity management system.

III. Why Polar Bears? Why Loggerheads? Why the US, Canada, and Australia?

In legal as well as biological terms, the US, Australia, and Canada offer a number of distinct advantages as case studies for international comparison. As I explain later, Canada and

[31] Robert Putnam, *Making Democracy Work: Civic Traditions in Modern Italy*, Princeton: Princeton University Press, 1993. 64

Australia both utilize lawsuits relatively infrequently in their endangered species protection systems, choosing not to empower their citizens with the same broad standing afforded by the citizen-suit clauses contained within the ESA. Otherwise, though, the biodiversity statutes in each country are fairly similar, with strong "take" prohibitions and provisions for critical habitat designations and management plans. Thus, though the level of political commitments represented by these statutes likely differs based upon the internal political dynamics in each nation, in legal terms all three are quite similar.

At the level of the individual species, polar bears and loggerhead sea turtles possess a number of advantages as case studies. In geographic terms, both are wide-ranging maritime species, occurring in US/Canadian and US/Australian waters, respectively. As a result, their habitat needs are relatively consistent across the different countries I examine. In addition, both species face a uniform set of conservation challenges throughout their ranges; most loggerhead sea turtle deaths, for example, result from bycatch caused by large-scale commercial fishing operations throughout the world's major oceans,[32] while global warming and hunting pressures are far and away the largest threats to polar bear populations in the Arctic.[33] Finally, as high-profile, well-known species, both loggerheads and polar bears have been heavily litigated and studied in each of the countries I examine, providing a wealth of information on each animal group.

No case is perfect, and these two animals are no exception. In particular, though selecting a high-profile pair of cases has certain advantages, these species have likely received a disproportionate amount of attention from scientists, environmental advocates, and

[32] T.A. Conant et al, "Loggerhead sea turtle (Caretta caretta) 2009 Status Review Under the U.S. Endangered Species Act," Report of the Loggerhead Biological Review Team to the National Marine Fisheries Service, August 2009.

[33] Steven Amstrup, Bruce Marcot, and David Douglas, "Forecasting the Range-wide Status of Polar Bears at Selected Times in the 21st Century," Renston: US Geological Survey, 2007.

administrative officials in their respective countries. Generally speaking, scholars have found that US endangered species agencies tend to devote more resources to large species and to mammal and birds at the expense of smaller amphibians, reptiles, and invertebrates.[34] Similar biases are likely apparent in other systems of biodiversity law around the world, though no scholarship on the issue appears to exist for non-US policy programs. As a result, these two cases may not be fully representative of the legal systems I seek to study. For exploratory purposes, though, examining the conservation experiences of these two cases offers a good way to compare the biodiversity protection regimes in my countries of interest. Because of their wide-ranging nature and the consistency of the conservation challenges they face, both polar bears and loggerhead sea turtles are obvious candidate species for a cross-national comparison of the sort that I hope to conduct.

IV. Legal Mechanics of Biodiversity Law: A Comparative Overview

As noted earlier, the major biodiversity statutes in the US, Canada, and Australia are remarkably similar. In all three nations, species nominated for legal protection undergo a basic four-step process, outlined in fig. 1. Briefly, private individuals or public officials first must first nominate a species for protection, which activates an expert investigation into that species'

[34] Eric Biber, "The Application of the Endangered Species Act to the Protection of Freshwater Mussels: A Case Study," *Environmental Law* 32, no. 1 (2002): 91-173, 137, 156 (arguing that funding rates for freshwater mussels are much lower on a per-species basis than birds, mammals, and other so-called "charismatic" taxa); Andrew Metrick and Martin L. Weitzman, "Patterns of Behavior in Endangered Species Preservation," Land Economics 72, no. 1 (February, 1996): 1-16 (showing that members of certain taxonomic groups (e.g. mammals, birds) are much more likely to be listed under the ESA and tend to obtain a higher level of funding than others (e.g. amphibians). Authors report similar correlations based on body size, finding that larger animals are more likely to be listed and more likely to be funded at a higher level than smaller ones); Benjamin M. Simon, Craig S. Leff, and Harvey Doerksen, "Allocating Scarce Resources for Endangered Species Recovery," Journal of Policy Analysis and Management 14, no. 3 (Summer, 1995): 415-432 (finding that factors such as taxonomic classification and length of time on the endangered species list explain variation in expenditures on individual species better than internal agency prioritization criteria)

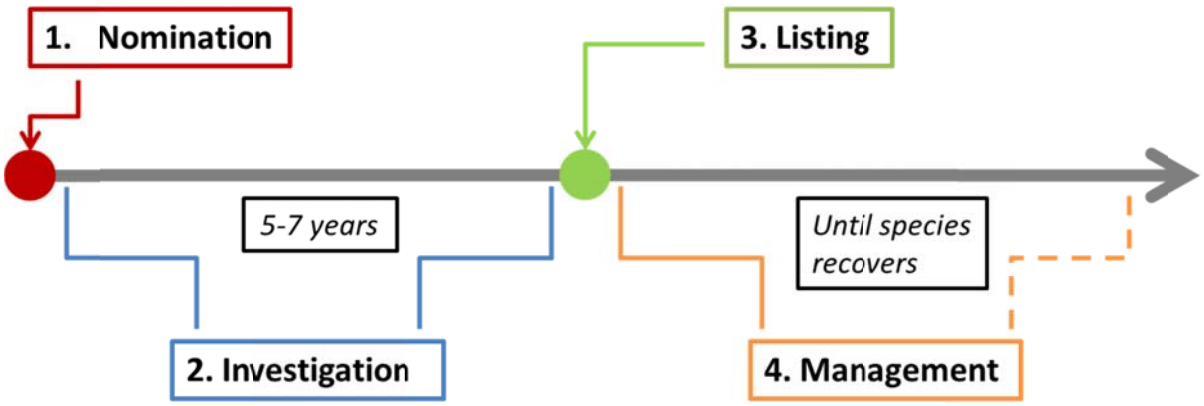

Fig. 1: Basic endangered species protection timeline

conservation status. Afterwards, an agency head or other politically-appointed official must decide whether to "list" the nominated species, providing it with formal protection under the law. Finally, if decision-makers choose to list the species in question, agency officials begin to manage that species directly, banning threatening activities and working with landowners to find ways to help that species to recover. In evidentiary terms, officials in all three countries are required to use scientific recommendations to make their decisions, placing scientific evidence at an equal or higher position than economic or political considerations.

Broadly speaking, then, the single biggest between these statutes is in their enforcement provisions. Under US law, citizens are granted broad standing to challenge administrative decisions in court, while their counterparts in Canada and Australia are not. Instead, Canada and Australia rely upon administrative provisions for enforcement of their laws, including reporting requirements and decision-making deadlines. As such, though differences between these laws do exist, these three systems provide an excellent opportunity to compare the impact of litigation on the endangered species policymaking process.

A. The Endangered Species Act: A Litigation-Oriented Model

In recent decades, biodiversity protection has become a major issue in environmental politics and policy around the world. The 1973 US Endangered Species Act (ESA) was one of

the first major responses to the issue, providing a model for many of the other biodiversity statutes around the world. Under the law, citizens can present petitions asking the US Fish and Wildlife Service (FWS, a subset of the Department of the Interior) to list a particular species as either "threatened" or "endangered," which FWS must respond to within 90 days.[35] If FWS finds that the proposed listing "may be warranted," FWS must then conduct a longer, year-long investigation, after which the Secretary of the Interior must make a final decision on whether or not a listing action is warranted.[36] If this 12-month finding is favorable, the Secretary then publishes a proposed regulation, which remains open to public comment for an additional year.[37] After the comment period closes, the Secretary must reject the listing altogether, extend the deadline, or publish a final rule listing the species under the law.[38]

Once listed, the ESA provides designated species with a broad array of legal protections. In general, all persons in the United States are prohibited from taking any action that would result in the "take" of a listed species, which is defined as an attempt to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" a member of a listed taxonomic group.[39] Significant habitat destruction is also banned.[40] At the national level, the statute bars federal

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[35] 16 U.S.C § 1533(b)

[36] A third type of finding, known as "warranted but precluded," is also possible. Species that fall into this category are those species for which the listing action is scientifically justifiable, but "precluded" by other, more urgent priorities (ESA 4(b)3(B)). Though this designation does not factor into my analysis, the "warranted but precluded" finding has been criticized as a major loophole in the ESA, allowing resource-strapped (and sometimes recalcitrant) officials to ignore large numbers of worthy listings. Other scholars, though, have highlighted the "safety valve" features of the provision, arguing that it allows FWS to manage the costs created by petitions. Compare Eric Biber and Berry Brosi, "Officious Intermeddlers or Citizen Experts? Petitions and Public Production of Information in Environmental Law," *UCLA Law Review* 58, no. 2 (December 2010): 321-400, 374-5 with Oliver Houck, "The Endangered Species Act and Its Implementation By the US Departments of Interior and Commerce," *Colorado Law Review* 64, no. 2 (1993): 277-370; Mark Schwartz, "The Performance of the Endangered Species Act," *Annual Reviews of Ecology, Evolution, and Systematics* 39 (2008): 279-99; K. Mollie Smith, "Abuse of the Warranted But Precluded Designation: A Real or Imagined Purgatory?" *Southeastern Environmental Law Journal* 19 (2010), 119-152.

[37] 16 U.S.C § 1533(b)

[38] *Ibid*

[39] 16 U.S.C § 1532(19)

[40] 50 C.F.R. § 17.3

agencies from taking actions "likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species."[41] To ensure that this requirement is fulfilled, federal agencies must consult with FWS to determine the biodiversity-related impacts of their proposed action.[42] FWS, in turn, must furnish a "biological opinion" assessing the risks presented by the action, examining its impact on the listed species occurring in the relevant geographical area.[43] If the biological opinion returns a "jeopardy" or "adverse modification" finding, FWS will include recommendations on ways to reduce the action's impact. However, so long as the action places a population in jeopardy or adversely modifies a species' habitat, that action must be abandoned.[44]

Finally, the ESA also requires regulators to take a number of specific actions to help promote the recovery of listed species. To begin with, the statute requires regulators to draw up recovery plans for listed species, which must include a planned set of government actions to help the species reach sustainable population levels.[45] In addition, the law allows regulators to identify specific tracts of land as "critical habitat" for a particular species, integral to the species' long-term survival.[46] These so-called "critical habitat designations" can be made at the time of listing, or they can be set up after the fact through a similar system of petitions utilized in the listing process described above.[47]

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[41] 16 U.S.C § 1536 (a)(2)
[42] 16 U.S.C § 1536 (b)
[43] 16 U.S.C § 1536 (c)
[44] Exemptions to this prohibition can be granted by the Cabinet-level Endangered Species Committee, created in response to the 1978 Supreme Court decision in *TVA v. Hill*. However, the Committee has only granted two exemptions over the course of its history (out of six total applications). Patrick W. Ryan and Erika E. Malmen, "Interagency Consultation Under Section 7," in *Endangered Species Act: Law, Policy and Perspectives*, *Second Edition*, ed. Donald C. Baur and William Robert Irvin (Chicago: American Bar Association, 2010), 117-118, n124
[45] 16 U.S.C § 1533(f)
[46] 16 U.S.C § 1533(a)
[47] 16 U.S.C § 1533(b)

In addition to this procedural framework, the ESA also provides private citizens with the ability to challenge virtually all of the administrative decisions outlined under the law.[48] According to the statute, many of the policy choices made under the law must be made on the basis of the "best scientific and commercial data available," barring agency officials from utilizing economic or political considerations. In particular, listing decisions[49] and jeopardy findings[50] are both subject to this standard, though a number of other decisions are not.[51] As such, if a private individual or group can prove that FWS has failed to consider the recommendations of the relevant scientific experts, that party can sue the agency to try to force it to change its decision. Known more broadly as "citizen-suit provisions," these sorts of legal tools can, in theory, provide members of the public with a high degree of leverage over the policymaking process. By bringing these kinds of suits against administrative agencies like FWS, private individuals and groups can ensure that officials remain faithful to the directives contained within the ESA.

B. Canada, Australia, and Collaborative Biodiversity Protection

Since the 1970s, a wide variety of other endangered species statutes and treaties have been enacted around the world. Though less comprehensive than the ESA, laws like Australia's Endangered Species Protection Act (1992) were passed throughout the 1980s and 1990s, often based in part upon the American model.[52] In recent years, though, both Canada and Australia

[48] 16 U.S.C § 1540 (g)
[49] 16 U.S.C § 1533(b)
[50] 16 U.S.C § 1536 (c)
[51] E.g. critical habitat findings, which require FWS to balance economic considerations with biological ones. 16 U.S.C § 1533(b)(2)
[52] J.C.Z. Woinarski and Alaric Fisher, "The Australian Endangered Species Protection Act 1992," *Conservation Biology* 13, no. 5 (October 1999): 959-962.

have passed major new biodiversity statutes: specifically, the Environment Protection and Biodiversity Conservation Act (EPBC Act) in Australia, and the Species at Risk Act (SARA) in Canada. Passed in 1999 and 2002,[53] respectively, both laws were meant to provide significant updates to existing endangered species protection regimes, changing these systems in a variety of ways. As such, though both statutes are still being revised and interpreted, both have come to play a major role in the biodiversity management programs in their respective countries.

Before beginning this section in earnest, though, one caveat is necessary. Like the US, both Canada and Australia utilize federal systems of government, with overlapping state and national statutes in many policy areas. However, in both nations, the federal government has significantly less authority over environmental issues than its counterpart in the United States, which is reflected in the scope of their endangered species statutes. In particular, under most circumstances both SARA and the EPBC Act only apply to the oceans and on Crown (federal) land, leaving the states to shape their own endangered species protection programs.[54] In policy terms, this issue has sometimes led to a patchwork set of results. In Canada, for example, provinces and territories rarely protect all of the federally-listed species within their borders, listing different proportions of SARA-designated species depending on the strength of the statutes in each jurisdiction.[55] Australia's situation is more complicated; though the EPBC Act's general statement of purpose implies that the Act protects species on all Australian territory, all

[53] Though SARA was passed in 2002, most of the law's major provisions did not actually take effect until 2004.
[54] Under SARA, if the Minister of the Environment feels that state laws do not adequately protect a federally-listed species, the Minister can issue a so-called "safety net order" for that species, which makes SARA's protections applicable on non-federal land. However, as of 2011 this provision had never been utilized by federal officials, limiting the scope of the law to crown-owned lands. Stephané Wojciechowski et al., "SARA's Safety Net Provisions and the Effectiveness of Species at Risk Protection on Non-Federal Lands," *Journal of Environmental Law and Practice* 22 (2011): 203-222.
[55] Stewart Elgie, "Statutory Structure and Species Survival: How Constraints on Cabinet Discretion Affect Endangered Species Listing Outcomes," *Journal of Environmental Law and Practice* 19 (2011): 1-30.

of the Act's specific prohibitions and powers conferred apply only on federal property and on the oceans, leaving the enforcement of biodiversity policy on non-federal land to the states.[56]

For the purposes of this paper, though, I largely ignore this issue. As marine species, polar bears and loggerhead sea turtles mostly interact with the national governments in each country I examine, spending most of their time in federally-controlled oceanic waters. Loggerhead nesting beaches, the one major exception to this rule, are all situated within state jurisdictions, making their protection a state matter. However, in both the US and Australia, national conservation agencies have helped motivate, inform, and, at times, force the state governments to act, making the federal governments into significant players in loggerhead nesting site conservation. As a result, though federalism clearly plays an important role in these statutes, I do not factor federal relationships into my analysis.

From a procedural standpoint, both SARA and the EPBC Act follow a fairly similar framework to that laid out under the ESA. Essentially, both countries utilize a so-called "two-stage" listing process; under each law, private citizens and individuals can submit listing petitions to their respective governments, which are then reviewed by an independent group of scientific experts. After analyzing these proposals, the scientists forward their recommendations to the Minister of the Environment, who makes a final decision on the listing. Once listed, all three countries provide an array of legal protections to listed species, as well as imposing some set of affirmative duties onto federal conservation agencies.

Canada's SARA closely follows this outline. In Canada, listing petitions are first submitted to a scientific advisory board known as the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which must then prepare a "status report" summarizing the

[56] Gerry Bates, *Environment Law in Australia, 6th Edition* (Australia: Reed International Books, 2009). 480-4

scientific literature on the species in question.[57] After completing this analysis, members of COSEWIC's board then have one year to submit a set of recommendations to the Minister of the Environment, who must publish a finding within 9 months of receiving COSEWIC's statement.[58] Species can be listed under SARA at three different levels, including "endangered," "threatened," or as a "species of special concern." For threatened and endangered species, SARA generally provides the same sorts of "take" prohibitions furnished by the ESA, though it does not provide equivalent consultation requirements or other specific restrictions on government action.[59] "Species of special concern," on the other hand, is an advisory category, and does not offer any specific legal protections to designated groups. Finally, SARA also requires the Minister of the Environment to draft recovery strategies for all threatened and endangered species, which must be entered into the public record within 1-2 years of a species' listing date.[60]

In Australia, the story is much the same. Passed in 1999, Australia's EPBC Act is actually a somewhat broader piece of legislation than either SARA or the ESA, intended to fulfill Australia's obligations under a number of international environmental treaties as well as preserve the nation's biodiversity. Under the law, matters of "national environmental significance" – including World Heritage Sites, internationally designated habitat for migratory animals, and threatened and endangered species – are all protected, barring projects or actions that might negatively impact any listed item.[61] For the purposes of this paper, though, I focus exclusively on the sections of the Act dealing with endangered species protection.

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[57] S.C. 2002, c. 29, § 21-22. Available at http://laws-lois.justice.gc.ca/eng/acts/S-15.3/
[58] S.C. 2002, c. 29, § 27(3)
[59] S.C. 2002, c. 29, § 32-33, 58
[60] Recovery strategies must be entered into the public record within 1 year of the listing date for endangered species, and 2 years for threatened species. S.C. 2002, c. 29, § 37-46, especially 42
[61] For the full list, see *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s3. Available at http://www.comlaw.gov.au/Details/C2012C00248

Functionally speaking, the EPBC Act's threatened species processes are fairly similar to those laid out by Canadian and American law. If an organization wishes to nominate a new species for protection, that group can petition the Minister of the Environment, which activates a review process by an independent scientific commission known as the Threatened Species Scientific Committee (TSSC). TSSC then has 12 months to forward its recommendations to the Minister of the Environment, who must make a final decision within 90 days of receiving TSSC's report.[62] Species can be listed at three levels – "vulnerable," "endangered," or "critically endangered" – depending on their level of demographic health.[63] Once a species is listed, the EPBC Act provides most of the same sorts of protections offered by the ESA and SARA, including prohibitions on the "take" of designated species and procedures for designating critical habitat.[64] In addition, though, the EPBC Act also allows the Minister of the Environment to identify and list so-called "key threatening processes"[65] and enact "conservation orders"[66] and "threat abatement plans."[67] Essentially, key threatening processes (KTPs) consist of a factor or trend which plays a significant role in causing the decline of a listed species.[68] Conservation orders and threat abatement plans allow the government to address KTPs directly, empowering

[62] Recent revisions to the EPBC Act have allowed the Minister to extend both of these deadlines, though most cases still follow the original statutory timeline. Australian National Audit Office, "The Conservation and Protection of National Threatened Species and Ecological Communities," Last modified 2007, http://www.anao.gov.au/~/media/Uploads/Documents/2006%2007_audit_report_311.pdf, 53-54.
[63] The EPBC Act also contains procedures for listing so-called "environmental communities," broadening the scope of the Act's biodiversity protection mechanisms beyond a species-specific focus. However, the "environmental communities" provision has proved difficult to implement, and has seen relatively little use. *Ibid,* 50, 73-75.
[64] *Environment Protection and Biodiversity Protection Act 1999* (Cth), s196-196b.
[65] *Ibid*, s183, 186
[66] *Ibid*, s463-474
[67] *Ibid*, s270A-284
[68] Examples include the presence and spread of invasive species, bycatch caused by open-ocean fishing practices, and so forth. For a full list of current key threatening processes, see "Listed Key Threatening Processes," Australian Government, Department of Sustainability, Environment, Water, Population, and Communities, last updated November 25, 2009, http://www.environment.gov.au/cgi-bin/sprat/public/publicgetkeythreats.pl

the Minister to ban or require KTP-related actions and construct management plans for eliminating KTPs, respectively.

In terms of their evidentiary obligations, the endangered species protection processes in both Australia and Canada are subject to strong scientific requirements and restrictions, especially during the listing phase of the process. In Australia, most decisions under the EPBC Act are subject to the principle of "environmentally sustainable development," an Australian legal idea which attempts to balance environmental, economic, and social factors.[69] Outside of the negative "take" prohibitions, this principle applies in full during the management phase, allowing federal officials to incorporate non-biological considerations into their positive management programs. During the listing phase, though, the EPBC Act is much more restrictive, barring the Environment Minister from considering factors other than the biological impact of a particular listing action. According to the text of the Act, the Minister must only consider "the effect that including the native species or ecological community in that [listing] category could have on the survival of the native species or ecological community," without regard for the socioeconomic impact of the listing decision.[70]

Canada, on the other hand, is somewhat less stringent. Again, outside of the negative "take" prohibitions contained within the law, positive management decisions made by the government are not subject to strong evidentiary requirements or prioritization schemes. During the listing phase, the standards are somewhat stronger; according to SARA, COSEWIC's listing recommendations must be based upon the "best available information on the biological status of

[69] For a full definition of "environmentally sustainable development," see *Ibid*, s3A.
[70] *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s186; Commonwealth of Australia, "The Australian Environmental Act – Report of the Independent Review of the Environmental Protection and Biodiversity Conservation Act 1999," last modified 2009, www.environment.gov.au/epbc/review, 125.

a species," echoing the language of the ESA.[71] However, when making a final listing decision, the Minister of the Environment is only required to "take into account" COSEWIC's assessment, allowing the government to balance socioeconomic factors with biological information.[72] In sharp contrast to other Canadian administrative statutes, though, if the Minister decides not to follow COSEWIC's recommendations she is required to publish a statement explaining the reasoning behind her decision.[73] In addition, if the government fails to respond to a COSEWIC report within the prescribed statutory timeframe, the species in question is *automatically* listed according to COSEWIC's recommendations, forcing the government to adhere to SARA's deadlines.[74] These requirements, which are essentially unique in Canadian law, were inserted during the legislative process to force the government to bear the political consequences of negative listing decisions, heightening the stakes of the Act's processes.[75]

As such, outside of the jurisdictional issues mentioned above, the only major difference between the laws is in their enforcement procedures. Under the ESA, citizen-suit provisions empower private individuals and groups to challenge virtually any decision made under the law in court, providing a sort of external review over the policymaking process. By contrast, though Australia's EPBC Act does contain a citizen-suit provision, issues with standing and inconsistent fee-shifting rules have discouraged activists from using this tool in a widespread fashion.[76]

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[71] S.C. 2002, c. 29, §15(2)
[72] S.C. 2002, c. 29, § 27(2)
[73] S.C. 2002, c. 29, § 27(1.2)
[74] S.C. 2002, c. 29, § 27(3)
[75] Stewart Elgie, "Statutory Structure and Species Survival: How Constraints on Cabinet Discretion Affect Endangered Species Listing Outcomes," *Journal of Environmental Law and Practice* 19 (2011): 1-30, 27.
[76] In Australia, allocation of legal costs is said to "follow the event"; that is, after a case is decided, the presiding judge may publish an order forcing the loser to pay for the winner's legal fees. However, in EPBC Act litigation, the courts have been remarkably inconsistent in their use of this power. In different cases, different judges have issued anything from a full fee-shifting order to a partial order to no order at all. This uncertainty about cost orders, combined with the "follow the event" rule, has made it extremely difficult for environmental advocates to predict who will be responsible for the legal fees in a given case. As a result, activists have tended not to use the law's citizen-suit provisions in a widespread fashion. Gerald Walpin, "America's Failing Civil Justice System: Can We Learn

Canadian endangered species law is even more extreme, almost totally restricting citizens from challenging government decisions in court.[77] Instead, Canada relies on a series of statutory controls and triggers to ensure that SARA's provisions are enforced, including the aforementioned reporting requirements and decision-making deadlines.

C. Conclusion

Thus, in terms of process and decision-making criteria, the major biodiversity protection statutes in the US, Australia, and Canada are remarkably similar. These laws, of course, are not perfectly analogous; in terms of procedure, for example, Canada and Australia divide the scientific and political parts of the decision-making process into two separate steps, establishing a kind of a two-tiered listing framework. The US, on the other hand, combines these two phases, assigning FWS and the Secretary of the Interior to fulfill both roles. Power relationships between the state and federal governments in each nation have led to other differences, leaving the ESA with a much larger jurisdiction than either SARA or the EPBC Act.

Broadly speaking, though, these laws all follow a very similar procedural structure. In all three countries, citizens can submit petitions asking their governments to investigate and protect particular species, which activates a scientific review and investigation of the species in question. After the review is completed, politically-appointed officials then make a final listing decision. At all stages of the process, each statute places a high value on scientific evidence, often

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From Other Countries?", *New York Law School Law Review* 41 (1996): 647-663; Kenneth M. Murchison, "Environmental Law in Australia and the United States: A Comparative Overview," *Boston College Environmental Affairs Law Review* 22 (1995): 503-561; "The Australian Environmental Act – Report of the Independent Review of the Environmental Protection and Biodiversity Conservation Act 1999," last modified 2009, www.environment.gov.au/epbc/review, 261-4.

[77] Katia Opalka and Joanna Myszka, "Sustainability and the Courts: A Snapshot of Canada in 2009," *Sustainable Development Law & Policy* 10 (Fall, 2009): 59-63.

requiring policymakers to ignore non-biological considerations when making their decisions. Statutory deadlines and reporting requirements, also, are important in all three systems, with each statute specifying an array of nondiscretionary deadlines for regulators to meet. In the United States, though, these evidentiary and procedural directives are backed by citizen-suit clauses, which have become a key part of the enforcement of the ESA. By contrast, lawsuits are not an important part of SARA or EPBC Act processes, forcing Canadian and Australian advocates to rely on administrative triggers and democratic pressure to see that their nations' rules are enforced.

V. Polar Bears and Sea Turtles in the Conservation Arena

That background aside, I now move into a discussion of my two case species: polar bears, and loggerhead sea turtles. According to the leading scientific experts and studies, loggerheads and polar bears both face an array of serious and imminent conservation threats, making them prime candidates for protection under endangered species law. However, the policy realities have not always matched these recommendations. In the polar bear case, American and Canadian officials repeatedly sought to weaken endangered species protections, often through outright disobedience of their statutory mandates. Lawsuits, at least in the US, provided a response to this problem, forcing officials to improve both the procedural and the substantive quality of polar bear protections. In Canada, though, no such option was available, giving officials a much greater degree of latitude.

In the loggerhead sea turtle case, the impacts of litigation are less clear. As in the polar bear case, citizen suits have played a central role in American loggerhead management, allowing a variety of groups to shape and challenge federal conservation policy. By contrast, in Australia,

industry representatives, scientists, and agency officials have worked effectively with one another, producing a more cooperative policymaking pattern. In both countries, though, governments have generally managed loggerheads in a responsible fashion, achieving a similar level of *substantive* effectiveness. Additionally, in the areas where direct comparisons are possible, American and Australian policymakers seem to have taken about the same amount of time to make their decisions, displaying a (superficially) similar level of *procedural* effectiveness. Overall, though the Australian legal system was probably more efficient than the American one, the differences do not seem dramatic. At least in this case, then, the costs imposed by litigation do not appear to be as high as other commentators have predicted.

A. Polar Bears: Resource Development, Delays, and the Courts

Polar bears (*Ursus maritimus*) are a large, carnivorous, maritime species that occur throughout most of the Arctic Circle. During the winter, members of the species are heavily dependent on sea ice for their survival, both as a means of travel and as a hunting platform for forays into the ocean.[78] As a result, polar bears are particularly vulnerable to the receding sea ice boundaries predicted to result from global warming over the next fifty to one hundred years. Without extensive sea ice coverage, polar bears traveling to preferred denning and hunting habitat will be forced to traverse longer distances and expend more energy, placing significant stress on the species and making it more vulnerable to extinction. Thus, though hunting and habitat degradation are significant concerns for polar bears as well, climate change has become the primary focus for most polar bear conservation advocates in the scientific community.

[78] Andrew E. Derocher, Nicholas J. Lunn and Ian Stirling, "Polar Bears in a Warming Climate," *Integrative and Comparative Biology* 44 (2004): 163-176.

Because of these challenges, the vast majority of the polar bear scholarship over the last several decades has been decidedly pessimistic. In a heavily cited 2004 study, for example, a leading polar bear scientist noted that "given the rapid pace of ecological change in the Arctic, the long generation time, and the highly specialized nature of polar bears, it is unlikely that polar bears will survive as a species if the sea ice disappears completely."[79] A 2007 US Geological Survey (USGS) report, conducted as the American polar bear listing process was underway, came to the same conclusions; utilizing an array of climate data, scientists estimated that "realization of the sea ice future which is currently projected would mean loss of ≈ 2/3 of the world's current polar bear population by mid-century," with the remainder driven extinct by approximately 2075.[80] This outcome, the study predicted, would be the most likely scenario for polar bear survival unless greenhouse emissions changed significantly in the near future. As such, based upon the leading scientific evidence, polar bears clearly appear to be headed towards major population loss or extinction, and would seem to be prime candidates for statutory protections.

1. US Polar Bear Listing

Armed with these findings, in the mid-2000s, environmental activists in the United States began to put pressure on the US government to provide protections for the bear. In early 2005, an environmental organization called the Center for Biological Diversity (CBD) petitioned the US government to list the polar bear as "threatened" under the ESA.[81] However, government officials stalled, missing the 90-day finding deadline to reply to the petition and forcing

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[79] *Ibid*, 163.
[80] Steven Amstrup, Bruce Marcot, and David Douglas, "Forecasting the Range-wide Status of Polar Bears at Selected Times in the 21st Century," Renston: US Geological Survey, 2007, 36.
[81] Center for Biological Diversity, "Petition to List the Polar Bear (Ursus maritimus) as a Threatened Species Under the Endangered Species Act," Accessed August 19, 2011, http://www.biologicaldiversity.org/species/mammals/polar_bear/pdfs/15976_7338.pdf

environmental activists to move the battle into the courts. In *Ctr. for Biological Diversity v. Norton* (2005), CBD convinced a federal judge to force the Secretary of the Interior to release the 90-day finding, which was eventually published in February of 2006.[82] A proposed rule listing the bear as "threatened" was then released in March of 2007, setting March of 2008 as the non-discretionary deadline for the final listing decision. Perhaps unsurprisingly, though, the Department of the Interior missed that deadline as well, catapulting the listing back into the courts. *Ctr. for Biological Diversity v. Kempthorne* (2008), the case arising from the controversy, was equally favorable to environmental advocates, producing an order requiring federal officials to make a final listing decision.[83] Pressured from all angles, in May of 2008 the federal government finally listed the bear as "threatened," providing the species with substantive protection under federal law.[84]

After these clearer victories for the environmental advocates, the polar bear listing has entered into a somewhat murkier phase. For the past several years, much of the litigation on polar bear protection has centered on a special rule inserted into the 2008 "threatened" listing decision known informally as a 4(d) exemption. According to §4(d) of the ESA, "threatened" species do not automatically receive the same "take" restrictions or other legal prohibitions extended to species classified as "endangered." Instead, FWS has the power to decide what level of protection to offer to each individual threatened species, subject only to a requirement that its rules "provide for the protection" of listed groups.[85] Generally speaking, these Section 4(d) exemptions are meant to provide the federal government with a certain degree of flexibility in its

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[82] *Ctr. for Biological Diversity v. Norton*, No. 05-5191 (N.D. Cal. filed Dec. 15, 2005).
[83] *Ctr. for Biological Diversity v. Kempthorne*, No. 08-1339 (N.D. Cal. filed April 28, 2008).
[84] "Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Polar Bear (Ursus maritimus) Throughout Its Range; Final Rule," *Federal Register* 50:17 (15 May 2008), p. 28212.
[85] 16 U.S.C § 1533(d)

conservation efforts, allowing officials to create exceptions to broader ESA rules to suit the needs of particular situations and species.

Utilizing this provision in the statute, FWS officials included a Section 4(d) exemption into the polar bear listing for global warming-related habitat loss in the Arctic. The scientific projections on global warming, the agency claimed, were uncertain enough to justify an exemption for these activities, which had not been obviously implicated as a key issue in polar bear conservation.[86] Environmental advocates responded with a pair of lawsuits, one seeking to "uplist" the polar bear from "threatened" to "endangered" (thereby invalidating the Section 4(d) exemption), and one simply seeking to have the exemption declared unlawful.[87] Neither was successful; in both cases, federal judges rejected the environmentalists' arguments, finding that FWS's decisions survived the basic "rationality" test that they were required to meet. In a small victory for the plaintiffs, the judge in the Section 4(d) case did find that FWS had failed to adequately study and report on the potential conservation impact of the exemption, and sent officials back to prepare a formal environmental impact statement on their decision. However, this latter decision was released too recently (October 17th, 2011) for its impact to be ascertained.[88]

2. Canadian Polar Bear Listing

In Canada, polar bear policy has followed a similar timeline to that in the United States. During the pre-SARA period, the Committee on the Status of Endangered Wildlife in Canada

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[86] *In re Polar Bear Endangered Species Act Listing and § 4(d) Rule Litigation*, No. 08-764 (US Cir. filed July 6, 2011).
[87] *Ibid; In re Polar Bear Endangered Species Act Listing and § 4(d) Rule Litigation*, No. 08-2113 (US Dist. filed October 17, 2011).
[88] *Ibid,* 58-74.

(COSEWIC) assessed the conservation status of Canadian polar bear populations on a number of different occasions, publishing reports in 1986, 1991, 1999, and 2002.[89] Though the original 1986 opinion categorized the bear as "not at risk," in 1991 COSEWIC upgraded its polar bear recommendation to "species of special concern," which was reaffirmed in its three subsequent studies.[90] The 2002 report, in particular, emphasized "hunting" and "environmental degradation" as the primary threats to Canadian polar bears, as well as acknowledging the "unknown impact of global warming" on bear populations.[91] As a result, once SARA came into effect, the polar bear was one of the first species considered for listing under the new law, obtaining official candidacy for a "special concern" designation in May of 2004.[92]

Almost immediately, though, the listing effort began to run into delays. In early 2005, the Canadian government released a statement rejecting the 2002 recommendations, claiming that COSEWIC's assessments were outdated and did not adequately incorporate "best available community knowledge and aboriginal traditional knowledge."[93] Officials added that "consultations [with traditional authorities] will be undertaken on an urgent basis and are expected to be completed [spring of 2005]," presenting these issues as temporary setbacks.[94]

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[89] COSEWIC, *COSEWIC assessment and update status report on the polar bear Ursus maritimus in Canada* (Ottawa: Committee on the Status of Endangered Wildlife in Canada, 2008). Available at http://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_polar_bear_0808_e.pdf

[90] *Ibid*; Prior to the year 2000, COSEWIC actually used the term "vulnerable" rather than the phrase "species of special concern." For consistency, I use the phrase "species of special concern" throughout this paper.

[91] COSEWIC, *COSEWIC assessment and update status report on the polar bear Ursus maritimus in Canada* (Ottawa: Committee on the Status of Endangered Wildlife in Canada, 2002). Available at http://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_polar_bear_e.pdf

[92] "Order Acknowledging Receipt of the Assessments Done Pursuant to Subsection 23(1) of the Species at Risk Act," 138 *Canada Gazette*, no. 9 (May 5, 2004): 474.

[93] "Order Giving Notice of Decisions not to add Certain Species to the List of Endangered Species," 139 *Canada Gazette*, no. 2 (January 26, 2006): 115.

[94] *Ibid,* 96.

"Urgency" notwithstanding, COSEWIC officials did not produce another polar bear report for a full three years, forwarding an updated proposal to the Canadian government in mid-2008.[95]

Far from settling the matter, though, this second listing attempt was even more controversial than the first, generating significant controversy on both substantive and procedural grounds. As noted above, between 2002 and 2008 an array of well-regarded studies were published projecting the worldwide conservation status of polar bear populations, with a special focus on the possible effects of global climate change. In general, these new models suggested that the bears were likely to experience major demographic declines by mid-century, easily large enough to meet COSEWIC's quantitative guidelines for an "endangered" listing.[96] Despite this new evidence, though, the 2008 COSEWIC statement took a remarkably conservative stance. Though COSEWIC acknowledged "unknown effects of directional climate change on [bear] survival and recruitment," the organization's own internal climate models explicitly (and inexplicably) "[did] not account for the possible effects of climate change" on polar bear populations.[97] As COSEWIC reviewers themselves noted, this shortcoming meant their results "should be used to interpret current and short-term likelihoods of decline only," with little predictive power beyond the near future.[98] Even so, COSEWIC officials went ahead with their report, and reaffirmed their original "special concern" recommendation.

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[95] COSEWIC, *COSEWIC assessment and update status report on the polar bear Ursus maritimus in Canada* (Ottawa: Committee on the Status of Endangered Wildlife in Canada, 2008). Available at http://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_polar_bear_0808_e.pdf

[96] Shaye Wolf and Kassie Siegel, "Comments on Proposed Order To List The Polar Bear Under SARA," email message to Mary Taylor (Director, Conservation Service Delivery and Permitting, Environment Canada), August 1, 2011. For specific details on COSEWIC's listing criteria, see COSEWIC, "COSEWIC's Assessment Process and Criteria," last updated August 11th, 2010, http://www.cosewic.gc.ca/eng/sct0/assessment_process_e.cfm, 8-10.

[97] COSEWIC, *COSEWIC assessment and update status report on the polar bear Ursus maritimus in Canada* (Ottawa: Committee on the Status of Endangered Wildlife in Canada, 2008), 37, 58. Available at http://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_polar_bear_0808_e.pdf

[98] To reinforce the point, in a conversation with the author, one leading polar bear scientist claimed that this shortcoming rendered COSEWIC's projections "useless" for any serious attempt to project polar bear populations

In other areas, as well, the 2008 COSEWIC report was remarkably unresponsive to new scientific evidence and proposals. From an early point in the polar bear listing process, a number of leading biologists argued that polar bears ought to be divided into a set of distinct management groups (known as "designatable units," or DUs) based upon geographic locality, local challenges, and individual need.[99] Under this scheme, declining polar bear populations in the southern Arctic would get relatively strong protections, while the healthier populations to the north would be less tightly regulated. However, the 2008 COSEWIC report treated the entire species as a monolith. By its reading of SARA and of COSEWIC administrative guidelines, the agency argued it was only authorized to enact DU schemes based upon genetically-identified subpopulations, rather than the geographically-based framework suggested by the scientists. As a result, both the COSEWIC report and the proposed listing decision by the Ministry of the Interior left the polar bear as a single unit.[100]

Finally, on top of all of these substantive issues, the 2008 COSEWIC process *still* encountered significant additional delays from the Canadian government. As noted elsewhere in this paper, SARA requires the Minister of the Environment to respond to COSEWIC listing recommendations within nine months of receiving a COSEWIC report. As an added penalty, if the Minister fails to meet this deadline, the statute mandates that the species in question be *automatically* listed according to COSEWIC's recommendations. In the polar bear case, these requirements would have set the deadline for the Minister's response around mid-2009.

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any distance into the future. *Ibid*; Andrew E. Derocher (Professor, University of Alberta), in discussion with author, October 18, 2011.

[99] Gregory W. Thiemann, Andrew E. Derocher and Ian Stirling, "Polar Bear *Ursus Maritimus* Conservation in Canada: An Ecological Basis for Identifying Designatable Units," *Flora and Fauna International* 42, no. 4 (2008): 504-515; Andrew E. Derocher (Professor, University of Alberta), in discussion with author, October 18, 2011.

[100] COSEWIC, *COSEWIC assessment and update status report on the polar bear Ursus maritimus in Canada* (Ottawa: Committee on the Status of Endangered Wildlife in Canada, 2008). Available at http://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_polar_bear_0808_e.pdf; "Order Amending Schedule 1 to the Species at Risk Act," 145 *Canada Gazette*, no. 27 (July 2, 2011): 2143-2170.

However, using a questionable legal maneuver, the Canadian government did not acknowledge receipt of the 2008 COSEWIC statement until early 2011, though the report had been publicly available nearly three years before.[101] As a result, Canadian officials did not respond to COSEWIC's statement until the end of 2011, over two years past SARA's nondiscretionary response deadline. In its response, the government did finally agree to list the polar bear, but the breakthrough provided little solace to environmentalists; despite all the substantive problems with COSEWIC's 2008 assessment, Canadian officials essentially took the 2008 report at face value, listing the bear as a "species of special concern" throughout its range in Canada.[102]

3. Conclusion

Overall, these cases clearly illustrate some of the positive functions that courts can serve as part of the policymaking apparatus. In both the US and in Canada, the polar bear listing process was marked by serious procedural and substantive problems, as officials tried to delay the listing and downplay the significance of key scientific evidence. Faced with this intransigence, environmental advocates in the US shifted the battle into the courts, where judges forced officials to adhere to some semblance of the ESA timeframe and reporting requirements. By contrast, Canadian officials ignored key deadlines without repercussions, most notably in the case of the 2009 response deadline. As a result, even though American regulators were forced to deal with an array of time-consuming lawsuits, the listing process in the US was actually somewhat *quicker* than the process in Canada (39 months vs. 44 months, excluding the gap

[101] "Species at Risk Act: Order Acknowledging Receipt of the Assessment Done Pursuant to Subsection 23(1) of the Act," 145 *Canada Gazette*, no. 4 (February 16, 2011): 430-1.
[102] "Order Amending Schedule 1 to the Species at Risk Act," 145 *Canada Gazette*, no. 23 (November 9, 2011): 115.

between the first and second Canadian listing attempts). Thus, the presence of litigation seems to have improved the procedural effectiveness of the American listing system substantially, enforcing the ESA's deadlines and other rules in a far more robust fashion than the comparable framework under SARA.

On substantive questions, litigation had a much smaller impact on the American listing process. In both the US and in Canada, a number of substantive elements of their respective polar bear listings were deeply controversial, generating an array of protests from the environmental community.[103] In Canada, the government essentially ignored these protests, going ahead with its "special concern" listing as planned. In the US, environmentalists challenged both the 4(d) exemption and the "threatened" listing in court, but found little success, as judges proved reluctant to overturn FWS's interpretation of the relevant scientific evidence. Even so, the court's cautious approach had some benefits; as the judges themselves noted, climate science is a complicated, fast-shifting field, making it difficult for non-experts to differentiate between faulty and legitimate evidence.[104] Thus, though the courts were probably more cautious than necessary in this case, their caution also allowed them to avoid making uninformed decisions. As a result, though the courts did not significantly improve the ESA's substantive effectiveness, they also managed to avoid causing any additional damage to the American process, producing a similar set of outcomes to those generated in Canada.

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[103] For examples of protests by Canadian scientists and advocates against the government's polar bear policies, see Dag Vongraven, "Guest editorial—the ballyhoo over polar bears," *Polar Research* 28 (2009): 323–326, Accessed August 19, 2011, doi:10.1111/j.1751-8369.2009.00137; Center for Biological Diversity, "Citizen Petition Submitted to the Commission for Environmental Cooperation Pursuant to Article 14 of the North American Agreement on Environmental Cooperation," last modified November 30, 2011, http://www.biologicaldiversity.org/species/mammals/polar_bear/pdfs/11-30-11_CEC_PB_Petition.pdf

[104] See, e.g., *In re Polar Bear Endangered Species Act Listing and § 4(d) Rule Litigation*, No. 08-2113 (US Dist. filed October 17, 2011), 10. The Supreme Court has laid out similar principles, stating that courts must be the most deferential when an agency is "making predictions, within its area of special expertise, at the frontiers of science." *Balt. Gas & Elec. Co. v. Natural Res. Def. Council, Inc.,* 462 US 87 (1983).

B. Loggerhead Sea Turtles: Management on the Oceans

The experience of my second case species, loggerhead sea turtles (*Caretta caretta*), offers a more complicated set of lessons. Unlike polar bears, loggerhead sea turtles have been protected under both Australian and American law for several decades; in the US, for example, loggerheads were listed with little controversy in 1978, and have remained under ESA protection ever since. In Australia, the turtle was first listed under Queensland state law in 1968, with the other states and the federal government following suit in subsequent years.[105] Unlike the polar bear, then, most of the loggerhead's interactions with endangered species programs have been in the management phase of process, allowing me to examine the impacts of litigation on this section of the law as well.

In terms of conservation issues, the primary anthropogenic threats to loggerhead survival can be divided into two groups: nesting, and oceanic. On the nesting side, increasing real estate development along nesting beaches has been a major issue for loggerhead breeding populations throughout the management history of the species, especially in the United States. Beachfront development, light pollution, and sand compaction can all render beaches unsuitable for loggerhead nesting, leading officials to pay special attention to protecting nesting sites in places like Florida and Georgia.[106] In Australia in particular, nesting predation by introduced European red foxes has also been a major issue, leading to a 90-95% rate of hatchling mortality at some nesting sites during the 1970s and 80s.[107] Other near-shore anthropogenic interactions, including

[105] Colin Limpus, "A Biological Review of Australian Marine Turtles: Loggerhead Turtle," The State of Queensland, Environmental Protection Agency, last modified 2008. http://www.derm.qld.gov.au/register/p02785aa.pdf
[106] T.A. Conant et al, "Loggerhead sea turtle (Caretta caretta) 2009 Status Review Under the U.S. Endangered Species Act," Report of the Loggerhead Biological Review Team to the National Marine Fisheries Service, August 2009.
[107] Colin Limpus. "A Biological Review of Australian Marine Turtles: Loggerhead Turtle." The State of Queensland, Environmental Protection Agency. Last modified 2008. http://www.derm.qld.gov.au/register/p02785aa.pdf

boat strikes and harbor dredging and development, have also served to reduce the quality of loggerhead sea turtle nesting sites.[108]

Though these nesting-related threats have been a significant problem for loggerhead conservation in the past, interactions between oceanic fishing operations and loggerheads have recently come to represent the main focus for loggerhead management. As a globally distributed species, loggerhead sea turtles are found in most of the world's major oceans, and are extremely migratory; for example, the Northern Pacific loggerhead population breeds predominantly off the coast of Japan before migrating over to foraging grounds in Baja California Sur and the East China Sea. Because of these sweeping migratory paths, most loggerhead populations around the world tend to conflict with large-scale commercial fisheries, which exploit many of the ocean regions through which loggerheads routinely travel. Over the past several decades, these interactions have had a major impact on worldwide loggerhead populations; in a 2010 US National Marine Fisheries Service (NMFS) review, the authors repeatedly identified fishing-related impacts as a major threat to loggerhead turtles, and proposed that seven out of the nine worldwide loggerhead populations be categorized as "endangered."[109] As a result, similar studies have identified commercial bycatch as "the most significant manmade factor affecting the conservation and recovery of the loggerhead."[110]

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[108] National Marine Fisheries Service and U.S. Fish and Wildlife Service, *Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (Caretta caretta), Second Revision*, Silver Spring (2008): National Marine Fisheries Service.

[109] Specifically, the North Pacific Ocean, South Pacific Ocean, North Indian Ocean, Southeast Indo-Pacific Ocean, Northwest Atlantic Ocean, Northeast Atlantic Ocean, and Mediterranean Sea populations all received a proposed "endangered" listing. The final two populations (Southwest Indian Ocean and South Atlantic) both received a proposed "threatened" listing. National Marine Fisheries Service and US Fish and Wildlife Service, "Endangered and Threatened Species; Proposed Listing of Nine Distinct Population Segments of Loggerhead Sea Turtles as Endangered or Threatened," (Proposed Rule; RIN 0648-AY49) Federal Register 75:50 (March 16, 2010).

[110] T.A. Conant et al, "Loggerhead sea turtle (Caretta caretta) 2009 Status Review Under the U.S. Endangered Species Act," Report of the Loggerhead Biological Review Team to the National Marine Fisheries Service, August 2009. 108

1. US Loggerhead Management

In the United States, most of the nesting-related threat management has been undertaken by state and local jurisdictions. Generally speaking, the majority of onshore loggerhead conservation efforts have been focused on curtailing beachside development and light pollution, both of which have been identified as major threats to loggerhead survival.[111] Responding to these concerns, counties and municipalities in Florida, Georgia, South Carolina, and North Carolina have all enacted restrictions on beachside lighting and construction over the last several decades.[112] Beachfront driving, beach cleaning, and nonnative plants have also received regulatory attention, as state and local officials have sought to protect loggerhead nesting habitat in these regions.[113] As a result, though federal agencies and scientific experts have played an advisory role in this process, most of the onshore loggerhead conservation efforts in the US have largely been left to the states.

By contrast, oceanic fishing regulations have mostly been a federal endeavor. Starting in the late 1980s, scientific studies began to identify large-scale commercial fishing operations as a major threat to loggerhead survival.[114] Shrimp trawlers, in particular, were especially destructive, ensnaring and drowning significant numbers of turtles in their nets each year. As a result, in an effort to reduce turtle mortality, in the late 1980s and early 1990s the United States became the first nation in the world to require shrimp trawlers to utilize so-called Turtle Excluder Devices

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[111] Brendan Cummings (Senior Counsel and Public Lands Director, Center for Biological Diversity), in conversation with author, August 5th, 2011.

[112] US Fish and Wildife Service, "Loggerhead Sea Turtle," last modified July, 2001, http://www.fws.gov/northflorida/SeaTurtles/Turtle%20Factsheets/PDF/Loggerhead-Sea-Turtle.pdf

[113] National Marine Fisheries Service and U.S. Fish and Wildlife Service, *Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (Caretta caretta), Second Revision*, Silver Spring (2008): National Marine Fisheries Service.

[114] National Research Council, Committee on Sea Turtle Conservation, "Decline of the Sea Turtles: Causes and Prevention," National Academy Press (1990): Washington, DC.

(TEDs).[115] This requirement, which was first released in 1988, was initially met with hostility from state governments in Louisiana, North Carolina, and elsewhere along Atlantic and Gulf Coasts. Though the other state governments soon fell into line, Louisiana decided to try to challenge the ruling in court, suing the federal government repeatedly during 1988 and 1989. In the suits, state officials primarily alleged that the scientific evidence did not show a clear link between TED usage and reduced sea turtle mortality, making the ruling an "arbitrary and capricious" expression of federal authority.[116] However, as in the polar bear cases, judges were willing to grant federal officials a large amount of leeway, applying a relatively lenient set of legal tests to government actions. Based on these standards, the courts rejected Louisiana's claims, allowing the TED rulings to come into force in 1989.

Since then, the TED ruling has been recognized as an extremely important part of broader sea turtle conservation efforts. In recent government reports, for example, the TED requirements have been characterized as "arguably the most significant conservation accomplishment in the marine environment since loggerheads were listed under the ESA."[117] Though TEDs are not required on all types of trawling fleets, their usage has nevertheless played a critical role in loggerhead conservation, significantly reducing bycatch rates off of the coast of the southeastern United States. In addition, as the technology and scientific evidence surrounding TEDs and the impact of shrimp trawling has changed, federal officials have also been reasonably responsive, implementing several major changes to TED regulations during the late 1990s and

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[115] Though designs vary, TEDs generally resemble large gratings woven into the net. These gratings catch sea turtles and other large animals ensnared in trawling nets, allowing them to escape through a specialized set of escape holes placed just outside the bars. Smaller animals, by contrast, pass through the bars, and into the deeper parts of the net.

[116] *State of Louisiana, ex rel. William J. Guste, Jr. v. Verity*, No. 88-3185 (US Circ. file August 15, 1988); *State of Louisiana, ex rel. William J. Guste, Jr. v. Mosbacher,* No. 89-1899 (US dist. filed August 1, 1989).

[117] National Marine Fisheries Service and U.S. Fish and Wildlife Service, *Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (Caretta caretta), Second Revision*, Silver Spring (2008): National Marine Fisheries Service.

early 2000s.[118] As a result, though the decision to require TEDs was initially relatively controversial, TEDs have clearly become an integral part of the larger sea turtle conservation strategy.

Throughout the early 1990s, most of the sea turtle conservation community in the US remained focused on refining restrictions on shrimp trawling operations off the coast of the southeastern United States. However, starting in the late 1990s and early 2000s, environmental groups began to turn their attention to other kinds of fishing practices. This time around, though, the federal government was much less willing to accommodate environmentalists' demands, forcing them to shift the battle over to the courts. Over the course of the next decade, environmental groups filed a variety of legal actions seeking to close or restrict the activities of a variety of different fisheries in both the Pacific and Atlantic Oceans, including long-line fisheries near Hawaii and gillnet fisheries off the coast of California.[119] By and large, these actions were generally intended to force fishermen to modify their practices and gear, and were generally successful. Like the TED requirements, these gear changes also reduced turtle mortality substantially, bringing bycatch rates in California and Hawaii down to more acceptable levels.[120]

Though these actions have helped limit loggerhead deaths, most of the loggerhead populations around the world remain in bad shape. Because of the loggerhead's migratory habits, most turtle populations spend at least some of their time off the coast of poorly-regulated areas like South America and Southeast Asia, leaving them vulnerable to fishing-related incidental

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[118] T.A. Conant et al, "Loggerhead sea turtle (Caretta caretta) 2009 Status Review Under the U.S. Endangered Species Act," Report of the Loggerhead Biological Review Team to the National Marine Fisheries Service, August 2009, 134-135.

[119] *Turtle Island Restoration Network et al. v. NMFS,* No. 02-15027 (US App. filed August 21, 2003); *Turtle Island Restoration Network et al. v. US DOC,* No. 05-15035 (US App., filed Febrary 21, 2006).

[120] Brendan Cummings (Senior Counsel and Public Lands Director, Center for Biological Diversity), in conversation with author, August 5th, 2011; T.A. Conant et al, "Loggerhead sea turtle (Caretta caretta) 2009 Status Review Under the U.S. Endangered Species Act," Report of the Loggerhead Biological Review Team to the National Marine Fisheries Service, August 2009. 108, 116

take.[121] As a result, in 2007 the Center for Biological Diversity (CBD) filed petitions asking the federal government to upgrade the loggerhead from "threatened" to "endangered" throughout most of its Pacific and Atlantic range.[122] After missing ESA deadlines to respond to the petition, environmentalists filed a notice of intent to sue in 2009, forcing the government to reply to the documents. As a result, in 2010 federal officials issued a proposed rule upgrading most of the loggerhead populations around the world from "threatened" to "endangered," including those specified in the petitions.[123]

2. Australian Loggerhead Management

In Australia, loggerhead sea turtle management has followed a relatively similar pattern. As in the United States, the Australian loggerhead listing was not controversial; in 2000, barely a year after the EPBC Act was passed, the Australian government designated the loggerhead as "endangered," where it remains at the time of this paper's writing.[124] Prior to the 1990s, though, most Australian loggerhead conservation initiatives were state efforts. In Queensland, where most of the eastern Australian loggerhead breeding beaches are located, the turtle has been

[121] T.A. Conant et al, "Loggerhead sea turtle (Caretta caretta) 2009 Status Review Under the U.S. Endangered Species Act," Report of the Loggerhead Biological Review Team to the National Marine Fisheries Service, August 2009.

[122] Center for Biological Diversity, "Petition to Reclassify the North Pacific Distinct Population Segment of the Loggerhead Sea Turtle (*Caretta caretta*) From a Threatened to an Endangered Species Under the Endangered Species Act," last modified July 12, 2007.http://www.biologicaldiversity.org/species/reptiles/loggerhead_sea_turtle/pdfs/Petition-No-Pac-Loggerhead-07-12-07.pdf; Center for Biological Diversity, "Petition Pursuant to the Endangered Species Act to Designate the Western North Atlantic Subpopulations of the Loggerhead Sea Turtle (*Caretta caretta*) as a Distinct Population Segment and to Reclassify the Western North Atlantic Subpopulations as Endangered," last modified November 15, 2007, http://www.biologicaldiversity.org/species/reptiles/loggerhead_sea_turtle/pdfs/Loggerhead-Petition-WNA.pdf

[123] National Marine Fisheries Service and US Fish and Wildlife Service, "Endangered and Threatened Species; Proposed Listing of Nine Distinct Population Segments of Loggerhead Sea Turtles as Endangered or Threatened," (Proposed Rule; RIN 0648-AY49) Federal Register 75:50 (March 16, 2010).

[124] "EPBC Act List of Threatened Fauna," Australian Government, Department of Sustainability, Environment, Water, Population, and Communities, last updated November 26, 2009, http://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=fauna

protected since 1968, and has generally been well-managed.[125] Western Australia, which contains almost all of the other loggerhead breeding localities on the continent, has a much less active conservation record, with little activity prior to the 1990s and 2000s. As a result, up until the passage of the federal endangered species statutes, most of the loggerhead conservation in Australia was conducted by the Queensland state government.[126]

Throughout the 1970s and 80s, the primary focus of loggerhead conservation efforts in Australia was nest predation by introduced European red foxes. On some beaches in northern Queensland, foxes were estimated to be taking as many as 90-95% of all turtles hatched at the sites, decimating recruitment rates in the region.[127] As a result, starting in the early 1980s, the Queensland state government began to acquire many of the turtle nesting sites in the state, turning beaches like Mon Repos into protected state nature parks.[128] With the land secured, the state began a fairly intensive program of fox baiting and removal, which had essentially eliminated fox predation in the state by the late 1980s.[129]

Commercial fishing operations, the other major threat faced by loggerhead turtles, were not closely regulated in Australia until the late 1990s. Starting in 1996, though, Australian officials set up an exploratory TED program, and asked trawlers off the east coast of the continent to begin using TEDs on a voluntary basis. Unlike in the United States, this move was met with relatively little controversy; driven in large part by US sea turtle policy, TED technology had been refined to the point where the devices had relatively little impact on shrimp

[125] Colin Limpus, "A Biological Review of Australian Marine Turtles: Loggerhead Turtle," The State of Queensland, Environmental Protection Agency, last modified 2008, http://www.derm.qld.gov.au/register/p02785aa.pdf
[126] Colin Limpus (Adjunct Associate Professor, University of Queensland), in conversation with author, October 14, 2011.
[127] Colin Limpus, "A Biological Review of Australian Marine Turtles: Loggerhead Turtle," The State of Queensland, Environmental Protection Agency, last modified 2008, http://www.derm.qld.gov.au/register/p02785aa.pdf
[128] Clem Tisdell and Clevo Wilson, "Ecotourism for the Survival of Sea Turtles and Other Wildlife," *Biodiversity and Conservation* 11 (2002): 1521-1538.
[129] Colin Limpus, "A Biological Review of Australian Marine Turtles: Loggerhead Turtle," The State of Queensland, Environmental Protection Agency, last modified 2008, http://www.derm.qld.gov.au/register/p02785aa.pdf

catches, assuaging the concerns of shrimp fishermen.[130] After the passage of the EPBC Act in 1999, otter prawn trawling operations off of northeastern Australia were officially identified as a key threatening process for marine turtle species more generally, and were listed as such starting in 2000. As a result, most of the major shrimp fisheries off of the eastern coast of the continent were soon required to utilize TEDs in their nets, reducing bycatch rates to as low as 5% of the 1989-90 rates.[131]

Since then, Australian officials have also begun to investigate the impact of other fisheries on loggerhead populations around the continent. However, due to a lack of data, these efforts have largely been exploratory in nature, as researchers have sought to identify and quantify the impacts of fishing fleets operating in Australian waters. Until the early 2000s, turtle populations in Western Australia were the primary target for this kind of work; because of the remoteness of loggerhead nesting beaches in the region, comparatively little was known about the general health of loggerhead populations in the area.[132] However, starting in 2002, shrimp trawlers off of Western Australia and in the Torres Straights were made subject to the same kinds of restrictions as those operating off the coast of Queensland and New South Wales.[133] More recently, researchers have begun to investigate the impact of gillnet and longline fishing boats, though neither is used extensively in Australian waters.[134] As a result, at least within the confines

[130] Anton D. Tucker, Julie B. Robins and Daryl P. Mcphee, "Adopting turtle excluder devices in Australia and the United States: What are the differences in technology transfer, promotion, and acceptance?" *Coastal Management* 25, no. 4 (1997): 405-421.
[131] Marine Species Section, Environment Australia, "Recovery Plan for Marine Turtles in Australia," last modified July 2003, http://www.environment.gov.au/coasts/publications/turtle-recovery/pubs/marine-turtles.pdf
[132] *Ibid*
[133] Colin Limpus, "A Biological Review of Australian Marine Turtles: Loggerhead Turtle," The State of Queensland, Environmental Protection Agency, last modified 2008, http://www.derm.qld.gov.au/register/p02785aa.pdf
[134] Marine Species Section, Environment Australia, "Recovery Plan for Marine Turtles in Australia," Last modified July 2003. http://www.environment.gov.au/coasts/publications/turtle-recovery/pubs/marine-turtles.pdf; Colin Limpus (Adjunct Associate Professor, University of Queensland), in conversation with author, October 14, 2011.

of Australian territorial waters, loggerheads in the country appear to be in reasonably good shape.

3. Conclusion

In this case, the impact of litigation is less clear. Throughout the 1980s, 90s, and 2000s, US loggerhead sea turtle policy was largely characterized by litigation and hostility, which were noticeably absent from the corresponding Australian protection process. Indeed, while American loggerhead policy was ensnared in a series of increasingly messy legal battles, Australian policymakers were able to foster a robust cooperative spirit amongst stakeholders, bringing fishermen and scientific experts together to form a coherent policy system. As a result, the Australian system certainly seems to have acted more efficiently than the American one, avoiding many of the transaction costs involved in litigation and achieving a higher level of procedural effectiveness.

Outside of these areas, though, the costs imposed by litigation do not appear to be all that high. With regards to TED policymaking, for example, the US and Australia both took roughly the same amount of time to issue final regulations on the topic, despite the prevalence of lawsuits in the American case. In addition, in the US, policymakers may actually have faced a much more difficult policymaking environment than their Australian counterparts, and not just because of the presence of litigation. During the 1980s and 1990s, US policymakers were at the vanguard of the global sea turtle conservation campaign, making fishermen extremely wary of their proposals. By the late 1990s, when Australia began to introduce TED regulations, industry representatives had a better understanding of the costs involved in installing TEDs into their equipment. As a result, American shrimp fishermen were far warier of the new regulations than

their Australian counterparts, and put far more pressure on their state governments to fight TED requirements. Even in this intensely hostile environment, though, litigation only delayed the implementation of the new TED requirements for about a year, moving the effective date of the new regulations from early 1988 to mid-1989.[135]

In the early- and mid-2000s, the story is much the same. Though US environmental groups sued the government repeatedly throughout this period, many of these lawsuits were actually intended to force the government to meet statutory deadlines set out by the language of the ESA, speeding up the process rather than slowing it down. Similarly, though Australia listed the loggerhead as "endangered" a full decade before the US (2000 versus 2010), litigation was a key motivator for the American 2010 uplisting proposal. Most of the legal decisions during the period also highlighted previously-ignored threats, pushing government officials to regulate long-line fisheries, gillnet operations, and other such practices. And, once again, US regulators likely faced a more difficult task during this period than their Australian counterparts; in Australia, shrimp trawlers are by far the largest threat to loggerhead populations, with few other fisheries playing a significant role in the turtle's decline. By contrast, American loggerheads face threats from a much more diverse group of fisheries, which litigation helped to bring under the ESA's regulatory umbrella.

Viewed as a whole, then, the American biodiversity protection system appears to have functioned about as well as the Australian one in this case. Certainly, lawsuits imposed an array of transaction costs and some real policymaking delays, both in the TED case and in later regulatory efforts. In the end, though, American regulators reached final rulings on the TED issue in about the same amount of time as their Australian counterparts, despite the presence of a

[135] South Carolina Department of Natural Resources. "Turtle Excluder Device (TED) Chronology." Last modified 2003. http://www.dnr.sc.gov/seaturtle/teds.htm

more adversarial policymaking environment in the US. Finally, during the 2000s, litigation fulfilled a similar role to the one it played during the polar bear listing campaign, forcing administrative agencies to follow listing regulations and heightening both the *procedural* and the *substantive* effectiveness of the system.

VI. Lessons: Courts and the Biodiversity Policymaking Process

Based on this evidence, two basic observations seem worth noting. Firstly, *court intervention can significantly improve the policymaking process*, particularly when dealing with *procedural* problems. In both the polar bear and the loggerhead cases, US courts played a major role in supporting the basic structure of the ESA, repeatedly enforcing deadlines and reporting requirements against reluctant administrators. By contrast, the statutes in Australia and Canada were not always so strongly enforced. Though Australia's agencies followed EPBC Act procedure fairly closely, Canada's officials were extraordinarily resistant, fighting the polar bear listing at least as hard as their American counterparts. Without a citizen-suit provision or some other kind of appeals process, Canadian advocates had no way to challenge official policy, leaving their government free to undermine the listing.

On substantive issues, the US courts were much more deferential. In the polar bear listing, in particular, this deference was probably more expansive than necessary, as the evidence clearly contradicted the government's preferred policies. In endangered species law more generally, though, this deference has a number of important benefits. Because of the complicated nature of conservation science, a strategy of substantive deference helps courts avoid issuing decisions that misinterpret scientific findings. By acting aggressively on procedural questions

and deferentially on substantive ones, courts can maximize their contributions to the policymaking process while limiting their exposure to unfamiliar policy areas.

Secondly, to build on this latter point, *the costs of judicial intervention appear fairly low*. For both species I examine, the American listing and management processes took about as long to complete as their Australian and Canadian counterparts, despite repeated legal challenges in the American cases. Thus, though lawsuits do impose other transaction costs onto ESA processes, in the areas that are easily comparable the procedural costs of litigation appear minimal. In addition, compared with the other countries I assess, the American biodiversity protection system produced equivalent or superior substantive results. For the reasons outlined above, American courts rarely intervene on substantive questions, leaving administrative agencies with a relatively high degree of freedom in these areas. As a result, American officials face a basically similar substantive decision-making climate to their counterparts in other countries, allowing them to produce consistent substantive outcomes.

Importantly, I do not mean to suggest that a litigation-heavy policymaking system necessarily represents the *best* policymaking model. Other administrative structures, either theoretical or those used in other countries, may well be more effective than the American program. Similarly, the American model itself is not perfect; in the loggerhead sea turtle case, for example, lawsuits did probably impose an unnecessary set of delays and costs onto the policymaking system, even if the magnitude of those costs was relatively low. However, one conclusion does seem clear; oversight mechanisms, whatever form they may take, play a critical role in policy systems like biodiversity protection. Citizen-suits are one such program, allowing interest groups and private individuals to challenge government decisions in a court of law.

Though other enforcement options certainly exist, the legal system clearly *can* act as an effective institutional solution in this sort of situation.

Speaking more broadly, the problems I identify with my two non-American systems do not seem restricted to the two cases I examine. As noted by other scholars, Canadian endangered species law seems unusually vulnerable to administrative and political manipulation, which has undermined the validity of the system as a whole. Administrative delays, in particular, are a major issue in Canadian endangered species policy, especially at the listing and critical habitat stages.[136] Because of these problems, one polar bear scientist went so far as to describe the Act as "gutless," with "no real purpose" in the broader Canadian legal system.[137] Australia's EPBC Act has a better track record, but even there, the law's provisions are not always well-enforced. In a 10-year review of the EPBC Act, Australia's Standing Senate Committee on the Environment, Communications, and the Arts concluded that "ministerial discretion […] [was] undermining the credibility of the nomination and listing process," and argued that the system ought to be made more transparent and more accountable.[138]

Admittedly, the ESA does certain elements that may make litigation particularly effective in the context of biodiversity protection. As noted elsewhere in this paper, the ESA is a remarkably clear statute, containing forceful, easily-understood, and easily enforceable provisions and standards. As a result, judges can discern the ESA's intent without much difficulty, giving them a straightforward set of rules from which to work. Better still, for reasons mentioned above, judges tend not to intervene on substantive scientific questions, mostly

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[136] David L. VanderZwaag, Maria Ceclia Engler-Palma, and Jeffrey A. Hutchings, "Canada's *Species at Risk Act* and Atlantic Salmon: Cascade of Promises, Trickles of Protection, Sea of Challenges," *Journal of Environmental Law and Practice* 22 (2011): 267-305.

[137] Andrew E. Derocher (Professor, University of Alberta), in discussion with author, October 18, 2011.

[138] Australian Senate, Standing Committee on Environment, Communications, and the Arts, "The Operation of the *Environment Protection and Biodiversity Conservation Act 1999*: First Report," last modified March 2009, http://www.aph.gov.au/senate/committee/eca_ctte/epbc_act/report/report.pdf

restricting themselves to procedural issues. In the two cases I examine, this balancing act allowed courts to perform important oversight functions without intervening on complicated biological questions, maximizing their contributions to the process while minimizing the potential costs of intervention. Compared with other policy areas, then, endangered species issues may be especially well-suited for legal remedies.

Overall, though, the results of this study seem telling. As my analysis of the polar bear and sea turtle cases shows, the US legal system is an integral player in the broader American endangered species management program, performing a variety of functions that are often lacking in other, less legalistic policymaking models. Though the system is not perfect, courts seem to provide much more value than critics of the US judiciary allow, endowing statutes like the ESA with a number of characteristics not found in other, similar programs around the world. The extent to which these conclusions apply outside of endangered species law is not clear; as noted elsewhere in this paper, the ESA is an unusually straightforward statute, allowing judges to interpret it with relative ease. As a result, litigation may not work as well in other policy areas. However, these issues aside, this paper presents a fairly optimistic view of the policymaking functions of the American legal system. Comparatively speaking, the US biodiversity protection program scores well on both procedural and substantive grounds, performing at least as well as, and often better than, alternative systems used in Australia and Canada. As a result, scholars ought not to be so quick to dismiss the American model.

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