

The Meaning of Nature Protection in an Unnatural World

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INTRODUCTION

This is a time of existential angst for the nature conservation community. Three interrelated sources of pressure interact to create high levels of stress and anxiety for conservation practitioners and advocates.

First, the political landscape looks daunting. Powerful legislators are calling for the repeal or drastic revision of foundational legislation such as the Endangered Species Act (ESA)¹ and even the venerable Antiquities Act.² Demands for the wholesale transfer of federal lands, which provide the primary space for many of the nation's key conservation efforts, to the states, are at a fever pitch.³ The new president has expressed some skepticism of those demands,⁴ but based on

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¹ 16 U.S.C. §§ 1531 - 1544. Utah Congressman Rob Bishop, chair of the House Natural Resources Committee, has publicly called for Congress to repeal the ESA and replace it. Corbin Hair, *Rep. Bishop Aims to Repeal Landmark Conservation Law*, *Env't. & Energy Daily*, Dec. 9, 2016.

² 54 U.S.C. §§ 320301 - 320303. The Heritage Foundation advocates repeal of the Antiquities Act. Nicolas D. Loris, *The Antiquated Act: Time to Repeal the Antiquities Act*, Heritage Foundation Backgrounder No. 2998, Mar. 25, 2015 (available at <http://www.heritage.org/research/reports/2015/03/the-antiquated-act-time-to-repeal-the-antiquities-act>). A bill introduced by Alaska Sen. Lisa Murkowski, Chair of the Senate Committee on Energy and Natural Resources, to withdraw the power the Act currently gives the president to unilaterally designate national monuments, has attracted 25 cosponsors. S. 33 (115th Congress).

³ Of course, western objections to concentrated federal land ownership are nothing new, but the armed occupation of Malheur National Wildlife Refuge in 2016 took the so-called "sagebrush rebellion" to a new level of ferocity. Courtney Sherwood and Kirk Johnson, *Bundy Brothers Acquitted in Takeover of Oregon Wildlife Refuge*, *N.Y. Times*, Oct. 27, 2016. The Republican platform in 2016 called on Congress to "immediately pass universal legislation providing for a timely and orderly mechanism requiring the federal government to convey certain federally controlled public lands to states." Republican Platform 2016, at 21 (available at <https://www.gop.com/the-2016-republican-party-platform/>).

the range of policy positions he took during the campaign, he seems unlikely to be either a champion of conservation or a bulwark against an anti-conservation Congress.⁵

Second, the increase in political barriers parallels an increase in practical challenges. The task of conservation is more difficult than ever. Rapid anthropogenic climate change means that the scale of the conservation problem far exceeds what it was thought to be just a few decades ago. We are either already in or standing on the brink of the “sixth extinction,”⁶ a rate of species loss matching the worst such events in the planet’s history, and well beyond any in human history. The scientific literature, the popular press, and reports from conservation groups regularly herald new and dire estimates of the number or proportion of species at risk or nearing extinction.⁷ Those predictions are becoming more granular as well, focusing in detail on individual species. The most recent update to the U.S. Fish and Wildlife Service’s Polar Bear Conservation Management Plan, for example, forecasts extinction of the species in the absence of “action that effectively addresses the primary cause of diminishing sea ice,” that is, global warming.⁸

⁴ Joshua Zaffos, *How Will Trump Act on Conservation and Public Lands?*, HIGH COUNTRY NEWS, June 28, 2016. Environmentalists were encouraged by the fact that Trump’s nominee for Interior Secretary, Montana Rep. Ryan Zinke, resigned as a member of the Republican convention platform committee in protest of the platform’s public lands transfer plank. But in January Zinke voted in favor of a House rules package that included provisions that will allow Congress to treat transfers of public lands as budget-neutral, raising fears that he might not be a reliable defender of federal land ownership. Emily Yehle and Jennifer Yachnin, *Zinke Scares Greens by Backing Rule to Ease Land Transfers*, GREENWIRE, Jan. 5, 2017.

⁵ See, e.g., Cally Carswell, *Trump’s First 100 Days: Environmental Policy and Public Lands*, Scientific American, Dec. 1, 2016 (describing generally expectations for the Trump administration’s environmental and public lands policy agenda).

⁶ ELIZABETH KOLBERT, *THE SIXTH EXTINCTION: AN UNNATURAL HISTORY* (2014); Anthony D. Barnosky et al., *Has the Earth’s Sixth Mass Extinction Already Arrived?*, 471 NATURE 51 (2011); David B. Wake and Vance T. Vredenburg, *Are We in the Midst of the Sixth Mass Extinction? A View from the World of Amphibians*, 105 PROC. NAT’L ACAD. SCI. 11466 (2008).

⁷ Some recent examples include: Felicity Barringer, *Climate Change Will Disrupt Half of North America’s Bird Species*, *Study Says*, N.Y. TIMES, Sept. 8, 2014, at A14; Center for Biological Diversity, *Deadly Waters: How Rising Seas Threaten 233 Endangered Species* (December 2013); Rachel Warren et al., *Quantifying the Benefit of Early Climate Change Mitigation in Avoiding Biodiversity Loss*, 3 NATURE CLIMATE CHANGE 678 (2013) (estimating that without major new efforts to reduce greenhouse gas emissions over half of plant species and about one third of animals species will lost more than half their current range by the 2080s).

⁸ U.S. Fish and Wildlife Service, Region 7, *Polar Bear Conservation Management Plan*, Dec. 20, 2016).

To date it has been difficult to conclusively tie the loss of individual species to global warming,⁹ but that may be only a matter of time. Australian scientists recently reported confirming the first mammalian extinction directly attributable to climate change. They attribute the disappearance of the Bramble Cay melomys, a small rodent endemic to the Great Barrier Reef, to increased inundation of its habitat by storm surges.¹⁰ Others are also being closely watched.¹¹

The practical problem has another dimension as well: just as the number of conservation targets goes up, the best established tools of conservation are waning in effectiveness. The primary strategies for conservation have traditionally been the designation of lands for protection and restrictions on the direct harvest of target species. Preserved lands, however, cannot fence out a changing climate,¹² That reality is producing uncomfortable tensions between the desire to

⁹ The first widely circulated claim of climate-driven extinction came in the case of the Monteverde golden toad, endemic to a small area in Costa Rica's Monte Verde cloud forest. First discovered in 1964, the toad was last seen in 1989. By 1999, at least one peer reviewed paper had attributed extinction of the golden toad to climate change. J. Allen Pounds et al., *Biological Response to Climate Change on a Tropical Mountain*, 398 NATURE 611 (1999). That explanation quickly spread, making the golden toad an iconic story of the impacts of climate change on species. Leticia M. Ochoa-Ochoa et al., *The Demise of the Golden Toad and the Creation of a Climate Change Icon Species*, 11 CONSERVATION AND SOCIETY 291 (2013). Subsequently, however, that explanation was drawn into question, with other researchers arguing that ordinary climate variability, rather than greenhouse gas-induced warming, doomed the golden toad. Kevin J. Anchukaitis and Michael N. Evans, *Tropical Cloud Forest Climate Variability and the Demise of the Monteverde Golden Toad*, 107 PROC. NAT'L ACAD. SCI. 5036 (2010).

¹⁰ Ian Gynther, Natalie Waller, and Luke K.-P. Leung, Confirmation of the Extinction of the Bramble Cay Melomys *Melomys rubicola* on Bramble Cay, Torres Strait: Results and Conclusions from a Comprehensive Survey in August–September 2014. Report to the Department of Environment and Heritage Protection, Queensland Government, Brisbane, Australia (June 2016). The report's authors did note that additional populations of this species or close relatives might still be found in other locations. *Id.*

¹¹ See, e.g., Steve Jordan et al., *Loss of Genetic Diversity and Increased Subdivision in an Endemic Alpine Stonefly Threatened by Climate Change*, 11 PLOS ONE e0159931 (2016) (tracking status of species and populations of coldwater stoneflies in the northern Rocky Mountains).

¹² Jim Perry, *Climate Change Adaptation in the World's Best Places: A Wicked Problem in Need of Immediate Attention*, 133 LANDSCAPE AND URBAN PLANNING 1 (2015); Mattia Brambilla et al., Current and Future Effectiveness of Natura 2000 Network in the Central Alps for the Conservation of Mountain Forest Owl Species in a Warming Climate, 61 EUR. J. WILDLAND RESEARCH 35 (2015); Nicholas Whipps, *What Happens When Species Move But Reserves Do Not? Creating Climate Adaptive Solutions to Climate Change*, 66 HASTINGS L.J. 557 (2015); Robert L. Fischman et al., *Planning for Adaptation to Climate Change: Lessons from the US National Wildlife Refuge System*, 64 BIOSCIENCE 993 (2014); Craig R. Groves et al., *Incorporating Climate Change into Systematic Conservation Planning*, 21 BIODIVERSITY

conserve nature and the desire to leave it alone, impulses which once seemed to point in the same direction. Today, those closest to the conservation issue, the on-the-ground managers of public and private resources, are facing questions such as whether to move species around the map to locations they are not known ever to have occupied, either to preserve the translocated species¹³ or to restore ecological functions once provided by species that have been lost.¹⁴ There is talk about bringing species back from extinction as a conservation strategy.¹⁵ Selective breeding¹⁶ and genetic engineering,¹⁷ techniques traditionally associated with agriculture, are now touted as conservation strategies.¹⁸ Many conservation advocates find the resulting discussions difficult and distressing.

CONSERVATION 1651 (2012); Holly Doremus, *The Endangered Species Act: Static Law Meets Dynamic World*, 32 *Wash. U. J. L. & Pol'y* 175, 223-227 (2010).

¹³ Rachael V. Gallagher *et al.*, *Assisted Colonization as a Climate Change Adaptation Tool*, 40 *AUSTRAL ECOLOGY* 12 (2015); Clare Palmer and Brendon M.H. Larson, *Should We Move the Whitebark Pine? Assisted Migration, Ethics and Global Environmental Change*, 23 *ENVTL VALUES* 641 (2014); Tracy M. Rout *et al.*, *How To Decide Whether to Move Species Threatened by Climate Change*, 8(10) *PLoSOne* e75814 (2013), Mark W. Schwartz *et al.*, *Managed Relocation: Integrating the Scientific, Regulatory, and Ethical Challenges*, 62 *BIOSCIENCE* 732 (2012); G.A. Albrecht *et al.*, *The Ethics of Assisted Colonization in the Age of Anthropogenic Climate Change*, 26 *J. Agricultural and Environmental Ethics* 827 (2013); Alejandro E. Camacho, *Assisted Migration: Redefining Nature and Natural Resource Law Under Climate Change*, 27 *YALE J. REG.* 171 (2010).

¹⁴ HENRIQUE M. PEREIRA AND LAETITIA NAVARRO (EDS.), *REWILDING EUROPEAN LANDSCAPES* (2015); GEORGE MONBIOT, *FERAL: REWILDING THE LAND, THE SEA, AND HUMAN LIFE* (2014); Philip J. Seddon *et al.*, *Reversing Defaunation: Restoring Species in a Changing World*, 345 *SCIENCE* 406, 409-411 (2014); C. Josh Donlan *et al.*, *Pleistocene Rewilding: An Optimistic Agenda for Twenty-First Century Conservation*, 168 *THE AMERICAN NATURALIST* 660 (2006).

¹⁵ Philip J. Seddon *et al.*, *Reintroducing Resurrected Species: Selecting DeExtinction Candidates*, 29 *TRENDS IN ECOLOGY AND EVOLUTION* 140 (2014); Ronald Sandler, *The Ethics of Reviving Long Extinct Species*, 28 *CONSERVATION BIOLOGY* 354 (2013).

¹⁶ Thomas A. Jones and Thomas A. Monaco, *A Role for Assisted Evolution in Designing Native Plant Materials for Domesticated Landscapes*, 7 *FRONTIERS IN ECOLOGY AND ENVIRONMENT* 541 (2009).

¹⁷ Michael A. Thomas *et al.*, *Gene Tweaking for Conservation*, 501 *NATURE* 485 (2013). Euphemisms seem to be endemic to the discussion. These authors prefer the phrase “facilitated adaptation” to genetic engineering.

¹⁸ One specific situation for which conservation advocates have proposed use, or at least evaluation of these techniques, is to help corals survive increasing water temperatures. Madeleine J.H. Van Oppen *et al.*, *Building Coral Reef Resilience Through Assisted Evolution*, 112 *PROC. NAT'L ACAD. SCI.* 2307 (2015). Another is helping the endangered black-footed ferret become resistant to sylvatic plague. Ben Novak *et al.*, *A Proposal for Genomically Adapting Black-footed Ferrets for Disease Immunity*, submitted to the U.S. Fish and Wildlife Service, Jan.

But perhaps the most frightening aspect of climate disruption for conservationists is that it undermines our most familiar and widespread conservation goals. Nature protection has been an explicit policy goal in the United States for at least 150 years,¹⁹ and has nearly as long a history in the global community. Throughout that time, there have been two dominant, and explicitly linked, targets of nature protection efforts, public and private, domestic and international. The first is the protection of “nature” or natural conditions, usually conceptualized as conditions that would exist in the absence of any human intervention. The second is the maintenance or restoration of some set of “baseline” historic conditions believed to have existed at some chosen point in time.

Neither untainted nature nor history, of course, has ever been a perfect target. Since the evolution of human beings, there have been substantial human impacts on the biological world.²⁰ The idea of protecting “nature” untouched by human beings has always been conceptually challenging, if not incoherent. History may seem a better guide, since it does not assume an artificial separation between human beings and the rest of the world. But it assumes an unrealistic stasis, when nature is in fact dynamic.²¹

Nonetheless, nature has long been an appealing rhetorical target, and history has offered a reasonable implementing proxy for protection of nature. In most places the pace of change relevant to the resources we’ve been concerned about protecting has been, or at least has seemed, slow on a human time scale. And although we’ve known for some time that we cannot wholly

2016 (available at <http://graphics8.nytimes.com/packages/pdf/opinion/greenhouse/BFFUSFWSproposal2.pdf>).

¹⁹ Protection of nature for more or less its own sake dates at least to the setting aside of the Yosemite Valley “for public use, resort, and recreation” in 1864. Yosemite Land Grant Act (Act of June 30, 1864, ch. 184, §§ 1, 2; 13 Stat. 325).

²⁰ While the relative importance of human impacts and climate changes in pre-industrial extinctions are hotly debated, there appears to be a consensus in the peer-reviewed science literature that anthropogenic effects played an important role in the extinction of many mammals and birds well before the industrial era. *See, e.g.,* Attila Nemeth et al., *Holocene Mammal Extinctions in the Carpathian Basin: A Review*, 47 MAMMAL REV. 38 (2016) (concluding that evidence suggests a primary role for anthropogenic disturbance in mammal extinctions of roughly ten thousand years ago in the area that is now central Europe); Christopher E. Doughty, *Preindustrial Human Impacts on Global and Regional Environment*, 38 ANN. REV. OF ENVT. AND RESOURCES 503 (2013) (detailing evidence of preindustrial human environmental impacts, including megafauna extinctions); Paul L. Koch and Anthony D. Barnosky, *Late Quaternary Extinctions: State of the Debate*, 37 ANN. REV. OF ECOLOGY, EVOLUTION, AND SYSTEMATICS 215 (2006) (arguing that mass extinctions of large mammals and slow-breeding animals fifty thousand to ten thousand years ago are best explained by a combination of excessive human hunting, indirect impacts of human expansion, and climate changes).

²¹ Holly Doremus, *The Endangered Species Act: Static Law Meets Dynamic World*, 32 WASH. U. J. L. & POL’Y 175, 224-226 (2010).

wall nature off from human impacts,²² in most cases it has seemed possible to create preserved lands that are largely free of human influence.

That, however, is no longer the case. Greenhouse gas emissions have already significantly altered even the largest and seemingly most static of our sinks, the atmosphere and oceans. In what has come to be known in popular parlance, at least, as the “anthropocene,” human influence is everywhere.²³ We are, as others have observed, in a “no analog” world,²⁴ a world where history, at least history as human beings have known it, is no longer a viable guide to what the world is or can be. Many familiar nature protection targets are no longer achievable, even through extraordinary efforts. Moreover, we can no longer ignore the long submerged conflicts between history and “naturalness:” leaving the world alone will not protect aspects of nature we value.

To be clear, the questions that climate change raises about conservation goals are not new. The balance between leaving nature alone and protecting it has been troublesome for decades and in

²² See, e.g., BILL MCKIBBEN, *THE END OF NATURE* (1989) (asserting that in the world of human-caused climate change, “nature” is a concept that has lost its meaning).

²³ Whether we are in a geologic era that should be called the anthropocene remains a subject of intense debate. The International Commission on Stratigraphy of the International Union of Geological Sciences remains mired in the lengthy process of determining whether to recommend formal recognition of the anthropocene as a geologic era. A working group has recently concluded that the anthropocene does qualify for formal recognition, Damian Carrington, *The Anthropocene Epoch: Scientists Declare Dawn of Human-Influenced Age*, *THE GUARDIAN*, Aug. 29, 2016, but that recommendation remains controversial, Stanley C. Finney and Lucy E. Edwards, *The “Anthropocene” Epoch: Scientific Decision or Political Statement?*, 26 (3-4) *GSA TODAY* 4 (March/April 2016). Whether or not we are in a new geologic era, there can be little doubt that human beings are exerting historically unprecedented influence not only on the atmosphere, but on the landscapes and other resources of earth. By 1997, leading scientists noted that human beings had transformed between one-third and one-half of the earth’s land surface, fixed more atmospheric nitrogen than all other sources combined, and captured more than half of all accessible fresh water. Peter M. Vitousek et al., *Human Domination of Earth’s Ecosystems*, 277 *SCIENCE* 494 (1997). Ten years later, a different group calculated that humans were responsible for capturing nearly one fourth of the net primary production, that is of the biomass produced by the entire natural world. Helmut Haberl et al., *Quantifying and Mapping the Human Appropriation of Net Primary Production in Earth’s Terrestrial Ecosystems*, 104 *PROC. NAT’L ACAD. SCI.* 12942 (2007).

²⁴ John W. Williams et al., *Model Systems for a No-Analog Future: Species Associations and Climates During the Last Deglaciation*, 1297 *ANN. N.Y. ACAD. SCI.* 29 (2013); J.B. Ruhl, *Climate Change and the Endangered Species Act: Building Bridges to the No-Analog Future*, 88 *B. U. L. REV.* 1 (2008); John W. Williams and Stephen T. Jackson, *Novel Climates, No-Analog Communities, and Ecological Surprises*, 5 *FRONTIERS IN ECOLOGY AND ENVIRONMENT* 475 (2007).

other contexts,²⁵ and the question of goals has been raised in various guises.²⁶ Yet so far those questions have appeared at the margins of the conservation enterprise, and it has largely been possible to duck them. The scale and pace of climate change, however, have brought them squarely into the spotlight. We must confront them, either on an *ad hoc* basis, as we have so far, or explicitly and openly. In my view, the latter course is more likely to produce effective conservation results.

Actually, many people might legitimately see nature protection as a minor problem in the face of projected climate change. Perhaps they are right. It is difficult to see nature protection as a foremost concern when entire nations are threatened with disappearance under rising seas,²⁷ and much of the earth may become uninhabitably hot within two centuries.²⁸ No doubt resisting that kind of dystopic future should be at the top of our action list. But if one believes, as I do, that some experience of nature is part of a fully realized human life, we should also be thinking hard about what it means to carry nature with us into a (hopefully) less dystopic future, and how to do so.

The broad conceptual problem of the meaning of nature protection in the ahistorical, unnatural world we now inhabit remains largely unaddressed in the policy arena. Practical questions of how to do conservation in the climate changed world have unavoidably begun to occupy conservation scientists and practitioners.²⁹ Scientists, legal scholars and public land managers have also begun to address the complications posed by climate change in several specific

²⁵ Consider, for example, the questions of whether to control fire or allow it to burn, or of how aggressively to pursue removal of non-native species. **cites**

²⁶ That question has been raised with respect to the Endangered Species Act, for example, in the context of hybrid species and hatchery fish. **cites** It has long been a bone of contention in the national parks, where the balance between facilitating enjoyment and preventing impairment of the resources remains notoriously difficult to strike. **cites**

²⁷ Kennedy Warne, *Will Pacific Islands Disappear as Seas Rise? Maybe Not*, NATIONAL GEOGRAPHIC, Feb. 13, 2015, <http://news.nationalgeographic.com/2015/02/150213-tuvalu-sopoaga-kench-kiribati-maldives-cyclone-marshall-islands/>; United Nations Environment Programme, *Emerging Issues for Small Island Developing States: Results of the UNEP Foresight Process* (2014), <http://www.unep.org/newscentre/Default.aspx?ArticleID=10879&DocumentID=2791>.

²⁸ Jerney S. Pal and Elfatih A.B. Eltahir, *Future Temperatures in Southwest Asia Projected to Exceed a Threshold for Human Adaptability*, 6 NATURE CLIMATE CHANGE 197 (2016); Camilo Mora *et al.*, *The Projected Timing of Climate Departure from Recent Variability*, 502 NATURE 183 (2013); Steven C. Sherwood and Matthew Huber, *An Adaptability Limit to Climate Change Due to Heat Stress*, 107 PROC. NAT. ACAD. SCI. 9552 (2010).

²⁹ EMMA MARRIS, *THE RAMBUNCTIOUS GARDEN* (2011); ANTHONY BARNOSKY, *HEATSTROKE* (2009).

contexts, including management of the National Wildlife Refuge System,³⁰ the National Park system,³¹ and the wilderness system³² against the backdrop of current governing legislation. For the most part, conservation practitioners seem to have pushed the large-scale policy questions to the side, whether intentionally or through lack of perception.³³ To the extent they have addressed the question of large-scale goals, they have done so without much nuance and without attention to the availability or effectiveness of policy tools. There's been a protracted argument over the relative value of "embracing the Anthropocene epoch"³⁴ which has generated more heat than light. Much of that discussion has presented both sides in caricature, as if our conservation choice for the future were a simple binary between protecting a pristine form of nature untouched by human influence or turning the entire earth into a human-directed garden.³⁵

We need a review and reconsideration of conservation policy goals that is both more nuanced and more comprehensive. This paper aims to begin filling that gap. It offers a broad-scale perspective, with attention to current definitions, current challenges, current gaps, and current and future unresolved issues. At the same time, it acknowledges that we do not currently have, nor need we aspire to, either a single unified conservation goal or a single unified conservation

³⁰ Robert L. Fischman *et al.*, *Planning for Adaptation to Climate Change: Lessons from the US National Wildlife Refuge System*, 64 *BIOSCIENCE* 993 (2014); Brad Griffith *et al.*, *Climate Change Adaptation for the US National Wildlife Refuge System*, 44 *ENVIRONMENTAL MANAGEMENT* 1043 (2009).

³¹ Eric Biber and Elisabeth Long Esposito, *The National Park Service Organic Act and Climate Change*, 56 *NATURAL RESOURCES J.* 193 (2016); William B. Monahan and Nicholas A. Fisichelli, *Climate Exposure of US National Parks in a New Era of Change*, 9(7) *PLOS ONE* e101302 (2014); DAVID N. COLE AND LAURIE YUNG (EDS.), *BEYOND NATURALNESS: RETHINKING PARK AND WILDERNESS STEWARDSHIP IN AN ERA OF RAPID CHANGE* (2010).

³² Elisabeth Long and Eric Biber, *The Wilderness Act and Climate Change Adaptation*, 44 *ENVTL. L.* 623 (2014).

³³ See, for example, David S. Jachowski *et al.*, *Redefining Baselines in Endangered Species Recovery*, 79 *J. WILDLIFE MGMT.* 3, 4 (2015) (noting the need to reconsider the goal of restoration to historical conditions, while clinging to the goal of protecting populations and species).

³⁴ Philip Cafaro, *Expanding Parks, Reducing Human Numbers, and Preserving All the Wild Nature We Can: A Superior Alternative to Embracing the Anthropocene Era*, in *KEEPING THE WILD: AGAINST THE DOMESTICATION OF EARTH* (George Wuerthner, Eileen Crist, and Tom Butler, eds. 2014).

³⁵ The contenders in this debate talk past each other, and both seem to mischaracterize the other's arguments. On one side are those who emphasize human well-being and conservation within a human-dominated context E.g. Peter Kareiva and Michelle Marvier, *What Is Conservation Science*, 62 *BIOSCIENCE* 962 (2012); EMMA MARRIS, *THE RAMBUNCTIOUS GARDEN* (2011). On the other are those who emphasize reduction of the human footprint on the natural world, e.g., [Soule;].

policy. We want many things from nature, and there are many ways we might try to assure that we get those things. We do, however, need a realistic and updated overview of conservation goals, tools, and challenges. Only that kind of broad view can allow us to understand what we can do, what we should do, and where we should do it. An overall conservation plan, if we could achieve one, would help us set priorities and address tensions between our goals.

I focus here on public conservation efforts, both regulatory and resource-ownership based, because publicly mandated and publicly funded conservation should reflect societal values in ways that private conservation measures need not. I focus on the United States as an important example because it has a long-standing, well-developed conservation system, as well as a wide range of conservation viewpoints. However, I believe the approach of closely examining motivations and identifying corresponding targets could usefully be adapted to private efforts and other locations.

I emphasize that I offer here only one perspective on a multi-faceted issue. I make no claim to have the definitive answer; indeed, since I emphasize among others the value of humility, I am acutely aware of the limitations of any one perspective. I am convinced that we need to engage a variety of disciplinary and other perspectives on the problem of conservation goals, and hope this essay can serve as an initial call to that larger dialogue.

I. HOW WE GOT HERE: THE APPEAL (AND ROUGH EQUIVALENCE) OF NATURE AND HISTORY

Public conservation efforts in the US take a number of forms and have a number of different specific targets. There is, however, a unifying theme in the goals of US conservation mandates: they essentially all rely on a vision of protecting either the abstract “natural” world, or a state of nature found at some point in time. No great effort has been made to distinguish between those two types of goals, because they have been regarded as essentially the same thing. In other words, a tacit assumption behind most of these laws is that people should leave the earth (or at least specified aspects of it) much as they found it. Viewed as an argument about obligations to history or obligations to nature, the result is the same. Conservation laws are supposed to protect some baseline natural system, whether the baseline be pre-industrial, pre-European settlement, or pre-enactment of the law in question.

A. Conservation Goals Frequently Mix History and Naturalness

Conservation statutes in the US are many and varied, but all have goals fundamentally tied to a historic state of the natural system. A partial list should suffice to make the point:

- The National Parks Organic Act³⁶ describes the “fundamental purposes” of the national parks as being “to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such

³⁶ Codified as currently in effect at 54 U.S.C. §§ 100101 - 1004907.

means as will leave them unimpaired for the enjoyment of future generations.”³⁷ That mandate has long been interpreted as setting a goal tied both to history and nature. As an advisory committee put it in an influential 1963 report, “A national park should represent a vignette of primitive America.”³⁸

- The ESA³⁹ seeks to conserve endangered and threatened species, and the ecosystems upon which they depend,⁴⁰ with the ultimate goal of bringing listed species to the point where they no longer need the law’s protection. That goal intertwines a focus on history and on nature. It could rest either on an assumption that the species it protects are immutable natural forms or on an understanding that modern humans should avoid knowingly causing the extinction of species with which they currently share the world.
- The Wilderness Act⁴¹ calls for protection of those specific areas which are least affected by human influence. It defines wilderness as “an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.”⁴² Wilderness retains “its primeval character and influence.”⁴³ Lands designated as wilderness are to be managed “so as to preserve [their] natural conditions.”⁴⁴
- The stated goal of the Clean Water Act⁴⁵ is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”⁴⁶ That goal, like the others, is deliberately both history- and nature-focused. The intended baseline to which the waters were to be returned was their natural condition, prior to anthropogenic modification.⁴⁷

³⁷ 54 U.S.C. § 100101(a).

³⁸ Advisory Board on Wildlife Management, *Wildlife Management in the National Parks (The Leopold Report)*, Mar. 4, 1963.

³⁹ 16 U.S.C. §§ 1531 - 1544.

⁴⁰ 16 U.S.C. § 1531(b).

⁴¹ 16 U.S.C. § 1131 - 1136.

⁴² 16 U.S.C. § 1131(c).

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ 33 U.S.C. §§ 1251 - 1388.

⁴⁶ 33 U.S.C. § 1251(a).

⁴⁷ See H.R. Rep. No. 92-911, at 76 (1972), reprinted in 1 Cong. Res. Svc., *A Legislative History of the Water Pollution Control Act Amendments of 1972*, at 753, 763 (1973) (“The word ‘integrity’ as used is intended to convey a concept that refers to a condition in which the natural structure and function of ecosystems is maintained. . . . Although man is a ‘part of nature’ and a product of evolution, ‘natural’ is generally defined as that condition in existence before the activities of man invoked perturbations which prevented the system from returning to its original state of equilibrium. . . . Any change induced by man which overtaxes the ability of nature to restore conditions to ‘natural’ or ‘original’ is an unacceptable perturbation.”).

- The mission of the National Wildlife Refuge System “is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”⁴⁸ The Fish and Wildlife Service (FWS), which manages the National Wildlife Refuges, is directed to “ensure that the biological integrity, diversity, and environmental health of the System are maintained.”⁴⁹ While there are some challenges associated with parsing those words to understand whether FWS is meeting the law’s goal,⁵⁰ that goal itself seems, like the others mentioned here, to conflate naturalness with the historic state of the system, committing FWS to recreating that state, or at least coming as close to it as practicable.

B. Why Nature and History Offer Such Appealing Goals

It should be no surprise that an intertwined focus on naturalness and history dominate our conservation policy, and have for over a hundred years. The combination is simple to explain, and can appeal to a range of audiences. It facilitates value pluralism, allowing conservation advocates to assemble legislative majorities without having to get agreement on all the underlying reasons for taking conservation action. It limits conflict by seeming to provide an objective basis for implementing decisions. And it has, in the past, seemed almost by definition reasonable and achievable.

[expand, especially on pluralism. Fits well with multiple values that motivate conservation, including stewardship, utility, faith, and emotional ties.]

C. Same Story, Different Tune

In the last few decades, the terminology used by advocates to describe conservation goals, and to some extent by legislators and resource managers has changed somewhat. We increasingly hear calls for focusing on biological or ecological integrity, on sustainability, and on resilience. As employed in the policy debates, however, those terms seem to perpetuate our longstanding understanding of preservation as maintaining over time key elements of the non-human world in a form similar or identical to some point in the past. **[expand]**

II. TIME TO MOVE ON: WHY HISTORY AND NATURE NO LONGER WORK

Although history has served us well as a prominent conservation goal in its own right as well as a proxy for nature protection, it no longer looks like a viable focal point. There are three major

⁴⁸ 16 U.S.C. § 668dd(a)(2).

⁴⁹ 16 U.S.C. § 668dd(a)(4).

⁵⁰ See Robert L. Fischman, *The Meanings of Biological Integrity, Diversity, and Environmental Health*, 44 *Natural Resources J.* 989 (2004) (evaluating in detail the Refuge system mandate).

problems with continuing on the conservation path we have long pursued. First, in fact history, or naturalness, have never been as determinate as it seems at first glance. Second, given the pace and scale of irreversible anthropogenic change, there is a large and growing gap between history-based goals and what can be achieved, even with extraordinary efforts. And third, there is a growing tension between history and what we understand as “natural,” requiring clearer specification of targets and, in at least some cases, choices between maintaining historic elements of nature and limiting human management, which is often seen as inconsistent with naturalness.

A. Insufficient Guidance

That history does not always unambiguously specify conservation targets, and that it is not always clear what is “natural,” has long been recognized in specific contexts. But the problem is more systemic than it has appeared.

Natural systems have long histories, and change over time. If conservation means freezing or regenerating a particular historic moment, it will often be unclear precisely what moment that ought to be, or why.

Consider, for example, the Salton Sea, with its on-again, off-again history. The Salton Basin of southern California lies well below sea level. Since the Pleistocene era, the Basin has periodically been filled with water by the Colorado River, and periodically dried up again. “Between 695 A.D. and 1580 A.D., at least three and possibly four major lakes filled the Salton Basin,”⁵¹ but between those periods, the Basin belonged to the surrounding desert.⁵² In the early days of the state of California, the Basin was at times a shallow but extensive lake.⁵³

But the modern lake dates to 1905, when irrigation works delivering water from the Colorado River to the Imperial Valley failed, pouring the full flow of the River into the Basin for a period of two years.⁵⁴ The lake formed accidentally by that breach has been fed since by irrigation return flows, municipal wastewater, and local streams.⁵⁵ As other habitats have disappeared, the Salton Sea has become an important stopping point for birds on the Pacific flyway. Today, the Salton Sea is a lake about 35 miles long by 15 miles wide.⁵⁶ Although it is saltier than the ocean,

⁵¹ Kim Delfino, *Salton Sea Restoration: Can There Be Salvation for the Sea?*, 19 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 157, 158 (2006).

⁵² Dana Goodyear, *The Dying Sea: What Will California Sacrifice to Survive the Drought?*, *The New Yorker*, May 4, 2015

⁵³ Delfino, *supra* note 51, at 158.

⁵⁴ *Id.* at 158-159; Goodyear.

⁵⁵ C.S. Brehme et al., *Spatial and Temporal Patterns Across an Ecological Boundary: Allochthonous effects of a Young Saltwater Lake on a Desert Ecosystem*, 73 J. ARID ENVIRONMENTS 811, 812 (2009).

⁵⁶ California Department of Natural Resources, *Salton Sea Management Program*, <http://resources.ca.gov/salton-sea/>.

it supports a fishery (relying on introduced tilapia and sport fishing species), and provides recreational opportunities.⁵⁷ But the Salton Sea is gradually drying up. If trends continue, some time in the near future the Sea will become too salty to support fish, or the birds that rely on its fish.⁵⁸

Since the 1990s, the U.S. and California have been trying to figure out how to restore sustainable habitat for fish and birds at the Salton Sea.⁵⁹ California's Salton Sea Task Force is currently engaged in a process of planning for management of the Salton Sea over the short and medium term, focused on both restoring habitat and maintaining air quality by keeping dust down.⁶⁰

Is the Salton Sea “natural”? Does it represent a history worth saving? Those questions not only don't have answers, asking them doesn't seem helpful. If the Salton Sea should be “preserved” in some form, it must be for reasons other than the nature of its origin or the timeline of its existence.

A number of other examples pose similar conceptual challenges. At Isle Royale National Park in Lake Superior, gray wolves first found their way to the island about 1950, nearly coincident with a deliberate wolf introduction on the island.⁶¹ The wolves which arrived on their own became established, feeding on moose which had themselves arrived only in the early 20th century. Isle Royale became the site of what may be the longest running study of predator-prey dynamics. By 2015, however, the population of Isle Royale wolves was down to two wolves, a male-female pair “more inbred than any known wild wolves.”⁶² Should more wolves be introduced to Isle Royale? The National Park Service said no in 2014,⁶³ but reversed course at the end of 2016, releasing for public comment a proposal to bring 20 to 30 wolves to Isle Royale in the next five years.⁶⁴ Does conserving the wild life of Isle Royale call for supplementing the wolf population

⁵⁷ Delfino, *supra* n. 51, at 159.

⁵⁸ *Id.* at 160.

⁵⁹ U.S. Department of Interior, Bureau of Reclamation, Reclamation: Managing Water in the West, A Salton Sea Chronology (Prehistory - 2015), Jan. 2016.

⁶⁰ California Department of Natural Resources, Salton Sea Management Program, <http://resources.ca.gov/salton-sea/>.

⁶¹ John A. Vucetich et al., *Should Isle Royale Wolves be Reintroduced? A Case Study on Wilderness Management in a Changing World*, 29 THE GEORGE WRIGHT FORUM 126 (2012).

⁶² Christine Mlot, *Extreme Inbreeding Likely Spells Doom for Isle Royale Wolves*, SCIENCE, Apr. 18, 2016.

⁶³ Christine Mlot, *U.S. Park Service Nixes Immediate Genetic Rescue of Isle Royale Wolves*, SCIENCE, Apr. 10, 2014.

⁶⁴ Emma Marris, *Wolf Transplant Could Reset Iconic Island Study*, 541 NATURE 12 (2017); National Park Service, Dept. of the Interior, Isle Royale National Park: Draft Environmental Impact Statement to Address the Presence of Wolves (Dec. 2016).

or allowing it to disappear? History cannot answer that question, nor can an abstract appeal to protect nature.

[“rewilding”]

Other definition problems: the problem of wilderness; the stopping point problem – how much is enough?

B. Unrealistic Expectations: we simply cannot maintain nature as it used to be in the climate-challenged world.

C. Culture Clash: We can no longer hold all motivations in the same big tent. In particular, there is a growing tension between history and naturalness, which used to be seen as directly overlapping.

D. The Fear of Letting Go

III. MAPPING DESTINATIONS AND CHOOSING ROUTES

We currently have a portfolio of conservation policies, addressing different sets of species, different land systems, and different threats. There is every reason to believe a portfolio approach will be needed as we take conservation into the future. We need not, therefore, look for a silver bullet. Rather, we are looking for a range of policies serving a range of goals. The question is how to design a conservation portfolio for the future, rather than what single goal, strategy, or approach we should employ.

A. The Why Must Inform the What – Articulating Values and Guiding Principles at Finer Scales

Utility

Stewardship

Responsibility

Humility and human character formation

Equity

Distinctiveness; cultural significance

B. Two Visions of Nature

1. Garden Nature

2. Autonomous Nature

C. Two visions of Healthy Human Relationship with Nature

1. “Feasibility”/ responsibility – time to pay more attention to “tech-based” standards

fishing gear restrictions / mandates; TEDs

performance-based ag

water conservation / Mono Lake

predator friendly ranching

sage grouse

oil/gas well spacing

2. Humility -- the importance of awe, and reminders of our limits

CONCLUSION

Conservation policy has always been and will always be challenging, both practically and conceptually. Conservation inevitably comes into conflict with other legitimate activities and goals, so the line-drawing problem can never be escaped. We’ve relied so far on the vague and undefined concepts of “nature” and “history” both to do some line-drawing and to obscure it. That has been a reasonably effective strategy for more than 100 years, but it threatens to collapse in the face of dramatic climate change. To get beyond that collapse, we need to talk more openly and productively about our motivations for conservation, the targets those motivations suggest, and how we might implement them. We need a rebalanced conservation portfolio which includes nature under our direct control in some places, but also provides places where we allow nature to proceed without our direct guidance.