

Boston College Environmental Affairs Law Review

Volume 34

Issue 3 *Smart Brownfield Redevelopment for the 21st Century*

Article 7

1-1-2007

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Recommended Citation

Mary C. Wood, *Nature's Trust: A Legal, Political and Moral Frame for Global Warming*, 34 B.C. Env'tl. Aff. L. Rev. 577 (2007), <http://lawdigitalcommons.bc.edu/ealr/vol34/iss3/7>

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NATURE'S TRUST: A LEGAL, POLITICAL AND MORAL FRAME FOR GLOBAL WARMING

MARY CHRISTINA WOOD*

Abstract: This essay portrays the urgency of global warming and discusses the role of environmental law in bringing about this crisis. It explains why our regulatory system ignored this problem for too long and offers a property-based perspective to frame government's responsibility in confronting climate crisis.

INTRODUCTION

Melting icecaps. Raging wildfires. Widespread drought. 35,000 Europeans, dead from a heat wave. Jakarta, underwater. Drowning polar bears. West Nile virus. Species in mass exodus towards the poles. Hurricane Katrina.

Those are the headlines over the past few years. Yet many Americans are still asleep to climate crisis. They are in for quite a shock when they wake up to realize the consequences of ignoring this threat. Climate is the invisible currency of our lives. It supports our food supplies, water sources, private property, businesses, and recreation. Yet, for most of us, it has been an overlooked source of our security and comfort.

That is about to change.

In this decade, we will decide whether to hand over to future generations an imperiled world or a world on its way towards restored natural abundance.¹ At this pivotal moment in human history, our need to

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¹ See STERN REVIEW, *THE ECONOMICS OF CLIMATE CHANGE*, Summary of Conclusions, at vi (Cambridge University Press 2007), available at <http://www.hm-treasury.gov.uk> (follow "Independent Review" hyperlink; then follow "Stern Review on the Economics of Climate Change" hyperlink; then follow "Full Report" hyperlink) [hereinafter STERN REVIEW] (stating that if no action is taken to reduce emissions, the resulting temperature rise would

define government's obligations towards future generations has perhaps never been greater. Yet we lack a legal beacon to guide us through this time of decision. I hope to offer a way of thinking that draws on timeless principles of property law to characterize government's obligation to preserve the natural inheritance belonging to the future generations.

I.

First, let me briefly explain the dynamics of global warming. Complex as it is, global warming can be presented in terms that the average American understands.² Through our emissions of greenhouse gases, we are literally creating a heat trap for ourselves and for all living things on Earth.³ The sun sends a massive amount of energy that warms our planet. The energy then radiates back into space as heat, but some heat is held captive by heat-trapping gases in the atmosphere. These gases—including carbon dioxide and methane—regulate the temperature of Earth.⁴ Before the Industrial Revolution, Nature had maintained a balance in the gases to keep the Earth's average surface temperature at fifty-nine degrees Fahrenheit.⁵ It may be hard to appreciate the remarkability of a fifty-nine degree average until you consider that the ecosystems we know and depend on today evolved against this average temperature. Essentially, fifty-nine degrees is for Earth what 98.7 degrees is for our bodies.

Since the Industrial Revolution, Earth's populations have burned massive quantities of fossil fuels. In doing so, we literally have changed the composition of the atmosphere such that less heat can escape into space.⁶ It is no great mystery why the great ice sheets of this planet are melting. Just as an ice cube will melt in a warm room, so is the Polar Ice Cap, Greenland, and every major glacier of the world melting on our warming Earth.⁷ Glacier National Park in Montana is losing its glaciers

cause "a radical change in the physical geography of the world . . ."); *see also infra* notes 22–36.

² For a full explanation of global warming dynamics, see Union of Concerned Scientists, *Frequently Asked Questions About Global Warming*, http://www.ucsusa.org/global_warming/science/global-warming-faq.html (last revised Mar. 8, 2007) [hereinafter *Union of Concerned Scientists FAQ*].

³ *Id.*

⁴ *Id.*

⁵ *See id.*

⁶ *Id.*

⁷ *See* UNITED NATIONS-SIGMA XI SCIENTIFIC EXPERT GROUP ON CLIMATE CHANGE, *CONFRONTING CLIMATE CHANGE: AVOIDING THE UNMANAGEABLE AND MANAGING THE UNAVOIDABLE* 1, 11 (2007), *available at* http://www.unfoundation.org/files/pdf/2007/SEG_Report.

so fast that it may have none left by 2030—just twenty-three years from now.⁸

Carbon dioxide—the gas emitted from cars, coal fire plants, and gas heating⁹—has climbed to levels unknown in the past 650,000 years,¹⁰ and we are still pumping it out at an annual increase of two percent per year.¹¹ According to the United Nations Intergovernmental Panel on Climate Change (IPCC), the average surface temperature on Earth will rise between 2.5 degrees and 10.4 degrees Fahrenheit within the next 100 years if our greenhouse gas emissions do not turn downward soon enough.¹²

pdf [hereinafter U.N.-SIGMA XI REPORT]. For a comparison of historic and current photographs of glaciers, see AL GORE, AN INCONVENIENT TRUTH: THE PLANETARY EMERGENCY OF GLOBAL WARMING AND WHAT WE CAN DO ABOUT IT 42–59, 194–95 (2006). The mass of Greenland decreased by fifty cubic miles of ice in 2005. Jim Hansen, *The Threat to the Planet*, N.Y. REV. BOOKS, July 13, 2006, at 12, 13, available at <http://www.nybooks.com/articles/19131>. The Arctic sea ice is experiencing ice loss of about 38,000 square miles annually due to rising concentrations of greenhouse gases alongside natural variability. University of Colorado at Boulder, *Arctic Sea Ice Decline May Trigger Climate Change Cascade*, <http://www.colorado.edu/news/releases/2007/109.html> (Mar. 15, 2007) (summarizing research by National Center for Atmospheric Research and CU-Boulder's National Snow and Ice Data Center). Scientists have projected a seasonally ice-free Arctic Ocean between 2040 and 2050. *Id.* Recent research suggests that the Arctic ice may have already passed a “tipping point” whereby even “natural climate fluctuations could send it into a tailspin.” *Id.* (quoting Mark Serreze of CU-Boulder's Cooperative Institute for Research in Environmental Science). Scientists warn of a cascade of climate change reaching to other parts of the globe. *Id.*

⁸ U.S. Geological Survey, *Melting Glaciers Signal Change in National Parks*, <http://www.nwr.usgs.gov/world/content/land5.html> (last modified Jan. 29, 2007); see GORE, *supra* note 7, at 48 (“Our own Glacier National Park will soon need to be renamed ‘the park formerly known as Glacier.’”). In the last 150 years, the glaciated area of the Waterton-Glacier International Peace Park—a World Heritage Site—has decreased by seventy-three percent. INT'L ENVTL. LAW PROJECT OF LEWIS & CLARK LAW SCH., PETITION TO THE WORLD HERITAGE COMMITTEE REQUESTING INCLUSION OF WATERTON-GLACIER INTERNATIONAL PEACE PARK ON THE LIST OF WORLD HERITAGE IN DANGER AS A RESULT OF CLIMATE CHANGE AND FOR PROTECTIVE MEASURES AND ACTIONS, at vii (2006), available at <http://law.lclark.edu/org/ielp/objects/Waterton-GlacierPetition2.15.06.pdf>. Of the 150 glaciers that were present in 1850, only twenty-seven remain today. *Id.* at 1.

⁹ See U.N.-SIGMA XI REPORT, *supra* note 7, at ix. Deforestation contributes substantially to carbon dioxide concentrations as well. *Id.*

¹⁰ GORE, *supra* note 7, at 66–67; Press Release, Union of Concerned Scientists, *Authoritative Report Confirms Human Activity Driving Global Warming* (Feb. 2, 2007), available at http://www.ucsusa.org/news/press_release/authoritative-report-confirms-0008.html (summarizing the findings of the United Nations).

¹¹ Hansen, *supra* note 7, at 14 (noting increase of global carbon dioxide emissions of two percent each year during past ten years).

¹² Union of Concerned Scientists FAQ, *supra* note 2 (summarizing the Intergovernmental Panel on Climate Change's (IPCC) Third Assessment Report); see also U.N.-SIGMA XI REPORT, *supra* note 7, at x–xi.

Our prior carbon pollution has already locked us into an irrevocable temperature rise of up to two degrees Fahrenheit.¹³ Two degrees does not sound like much at all until you realize that the Earth's average temperature has not varied by more than 1.8 degrees Fahrenheit in the last 10,000 years.¹⁴ Just a few degrees of average temperature change makes the difference between an ice age and our current climate.¹⁵ Temperatures only five to nine degrees Fahrenheit cooler than those today marked the end of the last Ice Age, when the northeast United States was under 3000 feet of ice.¹⁶ In light of that fact, consider the effect of a ten degree difference on the hot side.¹⁷ Once we understand the climate premium that every single degree Fahrenheit carries, we would no more dismiss a ten degree temperature rise for Earth than we would dismiss a 108 degree fever in our bodies.

So, what does all of this mean for us? In effect, you and I—along with all of the other people and species on this Earth—find ourselves in a greenhouse with climbing temperatures.¹⁸ And this situation is bound to create hostility as Americans alone account for nearly thirty percent

If CO₂ emissions and concentrations grow according to mid-range projections . . . the global average surface temperature is expected to rise by 0.2°C to 0.4°C per decade [equivalent to 0.7° F. to 0.9° F.] throughout the 21st century and would continue to rise thereafter. The cumulative warming by 2100 would be approximately 3°C to 5°C [5.4° to 9° F.] over preindustrial conditions.

Id.

¹³ See U.N.-SIGMA XI REPORT, *supra* note 7, at x (“Even if human emissions could be instantaneously stopped, the world would not escape further climatic change. [A] further . . . rise in global-average surface temperature will take place as a result of the current atmospheric concentrations of greenhouse gases and particles.”); Hansen, *supra* note 7, at 13.

¹⁴ Union of Concerned Scientists FAQ, *supra* note 2.

¹⁵ See *id.*

¹⁶ *Id.*; see also Hansen, *supra* note 7, at 13 (noting that the coldest ice ages had an average temperature of about ten degrees Fahrenheit less than today).

¹⁷ See U.N.-SIGMA XI REPORT, *supra* note 7, at x–xi. The report states:

Accumulating scientific evidence suggests that changes in the average temperature of this magnitude are likely to be associated with large and perhaps abrupt changes in climatic patterns that, far more than average temperature alone, will adversely impact agriculture, forestry, fisheries, the availability of fresh water, the geography of disease, the livability of human settlements, and more.

Id.

¹⁸ Global temperatures have already increased about 1.4 degrees Fahrenheit over pre-industrial levels. Robert Lee Hotz, *A Call To Arms on Climate Shift*, L.A. TIMES, Feb. 28, 2007, at 8 (summarizing the U.N.-Sigma XI Report).

of the world's greenhouse gas emissions.¹⁹ There is no magic Tylenol that will cure this temperature rise overnight, because carbon dioxide can persist in the atmosphere for up to a few centuries.²⁰

Hurricane Katrina—which devastated the U.S. Gulf Coast in 2005—signaled what we can expect from the global warming already underway as a result of the carbon emissions that we cannot call back.²¹ Scientists across multiple disciplines warn of crop losses,²² food shortages,²³ flooding,²⁴ coastal loss,²⁵ wildfire,²⁶ drought,²⁷ pests,²⁸ hurri-

¹⁹ GORE, *supra* note 7, at 250–51 (featuring a map depicting contributions across the globe); Hansen, *supra* note 7, at 16.

²⁰ See Union of Concerned Scientists FAQ, *supra* note 2; see also James Hansen, *foreword* to AM. SOLAR ENERGY SOC'Y, TACKLING CLIMATE CHANGE IN THE U.S.: POTENTIAL CARBON EMISSIONS REDUCTIONS FROM ENERGY EFFICIENCY AND RENEWABLE ENERGY BY 2030 (Charles F. Kutscher ed., 2007), available at http://www.ases.org/climatechange/climate_change.pdf [hereinafter TACKLING CLIMATE CHANGE] (stating that a quarter of the carbon dioxide emissions from fossil fuel burning will persist in the atmosphere for more than 500 years).

²¹ Gore, *supra* note 7, at 92–93 (citing an MIT study and concluding that “[m]ajor storms spinning in both the Atlantic and Pacific since the 1970s have increased in duration and intensity by about 50 percent”); see U.N.-SIGMA XI REPORT, *supra* note 7, at x. The authors of the report pointed out:

The seemingly modest changes in average temperature experienced over the 20th century have been accompanied by significant increases in the incidence of floods, droughts, heat waves, and wildfires, particularly since 1970. It now appears that the intensity of tropical storms has been increasing as well. There have also been large reductions in the extent of summer sea ice in the Arctic, large increases in summer melting on the Greenland Ice Sheet, signs of instability in the West Antarctic Ice Sheet, and movement in the geographic and altitudinal ranges of large numbers of plant and animal species.

U.N.-SIGMA XI REPORT, *supra* note 7, at x.

²² NASA Goddard Space Flight Center, Computer Model Suggests Future Crop Loss Due to Potential Increase in Extreme Rain Events Over Next Century (Oct. 28, 2002), <http://www.gsfc.nasa.gov/topstory/20021022cropdamage.html> (projecting crop damage from water-logged soils leading to total losses of three billion dollars annually in the United States by 2030).

²³ Associated Press, *Report Outlines Global Warming's Effects*, Mar. 12, 2007, available at http://www.christianpost.com/article/20070312/26266_Report_Outlines_Global_Warming's_Effects.htm [hereinafter A.P., *Report Outlines Global Warming's Effects*] (describing the U.N.'s IPCC Working Group II's conclusion that by 2080 between 200 and 600 million people could face starvation because of global warming); Philip Puella, *Global Warming Will Increase World Hunger*, REUTERS, May 27, 2005 (summarizing report by U.N. Food and Agricultural Organization); John Vidal & Tim Radford, *One in Six Countries Facing Food Shortage*, THE GUARDIAN, June 30, 2005, available at <http://www.guardian.co.uk/climatechange/story/0,12374,1517831,00.html> (discussing U.N. report findings).

²⁴ U.N.-SIGMA XI REPORT, *supra* note 7, at x, 1, 11; see also *id.* at v (“As the climate changes, . . . low-lying coastal communities worldwide will be flooded as sea level rises.”); A.P., *Report Outlines Global Warming's Effects*, *supra* note 23 (stating that U.N. scientists conclude that by 2080, rising seas could flood about 100 million people worldwide each year).

canes,²⁹ tornadoes,³⁰ heat waves,³¹ landslides,³² species extinctions,³³ vanishing snow pack,³⁴ increased disease vectors,³⁵ and other harms.³⁶

²⁵ U.N.-SIGMA XI REPORT, *supra* note 7, at 102. The U.N.-Sigma XI international team of climate scientists has called for a worldwide ban on coastal beachfront construction to minimize the hazards of climate-related disasters such as flooding and powerful storms. *Id.* at xvi; see Hotz, *supra* note 18 (summarizing the U.N.-Sigma XI Report).

²⁶ Patrick O'Driscoll, *Study Says Global Warming Helps Extend Wildfire Season*, USA TODAY, July 7, 2006, at 3A (noting number of large wildfires in Idaho, Montana and Wyoming has increased sixty percent since 1987).

²⁷ A.P., *Report Outlines Global Warming's Effects*, *supra* note 23 (stating U.N. scientists' conclusion that "within a couple of decades hundreds of millions of people won't have enough water" and that by 2050, more than one billion people in Asia could face water shortages). By 2080, water shortages could threaten 1.1 to 3.2 billion people if global warming continues. *Id.* The percentage of Earth's land area struck by serious drought more than doubled from the 1970s to the early 2000s, according to the National Center for Atmospheric Research (NCAR). See Press Release, National Center for Atmospheric Research, Drought's Growing Reach: NCAR Study Points to Global Warming as Key Factor (Jan. 10, 2005), available at http://www.ucar.edu/news/releases/2005/drought_research.shtml.

²⁸ Blaine Harden & Juliet Eilperin, *On the Move to Outrun Climate Change*, WASH. POST, Nov. 26, 2006, at A10.

²⁹ See U.N.-SIGMA XI REPORT, *supra* note 7, at 28 (predicting "longer-lasting and more destructive hurricanes and typhoons"); GORE, *supra* note 7, at 92-107.

³⁰ An increasing frequency of tornadoes seems to be occurring simultaneously with global warming, though scientists have not yet established a direct correlation. See National Oceanic and Atmospheric Association, NOAA Reports Record Number of Tornadoes in 2004 (Dec. 30, 2004), <http://www.noaa.gov/stories2004/s2359.htm>. But see *Reaping the Whirlwind: Extreme Weather Prompts Unprecedented Global Warming Alert*, INDEPENDENT (UK), July 3, 2003, available at <http://news.independent.co.uk/environment/article94497.ece> (citing a report issued by the World Meteorological Organization linking extreme weather events, such as Switzerland's hottest June in 250 years and record number of tornadoes in United States, to climate change).

³¹ U.N.-SIGMA XI REPORT, *supra* note 7, at 1 ("More frequent, longer-lasting, and more intense heat waves will cause many more deaths unless actions are taken to reduce vulnerability."). In 2003, a massive heat wave killed 35,000 people in Europe. See Shaoni Bhattacharya, *European Heatwave Caused 35,000 Deaths*, NEWSIDENTIST.COM, Oct. 10, 2003, <http://www.newscientist.com/article.ns?id=dn4259>. The U.S. Environmental Protection Agency (EPA) has issued a guide called the Excessive Heat Events Guidebook, which says, "Excessive heat events . . . are and will continue to be a *fact of life* in the United States." U.S. ENVTL. PROT. AGENCY, EXCESSIVE HEAT EVENTS GUIDEBOOK, EPA # 430-B-06-005, 5 (2006), available at http://www.epa.gov/hiri/about/pdf/EHEguide_final.pdf (emphasis added).

³² See Alister Doyle, *Landslides Could Worsen with Global Warming*, REUTERS, Jan. 18, 2006, available at <http://www.enr.com/today.html?id=9688> (reporting conclusions of U.N. experts that if climate change predictions are correct, more intense and extreme rainfall will lead to increased landslides).

³³ An international team of scientists has projected that between fifteen and thirty-seven percent of species on Earth will become extinct by 2050 because of global warming. See A.P., *Report Outlines Global Warming's Effects*, *supra* note 23 (quoting co-author of U.N. IPCC Working Group II Report, Dr. Terry Root of Stanford University, who stated that "[w]e truly are standing at the edge of mass extinction"); Carl Zimmer, *A Radical Step to Preserve a Species: Assisted Migration*, N.Y. TIMES, Jan. 23, 2007, at 4. Species are already migrating towards the poles in search of colder climates. *Id.*; see also Hansen, *supra* note 7, at

An international climate research team recently warned of a need to prepare for as many as fifty million environmental refugees by 2010.³⁷

If we do nothing to curb carbon emissions, we will commit ourselves to a future that most Americans cannot even imagine. Jim Hansen, the leading climate scientist for the National Aeronautics and Space Administration (NASA), presents the ten degree Fahrenheit scenario: it will send fifty percent or more species into extinction.³⁸ That is equivalent to the mass extinction that occurred fifty-five million years ago.³⁹ In his words, "Life will survive, but it will do so on a transformed

12. The Polar Bear has been proposed for listing under the Endangered Species Act. 12-Month Petition Finding and Proposed Rule to List the Polar Bear (*Ursus Maritimus*) as Threatened Throughout Its Range, 72 Fed. Reg. 1064, 1072 (proposed Jan. 9, 2007) (to be codified 50 C.F.R. pt. 17) (noting "[o]bserved and predicted changes in sea ice cover, characteristics, and time have profound effects on polar bears"); see also Juliet Eilperin, *U.S. Wants Polar Bears Listed as Threatened*, WASH. POST, Dec. 27, 2006, at A1 (stating summer sea ice on which polar bears depend for hunting could disappear by 2040). Coral reefs worldwide are bleaching and dying from pathogens that thrive in the warmer seas occurring as a result of climate heating. See Jonathan Amos, *Action Needed to Save Coral Reefs*, BBC NEWS ONLINE, Feb. 13, 2004, <http://news.bbc.co.uk/1/hi/sci/tech/3487869.stm> (summarizing report commissioned by Pew Center on Global Climate Change). Eighty percent of the coral reefs in the Caribbean Sea are already dead, an event "unprecedented on centennial and millennial scales." *Id.* (quoting coral expert Dr. Richard Aronso).

³⁴ In 2003, the United Nations Environment Programme (UNEP) released a study predicting the ruin of many low-level ski resorts world-wide as a result of global warming. See United Nations Env't Programme, *Global Warming Threatens Many Low-Level Ski Resorts with Ruin—UN Study*, UN NEWS SERV., Dec. 2, 2003, <http://www.un.org/apps/news/printnewsAr.asp?nid=9035>.

³⁵ Climate warming is prompting disease vectors to move into new areas. Mosquitoes are invading higher elevation areas where they have never been, bringing with them diseases like malaria and yellow fever. See Associated Press, *Global Warming May Spread Diseases*, CBS NEWS, June 20, 2002, available at <http://www.cbsnews.com/stories/2002/06/20/tech/main512920.shtml>.

³⁶ For a broad discussion of global warming impacts, see STERN REVIEW, *supra* note 1; U.N.-SIGMA XI REPORT, *supra* note 7, at v. See also A.P., *Report Outlines Global Warming's Effects*, *supra* note 23 ("Changes in climate are now affecting physical and biological systems on every continent.") (quoting U.N. Draft report of IPCC Working Group II).

Climate change is expected to have a widespread negative effect on water resources, natural ecosystems, coastal communities and infrastructure, air and water quality, biodiversity, coastal fisheries, parks and preserves, forestry, human health, agriculture and food production, and other factors that support economic performance and human well-being around the world.

U.N.-SIGMA XI REPORT, *supra* note 7, at v.

³⁷ U.N.-SIGMA XI REPORT, *supra* note 7, at 99 (citing predictions by the U.N. University's Institute for Environment and Human Safety that fifty million people will be fleeing environmental degradation); see Hotz, *supra* note 18.

³⁸ Hansen, *supra* note 7, at 12.

³⁹ *Id.*

planet.”⁴⁰ A mere five-degree Fahrenheit temperature increase may cause an eighty foot rise in sea level.⁴¹ Hansen points out: “In that case, the United States would lose most East Coast cities: Boston, New York, Philadelphia, Washington, and Miami; indeed, practically the entire state of Florida would be under water. Fifty million people in the U.S. live below that sea level.”⁴²

I could go on detailing on how climate crisis will affect the lives of every human on Earth. What I have mentioned is just the tip of the iceberg—a phrase on its way out. British commentator Mark Lynas, author of *High Tide*, summarizes the Earth’s situation this way: “Let me put it simply: if we go on emitting greenhouse gases at anything like the current rate, most of the surface of the globe will be rendered uninhabitable within the lifetimes of most readers of this article.”⁴³

II.

As a group, Americans yearn to have peace of mind over the future for themselves and their children. Entire industries are premised on the inclination of Americans to sacrifice a little now in order to buy security in the future. We simply would not have insurance, estate planning, retirement accounts, or social security were it not for the strongly held preference on the part of Americans to pay for disaster avoidance.

As a society, we are now in the position of buying climate insurance. By most scientific accounts, we still have the ability to stabilize the Earth’s temperature increase at two degrees Fahrenheit⁴⁴—remember that two degrees, because it is the benchmark of your future. As Jim Hansen puts it, “further global warming exceeding two degrees Fahr-

⁴⁰ *Id.*

⁴¹ *Id.* at 13.

⁴² *Id.*

⁴³ Mark Lynas, *Why We Must Ration the Future*, NEW STATESMAN, Oct. 23, 2006, at 12, available at <http://www.newstatesman.com/200610230015>. A leading team of economists has concluded: “Climate change threatens the basic elements of life for people around the world—access to water, food production, health, and use of land and the environment.” STERN REVIEW, *supra* note 1, Executive Summary, at vi.

⁴⁴ Hansen, *supra* note 7, at 13. There appears to be substantial consensus among scientists worldwide that society can still thwart the most disastrous global warming by decreasing greenhouse gas emissions immediately. See, e.g., U.N.-SIGMA XI REPORT, *supra* note 7, at ix (“Significant harm from climate change is already occurring, and further damages are a certainty. The challenge now is to keep climate change from becoming a catastrophe. There is still a good chance of succeeding in this [effort] . . .”); STERN REVIEW, *supra* note 1, Summary of Conclusions, at vi (“There is still time to avoid the worst impacts of climate change, if we take strong action now.”).

enheit will be dangerous.”⁴⁵ Here is the purchase price of that climate insurance: we have to curb drastically our greenhouse gas emissions, beginning immediately.⁴⁶

As a planet, we have been at a similar danger point before. When it was discovered in the 1970s that chlorofluorocarbons (CFCs) were putting a hole in the atmosphere's ozone layer, we stopped using them, and the hole is now repairing itself.⁴⁷ While, at the time, the CFC industry tried to convince us that western civilization would crumble without spray canisters,⁴⁸ that scenario proved not to be the case. The ozone layer is crucial, as it shields us from the harmful ultraviolet light coming from the Sun.⁴⁹ Looking back, are we not grateful that the decision-makers at the time decided not to trade out our Earth's ozone layer for CFCs?

Transitioning to a carbon-free society is more complicated than our previous experience with CFCs because it involves nearly every sector of society. This process is not going to be easy. Carbon is emitted all over the place. But the basic choice is still the same as that presented to humankind by the ozone hole discovery: do we take bold action now in order to buy climate security in the future? Or do we continue on our business-as-usual course with the knowledge that it will ultimately lead to catastrophe for ourselves and our children—that it will drain our descendants of the natural abundance and security that we all took for granted? This choice cannot be characterized as just another environmental issue. As author Ross Gelbspan puts it, “[T]he climate crisis is far more than just an environmental issue. It is a civilizational issue.”⁵⁰

⁴⁵ Hansen, *supra* note 7, at 14.

⁴⁶ See *infra* notes 67–68 and accompanying text (explaining the reduction goals presented by the U.N. and scientists worldwide). *The Stern Review on the Economics of Climate Change*, a landmark economic report authored by Sir Nicholas Stern, former chief economist at the World Bank, concludes: “The costs of stabili[z]ing the climate are significant but manageable; delay would be dangerous and much more costly.” STERN REVIEW, *supra* note 1, Summary of Conclusions, at vii.

⁴⁷ See National Aeronautics and Space Administration, The Ozone Resource Page, http://www.nasa.gov/vision/earth/environment/ozone_resource_page.html (last visited Apr. 27, 2007) (citing a 2006 report by the World Meteorological Organization and the U.N. predicting the ozone would fully recover by approximately 2065); Brien Sparling, *Ozone Depletion, History, and Politics*, <http://www.nas.nasa.gov/About/Education/Ozone/history.html> (May 30, 2001).

⁴⁸ Sparling, *supra* note 47.

⁴⁹ NASA, The Ozone Resource Page, *supra* note 47.

⁵⁰ ROSS GELBSPAN, *BOILING POINT: HOW POLITICIANS, BIG OIL AND COAL, JOURNALISTS, AND ACTIVISTS ARE FUELING THE CLIMATE CRISIS—AND WHAT WE CAN DO TO AVERT DISASTER I* (2004).

Unfortunately, we have no latitude for indecision. Hansen states: “[W]e have at most ten years—not ten years to decide upon action, but ten years to alter fundamentally the trajectory of global greenhouse emissions.”⁵¹ You might wonder why the atmosphere is giving us so little time. It is because we have already pumped so much carbon into it that we are likely nearing a “tipping point” that will trigger irreversible dynamics.⁵² After that tipping point, our subsequent carbon reductions, no matter how impressive, will not thwart long-term catastrophe.⁵³

Let me be clear. I do not mean to imply that all climate catastrophes will visit us on January 1 of Year Eleven from now. The tipping point concept means this: if we continue business as usual, then at some point within this coming decade, and probably sooner rather than later, we will effectively place a lock on the door of our heating greenhouse and throw out the key. Our children and future generations are trapped in that greenhouse with rising temperatures, and they will have no way to get out. This ten-year action window we are now looking through means that, if we pour resources into the wrong strategy, we will not have time to go back and chart another course before this tipping point has come and gone.

State legislatures, federal agencies, and governors across the country should be burning the midnight oil (or, rather, fluorescent lights) figuring out solutions to get us to a carbon-free society in the short time we have left. But, with few exceptions,⁵⁴ our government is still sleeping through climate crisis. So scientists are trying new ways—any ways they can think of—to wake people up to this urgency. In January 2007, the Harvard Medical School’s Center for Health and Global Environment convened top climate scientists to hold a press conference in Washing-

⁵¹ Hansen, *supra* note 7, at 16.

⁵² See STERN REVIEW, *supra* note 1, at 298 (“Recent scientific developments have placed more emphasis on the dangers of amplifying feedbacks of global temperature increases and the risks of crossing irreversible tipping points”); U.N.-SIGMA XI REPORT, *supra* note 7, at xi (stating that “increases beyond 2° C to 2.5° C above the 1750 level will entail sharply rising risks of crossing a climate ‘tipping point’ that could lead to intolerable impacts on human well-being”); Hansen, *supra* note 7, at 14 (“[B]ecause of the global warming already bound to take place as a result of the continuing long-term effects of greenhouse gases and the energy systems now in use, . . . it will soon be impossible to avoid climate change with far-ranging undesirable consequences. We have reached a critical tipping point.”).

⁵³ STERN REVIEW, *supra* note 1, at 298; U.N.-SIGMA XI REPORT, *supra* note 7, at xi; Hansen, *supra* note 7, at 14.

⁵⁴ California, for example, is a national leader in reducing greenhouse gas emissions. See Paul Krugman, *Global Warming Can Be Reduced Without Radical Change*, REGISTER GUARD (Eugene, Or.), Feb. 26, 2007, at A9.

ton, D.C., with national evangelical Christian leaders. They jointly delivered an "Urgent Call to Action" to the President of the United States to "protect Creation."⁵⁵ How many times have you seen scientists and Evangelicals holding a press conference together to protect Creation? They stated their "Shared Concern": "[T]he Earth . . . is seriously imperiled [W]e are gradually destroying the sustaining community of life on which all living things on Earth depend We declare that every sector of our nation's leadership . . . must act now . . . before it is too late Business as usual cannot continue yet one more day."⁵⁶

The international community is sounding the same alarm. Three months ago British Prime Minister Tony Blair said to the world: "This disaster is not set to happen in some science fiction future many years ahead, but in our lifetime. Unless we act now . . . these consequences, disastrous as they are, will be irreversible."⁵⁷ In February 2007, an international climate team released a report setting forth immediate policy initiatives to combat climate crisis, stating: "Humanity must act collectively and urgently to change course through leadership at all levels of society. There is no more time for delay."⁵⁸

These are not the voices of Chicken Little and Henny Penny.⁵⁹ If someone dismisses climate warming to you as "sky is falling" kind of talk,⁶⁰ go back and read the book *Chicken Little* and see if you can find

⁵⁵ *An Urgent Call To Action: Scientists and Evangelicals Unite to Protect Creation* (Jan. 17, 2007), available at <http://www.conservation.org/> (follow "Conservation Programs" hyperlink; then follow "Conservation and Faith" hyperlink; then follow "Scientists and Evangelicals Unite to Protect Creation" hyperlink); Letter from Eric Chivian, M.D., Director, Ctr. for Health and the Global Env't, Harvard Med. Sch., and Rev. Richard Cizik, Vice President for Governmental Affairs, Nat'l Ass'n of Evangelicals, to President George W. Bush (Jan. 17, 2007) (on file with author) (enclosing *An Urgent Call to Action: Scientists and Evangelicals Unite to Protect Creation*); see also Rodrigue Ngowi, *Evangelicals, Scientists Join Forces to Combat Global Warming*, BOSTON GLOBE, Jan. 14, 2007, available at <http://www.boston.com> (Search "Greater Boston" for "Evangelicals, Scientists Join Forces"; then follow "Evangelicals, Scientists Join Forces to Combat Global Warming" hyperlink).

⁵⁶ *An Urgent Call to Action*, *supra* note 55.

⁵⁷ Simon Hooper, *Report Sets Climate Change Challenge*, CNN.COM, Oct. 30, 2006, <http://edition.cnn.com/2006/WORLD/europe/10/30/climate.costs/>.

⁵⁸ U.N.-SIGMA XI REPORT, *supra* note 7, at xviii.

⁵⁹ See generally HELEN CRAIG, *Chicken Little*, in THE RANDOM HOUSE BOOK OF NURSERY STORIES 77 (1999) [hereinafter *Chicken Little*].

⁶⁰ See generally Patrick J. Michaels, *Is the Sky Really Falling? A Review of Recent Global Warming Scare Stories*, in POL'Y ANALYSIS No. 576 (CATO Institute 2006), available at <http://www.cato.org/pubs/pas/pa576.pdf>. Patrick J. Michaels is an outspoken global warming "contrarian" whose evaluation of climate science is informed by the following passage in the classic children's story *Chicken Little*: "One morning, Chicken Little was in the woods when an acorn fell on his head. 'Oh, my goodness! The sky is falling!' cried Chicken Little. 'I must go and tell the King.'" *Chicken Little*, *supra* note 59, at 77. The "con-

any intelligent comparison between mounting atmospheric heat-trapping gases and an acorn falling on a little chicken's head. The United Nations' Intergovernmental Panel on Climate Change (IPCC) issued a report in February 2007, stating that climate change is "unequivocal."⁶¹ A second report was issued in draft form in March 2007, discussing the catastrophic impacts of unchecked global warming.⁶² These United Nations (U.N.) reports compile the conclusions of more than 1200 authors and 2500 expert reviewers, reflecting scientific expertise from more than 130 countries.⁶³ To be sure, there are those few global warming "contrarians" dismissing the threat, but before you place the future of your children in their hands, check out their affiliations with the fossil fuel industry.⁶⁴ When the U.N. report came out in February ending any debate on whether global warming existed,⁶⁵ the Exxon-funded American Enterprise Institute responded with an ad offering \$10,000 to any scientist who could refute it.⁶⁶ Let us think about a logical way to process these contrarian views. If several doctors diagnosed your child with life-threatening bacterial meningitis, you would likely not waste time going back to debate the germ theory of medicine with them. You would start the antibiotics and hope or pray for the best.

trarian" view has been marginalized by the worldwide scientific consensus on global warming. See Union of Concerned Scientists, Findings of the IPCC Fourth Assessment Report: Climate Change Science, http://www.ucsusa.org/global_warming/science/ipcc-highlights1.html (last revised Feb. 23, 2007).

⁶¹ INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: THE PHYSICAL BASIS, SUMMARY FOR POLICY MAKERS 5 (Feb. 5, 2007), available at <http://www.ipcc.ch/SPM2feb07.pdf> ("Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level."). This report, produced by IPCC Working Group I, is the first of three that comprise the full IPCC Fourth Assessment Report.

⁶² See A.P., *Report Outlines Global Warming's Effects*, *supra* note 23.

⁶³ Union of Concerned Scientists, The IPCC: Who Are They and Why Do Their Climate Reports Matter?, http://www.ucsusa.org/global_warming/science/the-ipcc.html (last revised Mar. 8, 2007).

⁶⁴ See Union of Concerned Scientists, *ExxonMobil's Tobacco-Like Disinformation Campaign on Global Warming Science*, http://www.ucsusa.org/global_warming/science/exxonmobil-smoke-mirrors-hot.html (last revised Feb. 12, 2007) (reporting that ExxonMobil has funneled nearly sixteen million dollars between 1998 and 2005 into a network of forty-five advocacy organizations seeking to confuse the public on global warming science).

⁶⁵ See Hotz, *supra* note 18 (summarizing the U.N. IPCC report, and concluding that "[r]esearchers are no longer debating whether human-induced global warming is genuine").

⁶⁶ Juliet Eilperin, *Climate Report Critics Offered Cash*, COLUMBIAN (Clark County, Wash.), Feb. 5, 2007, at A4; see also Kathleen Rest, *US Must Stop Ignoring Warming*, COLUMBIAN (Clark County, Wash.), Feb. 12, 2007 (discussing federal political interference with global warming science).

The urgent warnings coming from all branches of science are intended to focus society on reaching a decision, now.

III.

The global warming crisis, encompassing as it is, can be confronted by setting a firm national timeline for greenhouse gas reduction. You can think of this timeline as Nature's Carbon Mandate. Scientists have defined it very clearly. First, we must reverse the climbing trajectory of greenhouse gas emissions within the next decade.⁶⁷ Second, over the longer term, we must reduce emissions as much as eighty percent below 1990 levels by 2050.⁶⁸

These goals are quantitative, not progressive. Making progress towards meeting Nature's Mandate is not enough. This is carbon math, and falling short means risking a temperature rise of up to ten degrees. If Americans are to secure the future for themselves and their children, they must understand this carbon math as readily as they understand that four quarters equals a dollar.

We simply cannot meet Nature's Mandate without governmental leadership. The carbon problem transcends all societal sectors—in-

⁶⁷ See Hansen, *supra* note 7, at 16; see also *supra* note 51 and accompanying text.

⁶⁸ See TACKLING CLIMATE CHANGE, *supra* note 20, at 3; STERN REVIEW, *supra* note 1, Summary of Conclusions, at vii; Press Release, United Nations Framework Convention on Climate Change, UNFCCC Executive Secretary Calls for Speedy and Decisive International Action on Climate Change (Feb. 2, 2007) (summarizing the U.N. IPCC Report), available at <http://unfccc.int> (follow "Press" hyperlink; then follow "Press Releases" hyperlink; then follow hyperlink under 2 Feb 2007); see also Alan Zarembo, *Game Over on Global Warming?*, L.A. TIMES, Feb. 5, 2007.

Some individual states in the United States have set carbon reduction goals, but few outside of California have legislation to implement those goals. See 2006 Cal. Legis. Serv. 488 (codified at CAL. HEALTH & SAFETY CODE § 38,500, 38,550 (West 2006)) (mandating eighty percent reduction from 1990 level by 2050); Jon S. Corzine, Governor of N.J., Exec. Order No. 54 (Feb. 13, 2007) (mandating eighty percent greenhouse gas reduction below 2006 levels by 2050), available at <http://www.state.nj.us/governor/news/news/approved/20070213a.html>; GOVERNOR'S ADVISORY GROUP ON GLOBAL WARMING, OREGON STRATEGY FOR GREENHOUSE GAS REDUCTIONS, Executive Summary, at ii (2004), available at <http://oregon.gov/ENERGY/GBLWRM/docs/GWReport-Final.pdf> (detailing the goals of seventy-five percent reduction of greenhouse gas emissions below 1990 levels by 2050; arrest of growth of greenhouse gas emissions by 2010; ten percent reduction of emissions below 1990 levels by 2020). Some state goals, while seemingly ambitious, fall short. See Rachel La Corte, *Gregoire Signs Order on Climate-Change Goals for Washington*, ASSOCIATED PRESS, Feb. 8, 2007 (outlining Washington Governor Chris Gregoire's Executive Order setting a goal of only fifty percent reduction below 1990 levels by 2050). For a complete list of carbon emissions targets set by states and foreign countries, see Pew Center on Global Climate Change, Emissions Targets: United States, http://www.pewclimate.org/what_s_being_done/targets/index.cfm (last visited Apr. 27, 2007).

cluding transport, energy, housing, and industry. Government is the huge engine that propels our society. We have thousands of agencies—indeed more than any other nation in the world. They exist at the federal, state, and local levels. Collectively, these agencies hold immense expertise, authority, and staffing to solve environmental problems. If every one of these agencies made global warming a top priority, we might stand a chance of meeting Nature’s Mandate head on. But to implement programs necessary to reverse our carbon emissions within ten years, government has to start now. With respect to this need to act, Prime Minister Blair stated, “There is nothing more serious, more urgent, more demanding of leadership . . . in the global community.”⁶⁹

European countries are well on the way to reducing carbon emissions.⁷⁰ But, what is the U.S. government doing? It is driving the United States towards *runaway* greenhouse gas emissions. County commissioners are approving trophy home subdivisions as if global warming does not exist.⁷¹ State environmental agencies are approving air permits as if global warming does not exist.⁷² The U.S. Forest Service is delivering timber sales, as if global warming does not exist.⁷³ Magnify this trend by the hundreds of government actions taken on a daily basis across the country. And consider this: The electric power industry is racing to build more than 150 new coal-fired power plants across the United

⁶⁹ Simon Hooper, *Report Sets Climate Change Challenge*, CNN.COM, Oct. 30, 2006, <http://www.cnn.com/2006/WORLD/europe/10/30/climate.costs/index.html>.

⁷⁰ See EURACTIV.COM, *Parliament Wants 60–80% Less Greenhouse Gas Emissions by 2050*, <http://www.euractiv.com/en/sustainability/parliament-wants-60-80-greenhouse-gas-emissions-2050/article-148891> (Apr. 24, 2007) (describing the European Parliament’s goal of a sixty to eighty percent reduction in greenhouse gas emissions by 2050); see also STERN REVIEW, *supra* note 1, Summary of Conclusions, at viii; Richard Black, *New Law in the Climate Jungle*, BBC NEWS, Mar. 13, 2007, <http://news.bbc.co.uk/2/hi/science/nature/6445613.stm> (describing Britain’s proposed climate law).

⁷¹ Such decisions are made on a local basis. Information can generally be obtained by accessing minutes from proceedings of the county commissioners. Valley County, Idaho, provides an example of access to such information. Valley County Planning & Zoning, Meeting Minutes, http://www.co.valley.id.us/PZ_minutes.htm (last visited Apr. 27, 2007); see also Anne Wallace Allen, *EPA Comes to the Rescue of Town Overrun by Growth*, OREGONIAN, Dec. 25, 2005, at 1 (detailing EPA’s involvement in local growth management issues in McCall, Idaho).

⁷² See Idaho Dep’t of Env’tl. Quality, Public Info and Input: Public Comment Opportunities, <http://www.deq.idaho.gov/Applications/NewsApp/checkCommentCache.cfm> (last visited Apr. 16, 2007) (providing a list of Idaho’s pending air permits).

⁷³ See Matthew Daly, *New Forest Service Chief Gets Rough Treatment in Congress*, ASSOCIATED PRESS, Feb. 14, 2007 (detailing Forest Service plan to harvest up to 800 million board feet in Washington, Oregon, and Northern California in fiscal year 2008).

States.⁷⁴ The industry investment in these plants reflects an assumption that our U.S. Environmental Protection Agency (EPA) will grant permits under environmental statutes allowing them to spew forth “hundreds of millions of tons of carbon dioxide into the atmosphere each year for decades to come” as if global warming does not exist.⁷⁵ You see, nearly every agency in the United States is acting as if global warming does not exist.

Political will grows overnight when citizens demand action. But those Americans who *are* awake to this crisis are focusing their energy on reducing their own carbon footprint rather than holding their leaders accountable. Our voluntary efforts are vitally important, but they also conceal a state of national chaos. We will not come into compliance with Nature's Mandate in the very short time we have left through voluntary efforts alone. The fact that Americans are trying to solve global warming on their own tells us that we have lost our sense of governmental accountability in environmental issues. In the next section, I will suggest why our system of law, as currently framed by government, will not respond to the climate crisis. Then I will propose how the American public can reframe our environmental law to demand the regulation necessary to meet Nature's Mandate.

IV.

As we all know, to analyze a problem, we often need to go back to its roots. For the past three decades, we have looked to environmental law to address environmental problems. Environmental law consists of hundreds of statutes and regulations passed since the 1970s to protect our natural resources. Statutes give tremendous authority to officials at all levels of government to control just about any environmental harm.

But, before we turn to existing environmental laws to address global warming, we need to face one fact. Had environmental law worked, we would not have an ecological crisis on our hands. Environ-

⁷⁴ News Release, Nat'l Energy Tech. Lab., Department of Energy Tracks Resurgence of Coal-Fired Power Plants (Aug. 2, 2006), *available at* http://www.netl.doe.gov/publications/press/2006/06046-Coal-Fired_Power_Plants_Database.html (“Updated Database Shows 153 New Plants . . . Proposed by 2025.”).

⁷⁵ See Jeff Goodell, *Big Coal's Dirty Move*, ROLLING STONE, Jan. 25, 2007, *available at* <http://www.rollingstone.com/> (Search “Big Coal's Dirty Move” in “All”; then follow “National Affairs: Big Coal's Dirty Move” hyperlink). Several scientists have called for a ban on new coal-fired plants that cannot capture and store the carbon dioxide they emit. See Hotz, *supra* note 18; Juliet Eilperin, *Governors Agree on Emissions Plan*, REGISTER GUARD (Eugene, Or.), Feb. 27, 2007, at E3.

mental law delivered global warming and resource scarcity to our doorstep. Environmental law is crippled by enormous dysfunction, and if we fail to acknowledge this dysfunction, we will be looking for a solution in the same system that brought us this crisis.

The heart of the problem is this: While the purpose of every local, state, and federal environmental law is to protect natural resources, nearly every law also provides authority to the agencies to permit, in their *discretion*, the very pollution or land damage that the statutes were designed to prevent. Of course, the permit systems were never intended to subvert the goals of environmental statutes. But most agencies today spend nearly all of their resources to *permit*, rather than prohibit, environmental destruction. Essentially, our agencies have taken the discretion in the law and used it to destroy Nature, including its atmosphere.

Why would public servants who draw their salaries from the taxpayers do such a thing? It is because the call of private property rights is sounded in the halls of nearly every agency, nearly every day. Asphalt plant operators and chemical manufacturers, land developers and timber companies, automobile makers and coal-fired plant investors, and industrialists and individuals of all sorts call out to these agencies not to draw that regulatory line on their activity—because doing so would hurt their economic goals. This private property rights rhetoric has cowered officials at every level of government. Most officials are good, dedicated individuals, but as a group, they dread saying no to permits. So it is really no surprise that nearly every agency in America is still acting as if global warming did not exist.

Moreover, agencies have created so much complexity in their regulations, with meaningless acronyms and techno-jargon, that citizens are not speaking in the clear and forceful terms they need to in order to pose a counterweight to private property rights in this vast realm of agency discretion.

U.S. environmental law has created a thick veil of complexity behind which agencies serve private interests at the expense of the public. Our third branch of government—the judiciary—has been indifferent towards the politicization of agencies. Courts often defer to agency decisions on the false premise that agencies are neutral.⁷⁶ A compromised judicial check skews the Constitutional balance of power over the envi-

⁷⁶ *Massachusetts v. U.S. Evtl. Prot. Agency*, 415 F.3d 50, 58 (D. C. Cir. 2005) (holding that EPA has discretion not to regulate greenhouse gas emissions under the Clean Air Act (CAA)), *rev'd Massachusetts v. U.S. Evtl. Prot. Agency* No. 05-1120, 2007 U.S. Lexis 3785 (U.S. Apr. 2, 2007); *see infra* notes 77–79 and accompanying text.

ronment. Without that third branch of government fulfilling its function, our democracy becomes an administrative tyranny over Nature, with dangerous results for our future.

V.

You may be wondering how this subversion of environmental law could happen. The explanation lies in how government and industry have framed those laws. You can think of our environmental law, with all of its complicated statutes and regulations, as one big picture. The private property rights movement and agencies themselves have constructed a frame for that picture. The four sides of that frame are: discretion, discretion, discretion, and discretion—to allow damage to our natural resources. Though our statutes have aspirational goals of protecting our environment, when they are carried out through the discretion frame, these laws are used as tools to legalize damage to our resources. This usage is the source of species extinctions, air pollution, rivers running dry, dead zones in our oceans, toxic fish advisories, and global warming. Too much agency discretion can be a very dangerous thing.

Consider how our federal government is using this discretion frame to justify inaction in the face of climate crisis. EPA is the only federal agency charged by Congress to control air pollution.⁷⁷ Even though the Clean Air Act (CAA) provides EPA with the authority to regulate carbon dioxide,⁷⁸ EPA has steadfastly refused to do so.⁷⁹ Viewed through the frame that EPA has presented to the American public, the air is simply an object of regulation, a nebulous commons, and EPA can use its discretion to permit pollution by the oil, gas, coal, and automobile industries, despite the fact that this legalized pollution will degrade the at-

⁷⁷ See *infra* note 85; see also 42 U.S.C. § 7413 (2000) (describing federal enforcement powers).

⁷⁸ For example, the CAA states the following in section 202(a)(1): “The [EPA] shall . . . prescribe . . . standards [for] any air pollutant from . . . new motor vehicles . . . which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.” 42 U.S.C. § 7521(a)(1). In *Massachusetts v. EPA*, the Supreme Court found that this provision was “unambiguous” in giving EPA authority to regulate greenhouse gas emissions from new cars. No. 05-1120, 2007 U.S. LEXIS 2785, at *55.

⁷⁹ See generally *Massachusetts v. EPA*, 415 F.3d at 50 (reviewing EPA’s denial of petition to regulate greenhouse gases from new automobiles). The Supreme Court recently held, however, that EPA does not have “roving license to ignore the statutory text” of the CAA and must regulate greenhouse gas emissions if it finds that they endanger public health or welfare. *Massachusetts v. EPA*, No. 05-1120, 2007 U.S. LEXIS 3785, at *61 (citing 42 U.S.C. § 7521(a)(1)). The Court, however, simply remanded the process back to EPA. *Id.* at *65.

mosphere so much that it will no longer support human civilization as we know it.

Because the discretion frame never characterizes natural resources as quantified property assets, it allows government to damage the resources until they are all gone.

VI.

How do we turn these agencies around and convince agency officials to use all of their authority to meet Nature's Mandate? Or, put another way, how do we convince officials to do what they currently consider to be political suicide? The public has to find a new frame for our existing statutes. Reframing environmental law does not mean throwing out existing environmental statutes. Again, those statutes give us a tremendous bureaucracy that we can steer back on course. Reframing means taking control of the language we use to hold government accountable under those statutes. As author George Lakoff says, "Reframing is changing the way the public sees the world. It is changing what counts as common sense."⁸⁰ Social frames can be destructive and oppressive, or they can embolden and inspire.

When Dr. Martin Luther King, Jr. urged Americans to take down another destructive frame in our history, he called out for all citizens to recognize the "fierce urgency of now."⁸¹ Unbelievable as it may seem, the future of humanity rests on our generation being able to reframe government's obligation towards Nature.

VII.

We can reframe environmental law by looking to timeless principles that reach far back on this and other continents. Indeed, such principles have grounded Supreme Court jurisprudence since the beginning of this country, but our agencies have lost sight of them in the last thirty years. In just that short period, these principles have been

⁸⁰ GEORGE LAKOFF, DON'T THINK OF AN ELEPHANT! KNOW YOUR VALUES AND FRAME THE DEBATE, at xv (2004).

⁸¹ Dr. Martin Luther King, Jr., "I Have a Dream" Address at the March on Washington for Jobs and Freedom (Aug. 28, 1963), in *A CALL TO CONSCIENCE: THE LANDMARK SPEECHES OF DR. MARTIN LUTHER KING, JR.* 82 (Clayborne Carson & Kris Shephard eds., 2001) ("We have . . . come to this hallowed spot to remind America of the fierce urgency of now. This is no time . . . to engage in the luxury of cooling off or to take the tranquilizing drug of gradualism.").

suppressed by thousands of pages of complex statutes and regulations that have proliferated across the legal landscape like an invasive species.

These foundational principles are as crucial today in the face of global warming as they were two hundred years ago, because they clearly define government's responsibility towards Nature and towards future generations. They do so by drawing upon ancient trust concepts originating in property law, not statutory law.

A trust is a fundamental type of ownership whereby one manages property for the benefit of another.⁸² Long ago, the Supreme Court said that government, as the only enduring institution with control over human actions, is a trustee of Nature's resources.⁸³ What does this mean? You can imagine all of the resources essential to our human welfare and survival—including waters, wildlife, and air—as being packaged together in a legal endowment which I call Nature's Trust.⁸⁴ Our imperiled atmosphere is one of the assets in that trust. Government holds this great natural trust for all generations of citizens—past, present, and future.⁸⁵ We are all beneficiaries of this trust. Our great-grandparents were beneficiaries, and our great-grandchildren are beneficiaries, even though they are not yet born. We all hold a common property interest in Nature's Trust. You could think of this as Nature's treasure to be passed down through all generations of humankind.

With every trust there is a core duty of protection.⁸⁶ The trustee must defend the trust against injury.⁸⁷ Where it has been damaged, the

⁸² 90 C.J.S. *Trusts* § 6, at 129 (2002).

⁸³ Ill. Cent. R.R. Co. v. Illinois, 146 U.S. 387, 455 (1892) (“[T]he decisions are numerous which declare that such property is held by the State, by virtue of its sovereignty, in trust for the public.”); *Geer v. Connecticut*, 161 U.S. 519, 525–29 (1896) (detailing ancient and English common law principles of sovereign trust ownership of air, water, sea, shores, and wildlife and stating that “the power or control lodged in the State, resulting from this common ownership, is to be exercised, like all other powers of government, as a trust for the benefit of the people”). For sources and materials on the public trust doctrine, see JAN G. LAITOS, SANDRA B. ZELLMER, MARY C. WOOD, & DANIEL H. COLE, *NATURAL RESOURCES LAW* ch. 8.II, at 622–54 (2006).

⁸⁴ See Mary Christina Wood, *Nature's Trust: Reclaiming an Environmental Discourse*, 25 VA. ENVTL. L.J. (forthcoming spring 2007).

⁸⁵ See *Geer*, 161 U.S. at 534 (“[T]he ownership of the sovereign authority is in trust for all the people of the State, and hence by implication it is the duty of the legislature to enact such laws as will best preserve the subject of the trust and secure its beneficial use in the future to the people of the State.”) (quoting *Magner v. Illinois*, 1881 WL 10415 (Ill. Feb. 3, 1881)).

⁸⁶ 76 AM. JUR. 2D *Trusts* § 404, at 455 (2005) (“One of the fundamental common-law duties of a trustee is to preserve and maintain trust assets. A trustee has the right and duty to safeguard, preserve, or protect the trust assets and the safety of the principal.”).

⁸⁷ States, for example, have protected their air trust by bringing nuisance lawsuits against polluters. See, e.g., *Georgia v. Tenn. Copper Co.*, 206 U.S. 230, 237–38 (1907) (“This

trustee must restore the property in the trust.⁸⁸ Protecting our natural trust is more consequential than anything else government does. More consequential than jobs, health care, social security, education, or even defense, for this duty carries the weight not only of the present generation of citizens, but of all citizens to come.

It is not surprising that Nature's Trust principles were penned by judges long ago as the first environmental law of this nation.⁸⁹ This fundamental doctrine of governance reaches back literally, to Justinian times and Roman law.⁹⁰ On this continent it reaches back even further, as much as 10,000 years. The native nations managed natural resources to ensure their availability in the same abundance for beneficiaries in distant generations.⁹¹

This ancient strand of law threads together all of our modern environmental statutes. In the National Environmental Policy Act (NEPA), Congress declared a national duty to "fulfill the responsibilities of each generation as trustee of the environment for succeeding generations."⁹² When we invoke the trust to call upon government to protect our natural resources, we are not creating anything new.

Indeed, this sovereign trust over natural resources is so basic to governance that it is found in many other countries today. For example, in 1993, the Supreme Court of the Philippines invoked the trust to halt rainforest logging.⁹³ The Philippine government contended that it had complete discretion—remember discretion?—to allow private companies to cut the last 2.8% of remaining forest. Every government

is a [nuisance] suit by a state for an injury to it in its capacity of quasi-sovereign It is a fair and reasonable demand on the part of a sovereign that the air over its territory should not be polluted on a great scale . . . by the act of persons beyond its control"). California brought a nuisance suit against major automobile manufacturers for their contribution to global warming. *See generally* California v. Gen. Motors Corp., No. 3:06-CV-05755 (N.D. Cal. filed Sept. 20, 2006).

⁸⁸ See Mary Christina Wood, *Protecting the Wildlife Trust: A Reinterpretation of Section 7 of the Endangered Species Act*, 34 ENVTL. L. 605, 612–13 & n.27 (2004).

⁸⁹ See *Geer v. Connecticut*, 161 U.S. 519, 529 (1896); *Ill. Cent. R.R. Co. v. Illinois*, 146 U.S. 387, 393 (1892).

⁹⁰ Charles F. Wilkinson, *The Headwaters of the Public Trust: Some of the Traditional Doctrine*, 19 ENVTL. L. 425, 428–29 (1989).

⁹¹ See Mary Christina Wood, *The Politics of Abundance: Towards a Future of Tribal-State Relations*, 83 OR. L. REV. 1331, 1336 (2004).

⁹² 42 U.S.C. § 4331(b)(1) (2000). Federal pollution laws also designate sovereigns—federal, tribal and state governments—as trustees of natural resources for purposes of collecting natural resource damages. *See generally* Charles B. Anderson, *Damage to Natural Resources and the Costs of Restoration*, 72 TUL. L. REV. 417 (1997).

⁹³ *Oposa v. Factoran*, G.R. No. 101083 (July 30, 1993) (Phil.). This opinion is excerpted in LAITOS, ZELLMER, WOOD & COLE, *supra* note 83, at 441–44.

that is captured by special interests invokes the discretion frame because it conveniently and invisibly delivers the natural wealth of the nation to those interests. The Philippine Supreme Court enforced the peoples' trust and halted logging, stating:

[E]very generation has a responsibility to the next to preserve that . . . harmony [of Nature]

. . . .

. . . [The] right [to a balanced ecology] concerns nothing less than self-preservation and self-perpetuation[,] . . . the advancement of which may even be said to predate all governments and constitutions.

. . . [These principles] are assumed to exist from the inception of humankind.⁹⁴

In other words, the trust frame forces government to hand down the endowment to future generations and not give it away to private interests that happen to be knocking loudly at government's door this generation.

These trust principles are engrained in government itself. Back in 1892, the U.S. Supreme Court said: "The State can no more abdicate its trust over property in which the whole people are interested . . . than it can abdicate its police powers in the administration of government"⁹⁵ The national chaos over global warming today is a direct result of our government abdicating its trust over our atmosphere.

VIII.

Let us take a look at how the two frames I have described differ and their implications for humanity. In contrast to the discretion frame,

⁹⁴ *Oposa*, G.R. No. 101083, in LAITOS, ZELLMER, WOOD & COLE, *supra* note 83, at 443–44.

⁹⁵ Ill. Cent. R.R. Co. v. Illinois, 146 U.S. 387, 453 (1892). The Court also held: "Every legislature must, at the time of its existence, exercise the power of the State in the execution of the trust devolved upon it." *Id.* at 460. In addition, the Court discussed public water assets:

[T]he abdication of the general control of the State over [waterways] . . . is not consistent with the exercise of that trust which requires the government of the State to preserve such waters for the use of the public.

. . . .

. . . The ownership [of waterways] . . . is a subject of public concern to the whole people of the State. The trust with which they are held, therefore, is governmental and cannot be alienated

Id. at 452–55.

the four sides of the trust frame are: obligation, obligation, obligation, obligation. We can take the very same set of environmental laws, and without changing a word of them, reframe our government's role with respect to Nature on a policy, legal, and moral level. By reframing, we can turn the government's *discretion* to destroy Nature into an *obligation* to protect Nature. But this principle works in reverse as well. We can pass any new law we want, and no matter what it says, if it is pressed through the discretion frame, the government will continue to impoverish natural resources until our society can no longer sustain itself.

So how do citizens reframe their government's role towards Nature at this pivotal time? They must expand their political imprint and use new words. They must speak in clear terms to their public officials at all levels of government.

An example of this type of discourse took place in McCall, Idaho, early 2007. Citizens there took down the discretion frame and put up the trust frame to protect their airshed. The Idaho Department of Environmental Quality (DEQ) proposed to issue an air permit for an asphalt plant that spews so much pollution into neighborhoods that mothers pull their kids inside day after day.⁹⁶ This permit, delivered by the hand of environmental law, would legalize the emission of fifty-four toxins right into the mountain air including lead, mercury, chromium six, dioxin, arsenic, and formaldehyde.⁹⁷ If you read the DEQ analysis of this proposed permit, you would be hard-pressed to find any sort of statement that this pollution would damage the airshed or the people living there, much less contribute greenhouse gas emissions. Instead, the analysis is filled with charts and incomprehensible technical statements. The reader is hit in the face with AACs, AACCs, TAP analysis, T-RACT, HAPs, NESHAPs, SIP, MACT and more. Does the average citizen know what any of these terms mean? Amidst this gibberish, there is no core value driving governmental action.

⁹⁶ See IDAHO DEP'T OF ENVTL. QUALITY, AIR QUALITY: PERMIT TO CONSTRUCT, NO. P-060024 1, 4, available at http://www.deq.idaho.gov/air/permits_forms/pdfs/valley_paving_mccall_ptc_permit.pdf; IDAHO DEP'T OF ENVTL. QUALITY, PUBLIC HEARING RE: DOCKET NO. AQ-0624—PERMIT NO. P-060024, 26, 29, 30, 64–65 (2007); Jennifer Church, *Valley Paving Is a Nuisance, Should Not Receive Permit*, Letter to the Editor, STAR-NEWS (McCall, Idaho), Jan. 18, 2007, at A-4.

⁹⁷ See TRACY DROUIN, IDAHO DEP'T OF ENVTL. QUALITY, AIR QUALITY PERMITTING STATEMENT OF BASIS: PERMIT NO. P-060024, 19–21, 28–31 (2006), available at http://www.deq.idaho.gov/air/permits_forms/pdfs/valley_paving_mccall_ptc_statement.pdf.

There was a hearing in January 2007, to discuss this asphalt plant permit.⁹⁸ Normally, such hearings are filled with empty seats, and no wonder. But someone in McCall handed out flyers that said, quite simply, “Air for Sale,” and the hearing room was packed with angry citizens. These were people drawn together by a common airshed—doctors, school kids, cancer victims, retirees, ski team coaches, Forest Service employees, real estate brokers, teachers, mothers and fathers. When you translate the techno-jargon into “Air for Sale,” you replace the discretion frame with the trust frame. Citizens suddenly feel that their property is being trampled by their own government. They start thinking, “Hey, that’s my air, even if I share it with others.” Pollution of that air becomes an infringement on American property. The frame makes a difference. It expresses our core expectations of government towards Nature.

IX.

In this section, I would like to suggest how this trust frame helps in getting the American mind around the issue of global warming and, thus, how it becomes a coalescing force to confront climate crisis.

A.

The first point has to do with Americans’ feeling of entitlement towards Nature. The discretion frame, with all of its techno-jargon, gives no hint of environmental loss. The ARARs, TMDLs and TSDs, SIPs and HRSs, RPAs and PRPs, and the hundreds of other acronyms that our agencies use to hospice a dying planet really do not sound out any alarms to the public. These are neutral terms *because* they are incomprehensible. The public, then, is simply led to accept our degraded environment as a nebulous state of affairs. We never imagine that resources could be all spent down, all used up, or no longer there for us at some point in time. We seem unbothered even when our government leads us into global environmental catastrophe.

Yet, when we portray Nature as a trust rather than an ill-defined commons, we vest citizens with expectations of enduring property rights to a defined, bounded asset. Any loss of the trust becomes manifest. This frame resonates with and motivates the public because it taps

⁹⁸ See News Release, Idaho Dep’t of Env’t. Quality, DEQ Extends Comment Period on Proposed Air Permit to Construct for Valley Paving & Asphalt, McCall; Public Hearing Date Rescheduled (Dec. 14, 2006), *available at* http://www.deq.idaho.gov/Applications/NewsApp/check.NewsCache.cfm?news_id=1747.

into concepts that are familiar and important to Americans. Most people have heard of a trust. Kids know about college accounts. Adults know about retirement accounts. Americans are ferociously protective of their property rights. Once they understand they have a property right in something, they are inclined to protect it.

The trust frame has particular empowerment for youths, because it recognizes a property right of natural inheritance for the children of the world. It gives children an entitlement, as beneficiaries with no lesser standing than our own, to natural wealth, even though they are not yet old enough to exercise any voting power over their government. Children get angry when they think of our generation spending down a trust that they are entitled to take in the same abundance we have enjoyed.

B.

Second, when we invoke the trust frame to explain global warming, we may be better able to overcome denial. The cruel irony is that the most disastrous manifestations of global warming may not occur until after our window of opportunity to avert the crisis has closed. A daunting obstacle we must confront is that most citizens do not perceive global warming as an immediate threat. For many Americans, the predictions are so extreme—like an ice age⁹⁹—that they must seem like a science-fiction movie. Indeed, the more dire the environmental issue, the less likely it seems to be taken seriously in the United States. Many simply mock the messenger for spreading gloom. Global warming science is passed off as another doomsday scenario, and for some Americans that is all they need to hear in order not to take it seriously.

Without a sense of immediate loss, the public will not feel the urgency to demand government to take leadership in the short time frame we have left. Harvard professor Daniel Gilbert suggests that humans are hard-wired by evolution to ignore threats like global warming.¹⁰⁰ Humans evolved to respond to immediate threats, like enemies coming over the hillside.¹⁰¹

The discretion frame put forth by our government capitalizes on this mental weakness and lures people into complacency. People oper-

⁹⁹ See Peter N. Spotts, *Ice Age to Warming—And Back?*, CHRISTIAN SCIENCE MONITOR, Mar. 18, 2004, at 16.

¹⁰⁰ See, e.g., Daniel Gilbert, Op-Ed., *If Only Gay Sex Caused Global Warming: Why We're More Scared of Gay Marriage and Terrorism Than a Much Deadlier Threat*, L.A. TIMES, July 2, 2006, at M1.

¹⁰¹ See *id.*

ating within this frame think of air as “out there somewhere,” way beyond that hillside. But people’s perceptions change remarkably when they think of their trust being mismanaged. That is an immediate concern, even if the full effects will not be felt for years to come. Beneficiaries do not often sit idle when their trustee drains their trust. They hold their trustee accountable for the losses. And they worry about collapse scenarios. They understand stocks crashing. They understand a freewheeling grandfather spending down all of their rightful inheritance.

Recall the Philippines case mentioned earlier.¹⁰² The Philippine Supreme Court brought forth the reality of a depleted natural trust by speaking in familiar terms of inheritance. It said simply, “[T]he day would not be too far when all else would be lost [for] generations which stand to inherit nothing but parched earth incapable of sustaining life.”¹⁰³ There is no doomsday language there. This is about intergenerational theft. We all know what theft is.

C.

Third, by defining Nature in familiar property terms, the trust frame reconciles private property rights with environmental protection, which the discretion frame does not do. The discretion frame portrays environmental resources as nebulous features of the world in which we live. Private property rights carry the day in our agencies simply because they draw upon a language of property that is so deeply embedded in our national culture. To confront any environmental crisis today, including global warming, we have to be clear on how public resources and private property rights fit together in the scheme of things.

The trust frame is itself a property concept, so rather than pitting environment against property rights, you are fitting Nature into the system of property rights. The Nature’s Trust frame is not anti-property rights. To the contrary, it affirms our collective property rights in assets that support humanity.

Every U.S. Supreme Court case invoking the trust makes clear that the government cannot allow private property rights to damage crucial public resources.¹⁰⁴ In 1907, the Supreme Court said, “[T]he state has an interest independent of and behind the titles of its citizens, in all the

¹⁰² See *supra* Part VII.

¹⁰³ *Oposa v. Factoran*, G.R. No. 101083 (July 30, 1993) (Phil.), in LAITOS, ZELLMER, WOOD & COLE, *supra* note 83, at 444.

¹⁰⁴ See, e.g., *Ill. Cent. R.R. Co. v. Illinois*, 146 U.S. 387 (1892).

earth and air within its domain. It has the last word as to whether its mountains shall be stripped of their forests and its inhabitants shall breathe pure air.”¹⁰⁵ And in 1892 when private enterprise threatened the shoreline of Lake Michigan, the Supreme Court said, “It would not be listened to that the control and management of [Lake Michigan]—a subject of concern to the whole people of the state—should . . . be placed elsewhere than in the state itself.”¹⁰⁶ You can practically hear those same Justices saying today that “[i]t would not be listened to” that government would let our atmosphere be dangerously warmed in the name of individual, private property rights.¹⁰⁷

Let us not for a moment think that just because private interests will have to be regulated and certain industries phased out entirely, the trust frame is anti-private property. In securing our public property, the trust also anchors our entire system of private property rights. All private property depends on Nature’s infrastructure. When that infrastructure collapses, it causes natural disasters that make property boundaries irrelevant. Remember, private property deeds did not account for anything in the aftermath of Hurricane Katrina, and they will not account for anything along coastlines submerged by rising sea levels.

D.

Finally, the trust frame has global reach. This is important because global warming is, after all, a global problem. When we portray it to the American public, we must be able to explain the role of foreign nations. Many people have heard about the Kyoto Protocol. They know that China is bringing massive numbers of coal-fired plants on line.¹⁰⁸ When Americans are asked to make changes in their own lives, they often reply that it will not make a difference because global warming is an international issue.

The trust framework positions all nations of the world in a logical relationship towards Nature. Transboundary assets like the atmosphere are shared as property among sovereign nations of the world. These nations are co-tenant trustees of the asset. In other words, they are all trustees, but they share the resource as co-tenants, bound by the same

¹⁰⁵ *Georgia v. Tenn. Copper Co.*, 206 U.S. 230, 237 (1907).

¹⁰⁶ *Ill. Cent. R.R. Co.*, 146 U.S. at 455.

¹⁰⁷ The economic arguments militate against inaction. See STERN REVIEW, *supra* note 1, Summary of Conclusions, at vii–viii (“The costs of stabili[z]ing the climate are significant but manageable; delay would be dangerous and much more costly.”); *id.* at viii (“Climate change is the greatest market failure the world has ever seen . . .”).

¹⁰⁸ See Hotz, *supra* note 18.

fundamental duties that organize, for example, the relationship of family members who share ownership of a mountain cabin as co-tenants.¹⁰⁹ Property law offers timeless principles to deal with common ownership. It has always imposed a responsibility on co-tenants not to degrade, or waste, the common asset.¹¹⁰ This one concept lends definition to international responsibilities, whether we are talking about a shared fishery, an ocean, or the Earth's atmosphere.

Moreover, by embracing principles that are native to many other countries, the trust frame can be invoked by those citizens who are calling their own government to action. At a time when the world is so politically fractured, the trust frame offers hope that citizens across the entire planet can view Earth's resources in the same light and defend those resources in their many different languages, but with one voice.

CONCLUSION

If citizens seek a secure climate future for themselves and their children, they must call upon government to take immediate action. They must speak in clear terms through a powerful frame.

In *An Inconvenient Truth*, Al Gore presents climate crisis as a "moral and spiritual challenge" for our generation.¹¹¹ The trust frame is the obligation that springs from the heart of all humanity, pressed into the institution of government. The same trust principles that flow through a judge's pen can be preached from a pulpit or spoken as the last words from a grandmother to her grandchildren anywhere in the world, because the trust encompasses a moral obligation that transcends all governments, cultures, and peoples on Earth. And that obligation is not just an attribute of this frame—it has been its enduring power through all of time, and it will be its enduring hope for all time to come.

¹⁰⁹ For discussion of co-tenancy framework in natural resources such as a shared fishery, see Mary Christina Wood, *The Tribal Property Right to Wildlife Capital (Part 1): Applying Principles of Sovereignty to Protect Imperiled Wildlife Populations*, 37 IDAHO L. REV. 1, 86–101 (2000).

¹¹⁰ The term waste means "neglect or misconduct resulting in material damage to or loss of property." JOSEPH SINGER, PROPERTY LAW: RULES, POLICIES, AND PRACTICES 555 (4th ed. 2006). Waste is a spoil or destruction of "corporeal hereditaments." *Lytle v. Payette-Or. Slope Irrigation Dist.*, 152 P.2d 934, 939 (Or. 1944). The court held, "Ill husbandry, carried to such extent as materially injures the rights of the . . . reversioner, constitutes waste." *Id.* (citation omitted).

¹¹¹ See generally GORE, *supra* note 7, Introduction.

