

# ***Land Conservation in a Changing World***

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## **INTRODUCTION**

This book explores land conservation, its prehistoric and ancient origins, its emergence in the 19<sup>th</sup> century, its practice today, and its future in a rapidly changing world. The spark of consciousness behind this book flickered for me about sixty years ago in the village of Dannemora, in New York State's extreme northeast woods. Its population is 6,000 of whom half



Dannemora, NY, view to the east-southeast toward Lake Champlain

were and are inmates in Clinton Prison, the village's claim to fame. From the east-west main street through the village, one could not see to the south beyond the tired buildings lining the street on the south side, nor to the north where any view was blocked by the sixty-foot high, gray concrete perimeter wall, topped with guard towers at regular intervals. But from the hill behind the prison's north wall, where the

administrators' and doctors' fine large houses sat, one could peer over the north wall into the heart of the prison grounds. Lifting one's head slightly, one could see the Adirondacks' jagged silhouettes, and breaking the horizon, the cone of Whiteface Mountain, about 26 miles to the south, south-west.

As a thirteen-year-old Boy Scout, I knew my compass points. The prison psychiatrist had taken me on as his own science enrichment project, probably at my Dad's urging. He was the town's Methodist minister for five years in the late 1950's. The prison wall began a short walk from the parsonage. The doctor's fine 1920's house was one of several those above and to the west of the north wall. He showed me how to mount his large reflector telescope on a precisely-level concrete base and how to orient it precisely on a true north and south axis. We observed the moon, the planets, and the Pleiades – what the doctor saw in that smudge of light escaped me – and Whiteface Mountain to the south. He explained that a glacier, not a volcano as I'd



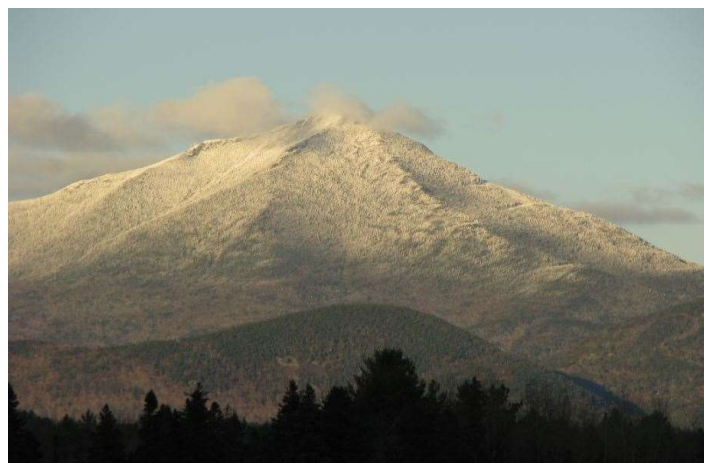
View west, Clinton Correctional Institute,  
Dannemora, NY, southeast corner

imagined, had sculpted the mountain out of some of the oldest rocks in North America. Originally, 12 billion years ago – he wrote out the nine zeroes for me, the first time I’d seen a number that large – Whiteface had been about six times as high as its approximately 5,000 feet – in other words, about the height of today’s Everest. But, the doctor explained, the two ranges are very different: the much younger Everest was a great

pile of compressed marine creatures pushed up from the sea, while Whiteface was forged of crystallized minerals, which had taken billions of years to wear down to its present height. All of this strained my understanding.

I soon tired of the astronomy; an academic paper on double stars that Doc wanted me to read left me dizzy with concepts and mathematical symbols far beyond my comprehension. Instead of the Doc’s science, what stuck with me was an image I couldn’t shake from my head. I imagined myself as a prisoner, longing to see that mountain over those high, bleak walls. I knew inmates could see the open sky from the prison grounds – the clouds and occasional jet contrails, the V-formations of geese in the spring and fall — but the high walls blocked views of the mountain. The prisoners must have known Whiteface was out there, but they were locked away from it, many for long, ruined lifetimes.

Almost daily, I saw the prisoners, mostly black men in their twenties, thirties, forties, fifties, some gray-stubbed and bent, being trucked south down the street past our parsonage, to work in shifts at the coal-fired power plant along the rail line. From the back of the prison’s heavy truck, in their baggy, gray uniforms, they called to me when they passed, and I felt both proud and exposed like strutting bird. One of my friends, whose father was a prison



Whiteface Mountain, near Lake Placid, NY,  
elevation 4,852 ft.

guard like most other men in the village, explained that the men in blue coveralls were called “trustees”, and could work on the prison farm or shovel coal in the power plant. I learned later that trustees working on the farm, which was nearly at the level of the big houses, could see Whiteface, but not the men I saw on their prison trucks. I also learned that even after 20 or 30 years in that isolated prison, having earned the privileges of trustees, one or two men would walk off the farm when their guards were otherwise occupied, and head into the woods and then generally south. I thought to myself, “They’re heading to Whiteface.” But we knew that mosquitoes and black flies were so bad in the woods that escapees never got farther than the railroad tracks which brought coal to the power plant. The guards and their dogs would simply stake out positions on tracks at both sides of the town and wait for the escapees to arrive with their hands up pleading to be taken back. About once a year, we’d hear that one or two “trustees” were on the loose; one of them made tracks in our vegetable garden; another was spotted by a high school kid I knew who saw a shadow under his father’s pickup truck in his driveway.

Although I did not hike nor ski Whiteface’s ski trails, nor ride the twisting auto road to its summit, that mountain formed my mental construct of wilderness and the awe-inspiring, rugged, inviolable, rough beauty that the Victorians called the sublime. Fortunately, my view of Whiteface was its north face, without the scars of ski trails and lifts. My mind would juxtapose its wild glacial cirques and its peak glinting above the tree line with the figures of those bulky, hearty, imprisoned black men in their heavy truck.

That was my first glimmering sense of the power of nature to move one to a deeper level of relationship with the natural world – the beginning of a personal environmental consciousness, if you will – and to a sense of the world’s injustice. I had been taught again and again that all races were equal in the sight of God, but sensed that the eyes of man often had a different view of equality. Even at 13, I had an uncomfortable sense of my own state of privilege in relation to those men, marked forever by their color even if their imprisonment were temporary.

A Senegalese forestry engineer addressed the 1968 New Delhi conference of the U.N. International Union for the Conservation of Nature about conservation. His words have been repeated many times since, especially resonating with environmental educators: “In the end, we will conserve only what we love; we will love only what we understand; and we will understand

only what we are taught.”<sup>1</sup> Still, learning often happens without teaching and love without understanding.

The issue of environmental consciousness and motivation is this book’s opening foray. What were the earliest examples of our ancestors setting aside land for future generations, and what were their motivations? Working through this question will require some speculation but doing so may get us closer to the heart of a movement that has engaged millions of people and protected a nearly unimaginable number of acres. Those accomplishments of the conservation movement may not approach the extent of political and military empires, but joined together, they would constitute a respectable country, if you will – a country of nature, human nature, and history.

### What is land conservation?

*We are but numbers, born to consume resources.*

Horace (B.C.E. 40), *Epistles*, Book 1, Epistle II, Line 27.

Let’s begin with some working definitions. Merriam-Webster defines **conservation** as “a careful preservation and protection of something; especially: planned management of a natural resource to prevent exploitation, destruction, or neglect.” The Google online dictionary is more helpful: the preservation, protection, or restoration of the natural environment, natural ecosystems, vegetation, and wildlife.” **Nature conservation** is the equivalent term in the United Kingdom. The modification we’ll use in this exploration is this: **Land conservation is the protection, stewardship, or restoration of land and landscapes, including water areas, to safeguard their natural and cultural values.** Note that, to encompass the breadth of today’s land conservation movement, I am broadening the dictionary definition to include protection of land for its cultural values, such as archeology, history and scenic interest and beauty. In this regard, I believe that all conservation, scientific as well as scenic, takes place because science, as well scenic beauty, archeology, and history are strong cultural values, very broadly, if not universally, held around the world.

This book considers land conservation in the broader context of environmental protection. Except tangentially, it is not about many other important topics within the fields of environmental protection and natural resource management. Important topics like pollution of

air and water, and contamination of land; urban and rural sprawl; land use and zoning, urban and regional planning, and smart growth are beyond our scope, except for tangential references. The work barely touches on the emerging and increasingly important subject of marine conservation. Land conservation includes conservation transactions, stewardship, and restoration that results in setting aside by ownership or easement (deeded conservation) or by other official designation; and caring for, specific land areas, large and small, for conservation purpose over the long term or forever. The technical aspects of climate change are generally beyond our scope, except that we shall explore the relevance of land conservation to climate change mitigation and adaptation, and the serious challenges that climate change poses to land conservation as a practice and a movement.

Examples of **deeded conservation** include playgrounds, urban or country parks, state and national parks, wildlife refuges, beaches, recreation areas, historic places, natural areas or reserves, wildlife sanctuaries and refuges; town, state, and national forests; rangeland reserves; protected agricultural land; greenways, greenbelts, and other protected open spaces.

Examples of officially **designated conservation** include wilderness, maritime reserves, wild and scenic rivers, heritage areas, national monuments, and English-style national parks, which differ in their basic concept from American national parks. National scenic trails are mostly in the deeded category; national recreation trails are in the designated category. Bureau of Land Management (BLM) lands, which are owned by the federal government, are generally outside our scope because some level of exploitation of both renewable (forests and rangelands) *and* non-renewable resources (oil, gas, and minerals) is the purpose of this form of federal ownership. On BLM lands, the major exceptions to the above are where special conservation designations, such as wilderness or national monuments on BLM lands, provide greater-than-usual protection.

This book is not about zoning and related land use regulations, except to clarify on the distinction between the status and effectiveness of zoning on the one hand and deeded or designated conservation on the other. However, we shall discuss the breakthrough approaches of zoning within New York State's Adirondack Park, the English national parks, and the State of Oregon's land use law as applied to reserved agricultural and forest land. Of course, many land use and environmental regulations recognize the mitigation of negative impacts by deeding or designating land for conservation as a form of compensation.

I'll avoid the term **land preservation**, except when referring to specific types of wilderness and natural habitats, because that term suggests that conserved lands should and always will be kept in their pristine natural form without human impact or alteration. That is an impossibly high standard – the hands and feet of humankind already have changed most of the world's landscapes to some extent, and nature itself changes the landscape in often unpredictable and drastic ways. Even if that standard would be desirable in practice – a seriously arguable proposition – it would be unattainable except when applied to very specific types and locations of land.

**Wilderness preservation** means strict limits on human use and activity within very large roadless areas usually owned by federal or state conservation agencies and officially designated as “wilderness,” usually following an extended public process. Even when wilderness is “preserved” some human uses are usually allowed, such as trails and primitive camping. Although the concept of wilderness in our world has been challenged by many, most trenchantly and controversially by leading environmental historian William Cronon, the designation and protection of wilderness areas, within which human uses are limited to hiking and primitive camping continues to be a priority for many organizations and people in the U.S.

**Historic preservation** in the US or **heritage preservation** in the UK seeks to preserve, conserve and protect buildings, objects, archeological sites, landscapes or other artifacts of historical or archeological significance. Often a site identified for “historic preservation” may have intrinsic natural values, such as habitat for plants and animal, and cultural values such as a structure or designed landscape associated with an historical event or person. Historic preservation is clearly a cultural project; but it seems self-evident that identification of a natural habitat for conservation or preservation is also, at its roots, a cultural project, even if its honest purpose is primarily to protect a natural habitat that is not aesthetically appealing to most people and that has little utility for recreation. In fact, this book strongly favors that perspective. Let me emphasize this concept: however clearly conservation may be justified by science or ethics, conservation, as well as science itself, is a cultural value, shared *both* by those who believe that nature has its own intrinsic value and by those who believe that nature's value is to support human pleasure, life, society, and culture. If our American culture and society did not value science, there would be no National Science Foundation grants, and little science in public

schools and colleges. If our culture did not value conservation, there would be little public support for public acquisition budgets, or for public grants to private organizations.

### Why does land conservation matter?

Land conservation may be the most popular expression of the broader environmental movement, and over the past 200+ years it has been one of the most effective, at least as measured by the acres of land protected. As of 2016, about 13 % (475,151 square miles) of the land area of the United States has been protected, most of this since the late 1800s. A much larger share of U.S. oceans within national jurisdiction, 41.1% or 1.36 million square miles, has been protected in some form recognized by the U.N. As of 2016, about 14.8% or 8.54 million square miles of the earth's land area (including inland waters) have been protected. About 12.7% of the ocean area within all national jurisdictions, but only 5.1% of the oceans outside national jurisdictions, are protected. *(Figure 1 below summarizes the 2016 data for protected terrestrial area (land and inland waters) in Canada, United States, and the United Kingdom (including England, Scotland, Wales, and Northern Ireland)).<sup>2</sup>*

	Protected areas, land and inland water	
	Square Miles	%
Canada	372,276	9.7
United States	475,151	13.0
United Kingdom	26,953	28.5
World	8,539,002	14.8

*Figure 1. Terrestrial Protected Areas: Canada, U.S., U.K., and World, 2016. % rounded. For source, see endnote 3.*

These are enormous, almost incomprehensible, amounts of protected land and water, representing impressive accomplishments by governments and non-governmental organizations, many of them with encouragement from the United Nations Environmental Program (UNEP) and the International Union for the Conservation of Nature. This success aside,

government at all levels and conservation organizations are far from protecting enough land in the right places to safeguard ecological processes and wildlife habitat and to provide recreational open space for the earth's human population. Doing so would help to ensure that nature can adjust to the inevitable climate changes ahead and that essential environmental services are available to the world of nature and people.<sup>3</sup> Even then, conservation would not have completed its work; millions of acres of already-protected land needs to be maintained and managed even as the world changes around them. A virtual army – or rather a loosely organized network of militias – of professionals and volunteers, public servants and ordinary citizens, are working to reach these goals every day. Numerous surveys show that the U.S. public overwhelmingly supports land conservation, especially to protect drinking water supplies and purity and to provide affordable recreational opportunities close to home<sup>4</sup>.

In the U.S., since the Presidency of Theodore Roosevelt, conservation has generally enjoyed bi-partisan support in Congress and in many state legislatures. Although that bi-partisan support may be wearing thin in the current poisonous political climate, people still want wildlife refuges and forests to provide habitat for a rich distribution of plants and animals. They want farms in their communities that will not be forced out of business by sprawling development and complaints about the noise and smell associated with agriculture; and they want to buy local food where they know the farmer and the practices used. They often would rather pay the farmer a higher price for fresh vegetables than the supermarket. They want rivers and streams, lakes, ponds, and beaches to be clean and available for swimming, surfing, fishing, and boating. They want large areas of woodland open and accessible for walking, hiking, climbing, and hunting. They want parks, trails. Above all they want plenty of clean water and infinite amounts of clean air.

In Massachusetts a working group of scientists and conservationists organized and coordinated by David R. Foster, Director of the Harvard Forest in Petersham, Massachusetts,<sup>5</sup> wants to see the five New England states conserve at least 70% of New England's land as forest and 7% of its land in farmland; a total of 77% of New England as protected forest and farmland. That is about 3 times the region's existing protected forestland and farmland.<sup>6</sup> Their colleague, E.O. Wilson, emeritus professor of entomology at Harvard University and one of the world's leading writer on biodiversity, writes that one-half the earth's surface must be conserved to ensure the protection of biodiversity. That's would be a little less than six times the present



amount of terrestrial conservation and more than 30 times the current amount of the ocean surface under protection.<sup>7</sup> Are these ambitious visions of what can be achieved, or are they wild fancies wafted from the ivory tower? In the course of this book, we'll return to these questions.

Despite deep origins, long history, and visible achievements of conservation on maps and on the ground, most people, including many working in the field, know little about its background: its origins, history, philosophy, ethics, scientific basis, objectives, practice, successes and failures, and the challenges it faces. Many, perhaps most, outside the movement are inclined to underrate its importance in combatting and adapting to climate change. Like motherhood and apple pie, open space is highly valued but often taken for granted – until the threat of losing a bit of greenspace becomes close and personal. Consequently, when debates rage between promoters of growth and development and defenders of nature and the services that nature provides, conservation battles are often lost because broad, latent support for conservation has not been mobilized sufficiently on the ground in the form of voters, taxpayers, and donors of time and money. Nevertheless, the political success of the conservation movement at all levels in the U.S. and worldwide since the mid-nineteenth century have been striking, even as the goals of conservation appear further out of reach and seriously threatened.

Modern land conservation has focused on two main concerns; both of which arose mainly in the 19<sup>th</sup> and early 20<sup>th</sup> centuries in response to the Industrial Revolution and its accompanying population growth and physical development of cities, towns, suburbs, and their accoutrements as well as the conversion of forest land to agriculture, the loss of wildlife habitat, the enclosure of common fields and spaces, and the loss of access to the countryside. One response has been the continuing effort to provide adequate park land and open space integral to regions, cities, towns, and villages. Another is the protection of the natural landscape outside settled communities, both for the protection of nature itself (including its biological diversity) and for recreation by people of all ages, backgrounds, and disabilities. A third, relatively recent, is the protection of agricultural land from incompatible development.

From the perspective of “countryside conservation,” in the U.K., landscape ecologist Bryn Green asks the fundamental question: “Why should the countryside be preserved?” He makes the case on the following grounds:

- Respect for ethical values from the Neolithic to Deep Ecology

- Aesthetic values related to pre-human animal behavior patterns in the landscape: the predator's prospect; the prey's refuge; the sense of hazard
- Cultural and scientific values
- Material benefits – renewable resources and the genetic storehouse of nature
- Ecological benefits – regulation of the life support system (including a mild reference by Bryn Green to its importance in the struggle against climate change).

Although Green is an ecologist, he concludes that the moral and aesthetic case for conservation is likely to be the most effective in motivating changes in human and social behavior.<sup>8</sup> On the “ecological balance,” he writes:

Man's technological capacity to bring about massive changes in the environment has overrun his ability to foresee, or even to accept, the impacts they make. The ecological case for conservation therefor is that if we do not control our disruption of the natural world and maintain a more hygienic<sup>9</sup> environment, then we may not have a world fit to live in. The exploration of space has added force to this argument. Space capsules which are complete self-regenerating ecosystems have proved very difficult to make, yet we now see very clearly that we live on one – the spaceship “Earth” – which works very well. It would be foolhardy to tamper with it too much.<sup>10</sup>

### **The scope of land conservation as a defender**

The scope of land conservation extends far beyond conserving nature in the rural countryside and in wild landscapes. It is essential to planning, building, renewing, and maintaining livable, healthy communities in all contexts, rural, suburban and urban. What, then, are the major concerns of land conservation, and the threats that land conservation attempts to deflect or overcome? There are too many threats to name in detail, but we can sort them into general categories, as follows:

1. Loss, degradation, loss of integrity, or fragmentation of forests, wetlands, prairies, meadows, dunes, deserts and other natural habitats and landscapes.
2. Loss, degradation, or fragmentation of working forests and agricultural land.

3. Continuing threats to our climate, that supports human life, and the natural world as we know it, that provides essential services to us as people and our economies and societies
4. Threats to property values and the economic vitality of communities through any of the above causes or from extreme precipitation, windstorms, floods, or long-term sea-level rise.
5. Threats to the health and safety of people, including the mismanagement or loss of parks and other greenspace that serve people and communities.
6. Loss, degradation, or misappropriation of cultural heritage and the cultural landscape, including archeological and historic sites, historic buildings, landmarks, garden, and scenic sites and landscapes.

The source of most of these threats is human action, ignorant, misguided, negligent, or rapacious; but some of these threats are from nature itself, such as extreme weather, floods or droughts, insect infestations, plant and animal diseases, and other changes in the ecological web. Increasingly, in many cases, the contributing (or fundamental) cause of many of these threats is climate change, which in turn has been and is being caused or intensified by human activity since the industrial revolution, aided by simple ignorance and willful ignorance, fear and greed, denial of the scientific consensus, and political paralysis in the face of established economic interests.

From this perspective, land conservation may seem like a crew of heroic first responders, always ready and on standby ready to leap to a crisis with a first aid kit and the right set of emergency measures. A “For Sale” sign goes up on a forest; a normal logging operation becomes a large, poorly managed clear cut; construction of a dam, highway, pipeline, high tension line, shopping center, industrial park or factory is announced with little advance warning or public discussion. There is little wonder that the response of a conservation group or coalition can seem inadequate.

From this perspective, the conservation and environmental movements will always be inadequate, a sometimes-powerful interest group, but often surprised, unprepared, internally at odds, without unified public support. This book will discuss what would need to change for conservation ever to regain the influence it had during the 7 ½ years of Theodore Roosevelt’s

Presidency, when nearly 300 million acres of federal land were designated as National Forests, National Monuments, Wildlife Refuges, and National Parks

### **The present state of land conservation**

Natural places and landscapes, outstanding in their beauty, scientific importance, and cultural significance, have been saved and legally protected by individual, family and social action aided by conservation organizations and local, state, or national governments friendly to conservation. Land conservation has become widely recognized as a vital, even indispensable, component of a healthy community. Its practice, it has become one of the necessary, continuing causes, although too often taken for granted, without which we could not live happy, healthy, or sane lives in this rapidly changing world.

I have listed the broad types of resources that conservation endeavors to defend against various threats. How well is conservation doing in addressing these issues? In some ways, it is doing very well, supported by taxpayers and hundreds of thousands of private donors, and many business, social, and political leaders; carried out by professionals in many disciplines; aided by volunteers, young and old, from all walks of life, and sometimes, although episodically and too often without skill, reaching out to diverse and often marginalized constituencies. Like plumbing, electrical work and many other modern services, conservation takes place largely behind the scenes and may be taken for granted until an iconic local landmark, favorite outdoor place, or entire neighborhood, community, or landscape becomes seriously threatened. Reports and scorecards are issued -- so many dollars spent, so many acres saved versus acres lost, so many habitats and parks restored, so many trees replanted, so many invasive plants eliminated for now, but few people see the process of conservation underway or grasp its long-term benefits. I want this book to give thousand of readers a real sense of how conservation works with nature, and in multiple landscapes; and how well it is reaching people and their communities.

On the other hand, land conservation may be losing the most important battles, including climate change, which may be the most existential threat, Especially where threatened landscapes and their ecologies are less charismatic, where market and political forces are too powerful, or where the ravages of climate change are approaching, or have reached, the point of no return. Examples include the overdrawn aquifers of the American West and other semi-arid landscapes; the spread of deserts; the permanent removal of tropical and boreal forests; the

death of vast expanses of coral reefs; the continuing loss of coastal environments and agricultural land; the loss of biodiversity; and the failure to address the conservation needs of disadvantaged communities, nations, and regions.

Meanwhile, community, state, and national budgets directed to conserving additional lands in a manner that would protect basic environmental systems and services are clearly inadequate to the task, as are relevant land use plans and regulations in both socialist and capitalist societies and those in between. This is not to say that the issues we're exploring in this book would be easily solved, even if national budgets were tripled or quadrupled overnight.

### A changing world

*The future ain't what it used to be.*

Yogi Berra, New York Yankees' catcher and manager (c. 1974)

Most of us long for a secure sense of stability and predictability; nevertheless, between birth and death there will certainly be change as we and our loved ones age and as younger



Rev. William Miller. Postcard image distributed by parishioners before October the millennial date, October 22, 1844.

generations follow. The pace of change in today's world seems to be speeding up, and the future offers scant reassurance of safety and security. In earlier times, people have experienced a similar sense of rapid change and the rumble of impending crisis. For example, on October 22, 1844, the Millerites, a group of deeply religious Protestant Christian believers, mostly farmers, in northern New York State climbed to their rooftops and other high places to pray while fervently awaiting the Second Coming. People saw that as Christ's literal return to earth to administer his judgment of humankind, as predicted by the Book of Daniel. Reverend William Miller, a veteran of the War of 1812 and a Baptist minister, with close reading of the Bible engraved in his mind, was overjoyed by

the immanence of his and his followers' long-awaited meetings with Christ, whose fiery angels would cleanse the earth. When the appointed day, October 22, 1844, came to its quite ordinary end, Miller's disappointed followers descended from their high hills, roofs and dormers onto familiar, stable ground, only to encounter derision, harassment, and even arson of their barns and churches. While few people today share the Millerites fervent desire for a Biblical apocalypse,<sup>11</sup> we understand, if we've accepted some basic science, that our climate is changing around us, though the date for an apocalyptic collapse if carbon emissions are not controlled over the next generation, remains uncertain. Conservationists and preservationists strive for the permanent protection of habitats, landscapes, land and cultural landmarks, but most of us sense that there is no literal permanence in the human or natural world.



Ascension Rock, near William Miller's farm, Hampton, NY, now a National Historic Site

The Millerites and other religious sects that flared in the so-called "burned over" area of the Northeast U.S. after the War of 1812 were responding to the social ferment, economic instability, and insecurity of life on hardscrabble farms in remote rural villages. Like today's rust belt and coal country, the "North Country" of the Northeast was a forgotten and depleted region at a time of rapid economic and social change, including the opening of the Erie Canal from the Hudson River west to Lake Erie, and the continual

migration of families west.<sup>12</sup> Today, we in the conservation movement are quite certain that our science-based response to climate change and its predicted consequences for the landscape and the environment is rational while that of the Millerites and similar groups was hysterical. But nearly half of our fellow Americans see us as the new Millerites, at least as doctrinaire and foolish as William Miller on his roof. Of course, we trust that our greater scientific understanding and technological sophistication and scientific understanding will provide more effective response to climate change than waiting on roofs and high places for the Second Coming. What I think many of us share with the climate deniers, if we're honest, is a similar feeling of helplessness in the face of rapid social and environmental change that seems to be tearing at our roots.

We see urban and rural sprawl chewing up forests and farms, but attempts to slow it, divert it, or prohibit it have generally failed, producing their own unintended consequences.<sup>13</sup> Demographers and statisticians predict continuing population growth in the U.S. and many sensible people believe the growing world population to be an unsustainable burden on the earth's environment. Climate scientists predict that global warming at current or accelerating rates will cause massive disruptions to the ecological web as well as our coastlines, landscapes, communities, and ways of life. And yet, many of our families, neighbors, friends, and business associates see the economy, job loss, international competition, immigrants, people of color, and gay marriage as much more immediate, and serious threats to their personal American dreams. In this context of widely divergent dreams and nightmares of the future, can conservation continue to maintain or increase its current strong levels of support from a broad spectrum of people in this country and around the globe?

By “changing world,” I also mean the sense that we have been crowding out nature, and the opposite, uncomfortable, eerie sense that nature is finally coming back, crowding in on *us*, in the form of small and large creatures from the wild, and more uncomfortably in the form of extremes of weather which seem to portend fundamental changes in the climate. In 40 B.C.E. Horace wrote in his *Epistles*, “Drive out nature with a pitchfork, yet she will always come back.”<sup>14</sup> We are surprised to see nature's return in the form of a full-grown moose loping through a shopping center, a black bear scrambling away from garbage cans in a back yard, or a Tom turkey harassing bare legged pedestrians on a busy university campus. People in Miami are nonplussed to see ocean water rising on downtown streets on clear days even without downpours or high tides as the cause.

### **Conservation's Less Exemplary Side**

Conservation's success and generally strong support over so many generations have masked a darker side. This has besmirched some of its past success, clouds its present credibility, limits its reach and ability to organize broad coalitions, and could blight its future in a majority-minority society. The association of conservation with episodes of serious injustice dates to the earliest large-scale governmental conservation in 11<sup>th</sup>- century England. Recently, Professor of Environmental Justice Dorceta E. Taylor's comprehensive, inclusive history, *The Rise of the American Conservation Movement*, documents many flagrant or sad episodes in a long,

embittering legacy of insensitivity, prejudice, discrimination, outright racism, and injustice. Taylor also lifts up the substantial, generally overlooked legacy of contributions to conservation by African-American, Asian, and Latino men and women and groups. Written from the perspective of an African-American geographer, Carolyn Finney's *Black Faces, White Spaces* is an incisive discussion of the ambiguous relationship of African Americans to a nature largely controlled by the white majority. For Finney, that legacy is rooted in the collective memory of the incomprehensible cruelty, brutality, and dehumanization of capture, enslavement, transportation, and separation from family. For African-Americans, the conservation legacy is fraught with these bitter collective memories and later marginalization by the movement's predominantly white leaders and predominantly white organizations.<sup>15</sup>

Our exploration will apply Taylor's and Finney's insights and will address the following questions. To what extent has conservation reflected and reinforced the usual ideology of exploitation of land and natural resources in the interest of material progress and physical development? To what extent in the U.S., among the most diverse and dynamic societies in the developed world, has the recurrent failure of conservation organizations fully to embrace and involve the people and communities they serve alienated potential supporters and weakened the movement? Are today's attempts by leading conservation groups explicitly to serve local communities, to attract broader constituencies, and to form effective partnerships with diverse groups and disadvantaged communities bringing the conservation movement to a stronger position in a complex and much more diverse country?

### **Growth, "Progress," and Conservation**

The greatest threats to the earth's environment, our way of life, and our future as humanity may be the following:

- Population growth beyond the carrying capacity of natural resources and the environment and beyond the limits of relatively democratic social organization;
- Physical and economic development that must accompany that growth and that in turn is generated by growth;
- Climate change, which is directly caused by the carbon emissions produced because of population growth and physical and economic development.



The 1960 world population was 3 billion people; it grew to 6 billion in 2000 and 7 billion in 2012. It is projected to reach almost 8 billion by 2025; and 9.3 billion by 2050, assuming *moderate* rates of growth. The charts in the Appendix show the relentless trend of world population since 1800 and projected growth to the year 2100. In addition, they show projected U.S. and U.K. growth to the years 2060 and 2039 respectively. Who among us can imagine the consequences of such growth to the world as we know it? The world population is growing at just over 1% per year, producing an additional 80 million people annually. Even the gradually decreasing birth rates will add almost 2.3 billion individuals to the world population between 2020 and 2100.<sup>16</sup>

Despite slow and declining rates of growth in most of the developed world, including the U.S., the U.K., Europe, and Japan, will produce major changes to natural landscapes and stresses on the earth's natural environment. Population growth inevitably increases the rate and amount of conversion of natural lands and agricultural lands to developed uses. At the same time, public needs and demands for well-located parkland, bike and walking trails, regional, state, and national parks – even wildlife refuges and “wilderness” – increase, while meeting those needs in growing communities becomes much more difficult and costlier.

It is not clear whether the density (people per acre) of large cities in the U.S. and Canada will increase dramatically, or whether medium-density metropolitan areas will spread even further beyond their core cities and eventually merge into vast megalopolitan agglomerations, like the 475-mile metropolitan band from Portsmouth, New Hampshire to Washington, D.C. Recent U.S. trends suggest that some metropolitan areas will increase their density, growing more concentrated in taller buildings, while others will continue to spread broadly, consuming vast areas of lightly developed and still-natural land.<sup>17</sup> In much of the U.S., the result will be continuing losses in forest land and biological diversity. Both patterns will have complex impacts on society and the environment. Climate scientists point to America's sprawling, low density urban/suburban pattern as a major generator of excess carbon emissions, principally because suburban commuters use greater amounts of fuel for automobiles. In the developing world where population growth remains high and planning and land use controls are even weaker than in the U.S., cities are sprawling inexorably, removing vast expanses of agricultural land, forest, and wetland; contaminating air, water, and soil; often in the path of known natural hazards, cataclysmic storms, floods, landslides, earthquakes, tornadoes. We have a sense of the human

consequences in the near tsunamis of human migrants. Moreover, we face consequences of unknown severity from the changing climate, rising sea level, disruption of ocean currents, and extinction of unknown numbers of species.

### **Malthus and the Club of Rome**

Writing in the early stages of the English Industrial Revolution, Thomas Malthus (1766-1834), the stern English cleric and early economist, predicted a world of extreme scarcity and starvation. He was certain that exponential increases in human population would inevitably outrun the earth's arithmetic capacity to produce more food. He thought world-wide famine and worse would come more quickly than they did in fact occur – though the Irish and European potato famine eleven years after his death came soon enough. Malthus underestimated the human ability to wrest more arable land from forests and “wasteland” and more productivity from each acre in cultivation. In our own time came the “Green Revolution” (1930-1960), based largely upon chemical fertilizer, plant breeding, and the mechanization of agriculture. The Malthusian view of human population as ultimately limited by food supply came to be seen as soundly disproved by history, although enough famines, epidemics, and wars in the 200 years since Malthus have contributed to a general pessimism about the fate of human society and humanity. Mainstream economists after Malthus showed that food shortages would tend to raise prices, which would unleash innovation that would almost always meet the demand for food, after a short period of adjustment during which the unlucky or disfavored would have to endure some unfortunate discomfort. Rising prices would increase employment, enabling many more people to avoid starvation. That virtuous cycle would almost always work out, if only government would refrain from interfering. In the case of other commodities necessary for life and prosperity, shortages would unleash innovation that would always reveal substitutes for diminishing land and natural resources.

In 1970, a group of physical, biological, and social scientists led by Donella and Dennis Meadows, at first based at the Massachusetts Institute of Technology, loaded an enormous amount of data on population, economics, and natural resources into the massive and miraculous, if clunky, computers of that time. Their result, published by the “Club of Rome,” an international think tank, in a slim book entitled *Limits to Growth* predicted impending and long-term shortages of critical natural resources, with dire results for humanity and the planet.<sup>18</sup>

Although attacked as “neo-Malthusian,” *Limits to Growth* reverberated widely among educated readers, though most mainstream economists remained supremely confident in the “invisible hand’s” ability to adjust to whatever eventual shortages of natural resources might develop.

As it turned out, the Club of Rome’s computers and analysts proved to be premature in their dating of predicted shortages, but the Club persisted, defending their methods, conceding that their data and programs were not perfect, and sounding ever more credible alarms. In retrospect, although their timing was off, their warnings of eventual human and environmental costs of continued population and economic growth seem remarkably prescient. *Limits to Growth* helped to build the scientific foundation for the concept of sustainability and became part of the intellectual foundation for the modern conservation and environmental movement.

### **Extinction, Biodiversity, and Conservation**

Since the nearly spontaneous appearance in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries of the Audubon Societies in the U.S. and similar organizations in the U.K., the prevention of extinction and the conservation of wildlife habitat have become the primary objective of a large share of the conservation movement. The story of land conservation in the second half of the 20<sup>th</sup> century is to a large extent the story of the increasing influence of ecological science and conservation biology and the accompanying concern for protecting biodiversity by protecting the habitats of threatened and endangered species, thus avoiding local extirpation and final extinction of species. For conservation, Audubon’s birds became the canaries in the coal mine.

In the 1970’s and 1980’s, The Nature Conservancy (TNC) became the American leader in this story, changing the fundamental direction of the conservation movement by raising the cause of biodiversity at least to the level of scenic preservation and the provision of parks and recreation areas to a growing population. In the process, The Nature Conservancy built natural heritage programs within state fish and wildlife agencies throughout the country. As the influence of conservation biology increased, the emphasis on conservation’s traditional roots in historic and scenic preservation decreased; though it remains a strong part of organizations in which the influence of Charles Eliot still resonates. We’ll explore the extent to which this transformation of the conservation movement has increased public understanding, awareness, and commitment. We’ll also address the following related questions. To what extent is the current American backlash against environmental regulation and public land ownership also a

strong reaction against the ecological message? Has the British experience been similar and what are its lessons? What challenges does apparently growing public resistance to environmental science pose to the future of land conservation?

### Climate Change and Conservation

The acceleration of population growth beginning in the early stages of the Agricultural and Industrial Revolution coincided with an improved food supply (the result of improvements in



Pogo, Walt Kelly

agricultural practices). The availability of fossil fuels – coal and coal gas, followed by petroleum and natural gas, enabled the Industrial Revolution, which provided employment, raised living standards, greatly enlarged the middle class, and provided greater class mobility. Burning fuels, other than hydrogen, consumes carbon and emits greenhouse gases, nitrogen oxide,

methane, and carbon dioxide which, as “greenhouse gases,” rise to the

stratosphere and have the effect of a heavy quilt wrapped around the planet. The resulting increase in emissions of greenhouse gases has corresponded closely with the average rise in temperature of the earth’s surface, both land and water. The early warning indicator is the level of carbon dioxide in the atmosphere, which is readily measured (even within glaciers and soils) and continually monitored. At the beginning of the Industrial Revolution, the concentration of CO<sup>2</sup> was 280 parts per million (ppm). In 2013, the CO<sup>2</sup> concentration as measured at Mauna Loa in Hawaii exceeded 400 ppm for the first time.<sup>19</sup> *(See Appendix 1-4 for a chart showing carbon levels over the past 400,000 years.)*

Many scientists warn that 400 ppm of CO<sup>2</sup> may be a tipping point for the earth’s environment, beyond which the climate may become unpredictably extreme in its effect and may cause irretrievable losses in the earth’s biological diversity. The earth blew past that tipping

point in 2016 as our planetary science experiment continues to set records.<sup>20</sup> As of June 15, 2018, as I draft this introduction, the CO<sup>2</sup> level at Mauna Loa observatory in Hawaii measured 410.97 ppm.<sup>21</sup> In general, dry regions may become even drier; damp regions may become wetter; hot regions hotter; weather patterns more extreme; oceans more acidic; Arctic and Antarctic ice inexorably melting; and sea levels rising more rapidly than predicted by climate models.

Climate change presents direct and indirect challenges to the conservation movement. It threatens to limit or even erase the significance of many areas protected at great cost, such as fragile habitats and coastal marshes. At the same time, the need for conservation groups and agencies to increase the amount of protected forest land and wetland is likely to increase; as will the need to educate people from all backgrounds about the need to conserve land, reduce fossil fuel use, recycle all manner of materials and waste, and minimize the amount of beef and lamb in diets – all of this without causing a serious backlash against the Big Brother aspects of a more highly regulated society. We had better start now, with young children.

It is also possible that, as the consequences of climate change become less abstract and distant, public alarm may serve to increase political support and governmental support for massive concrete-and-steel infrastructure to protect coastal cities, industrial areas, and military installations. Conservation initiatives may be left behind in the shuffle for funds. In the current political and economic context, how can the conservation movement raise its game to a higher level, increasing its effectiveness and influence? Exploring useful answers to this question is one of my main interests in writing this book.

### **The response of conservation to these challenges**

These are worldwide quandaries and global issues; in many ways like those faced or more often ignored by human civilizations over many thousands of years. Despite widespread popularity and success of conservation, especially over the past 120 years, its broad appeal

across ideologies and ethnicities and its growing national and international acceptance and support, land conservation remains primarily a loose collection of local and regional movements within, or on the edges of, the much larger and more comprehensive global environmental movement. While parks, greenways, and networks of trails, are widely accepted as a necessary part of healthy communities, and agricultural land protection within the urban fringe attracts broad support from city-dwellers (though generally not from economists), more extensive networks of protected open space are often seen as unnecessarily limiting economic growth and mainly benefiting elites. For that reason, local interests often oppose new national parks and national monuments as governmental “land grabs” that will kill jobs and stymie economic development, even though the designation of a site as a park or national monument, wilderness area, bio-reserve or the like often strengthens local economies, urban or rural. These battles are not new; Roosevelt’s National Monument declarations often angered local businessmen in the early 1900’s; the Cape Cod National Seashore designation by Congress and signed by President John F. Kennedy in 1961 also angered local landowners and businesses.

These battles take a heavy toll in expense and energy and result in longstanding resentment and polarization of the winners and losers, regardless of who are the “good guys.” As a result, support of protected status may erode over time and eventually threaten protection with a shift in local or national politics.

Perhaps the most important challenges facing the conservation movement comes back full circle to the basic weakness and variability of our environmental consciousness, our biophilia, to use E.O. Wilson’s term. Well-meaning, educated people who respond to nature and are concerned about conservation and climate change have many other competing interests and priorities. Aldo Leopold (1887-1949), the Wisconsin wildlife biologist-turned-environmental-ethicist, wrote succinctly and engagingly about the “land ethic.” For Leopold, that term meant a deep concern for and commitment to the ecological community as well as to the health of the land. He saw the land ethic as a stage in moral evolution, following concern for animals, children, slaves, and basic human justice. But the idea of justice for the environment and for future generations remains unfulfilled. I hope this book will focus attention on how the environmental imagination that has accomplished so much can be enriched, deepened, and applied to this question: how can we persuade others that something like E. O. Wilson’s “half a world” for conservation is in the same category of human needs as food, air, water, and health; as personal

and family comfort, security, and wealth? I hope that this book will energize a productive discussion of these fundamental questions and develop a broad-based commitment to move forward with a well-founded, well-supported strategy.

### **The breadth of this exploration**

I am interested in land conservation as an essential part of a dynamic web of disciplines and practices including geography, archaeology, anthropology, environmental history, environmental ethics, environmental economics, law, ecology and ecological restoration, conservation biology, socio-biology, sociology, education, public communication, and political science as well as non-profit organizational management and development – in no particular order and certainly not limited to these disciplines. I understand conservation as a usually reliable but often challenging way of thinking about, planning, acting, and evaluating our relationship – both positive and negative – to the natural world. I am interested in the pre-history and early history of conservation as the context of this interdisciplinary web, as a source of insight and lessons, and as a possible corrective to our habitual tendencies of thought or thoughtlessness.

What do I mean by “corrective?” Many who practice a complex discipline tend to become thoroughly wrapped up in its intricacy, the current state of its practice, and daily signs of its influence, importance, and future direction and growth. History, and some humility about our own apparently exceptional place in it, can help us see things from a broader perspective and to put our successes, failures, and prospects in a broader context. For example, understanding that broader context can help to inoculate us against the contagion of national exceptionalism – the assertion or faith that the country of our birth, and people like us, are fundamentally distinct from, and consequently better than, other people, countries or regions, or other stages in social evolution, in our intelligence, character, leadership, stability, generosity, and, possibly, divine guidance and protection. Of course, exceptionalism is a foolish, intoxicating form of self-deception characteristic of, but hardly unique to, North Americans.

Another example: while it is nice to know that Bostonians did some very good things first, like voluntarily taxing themselves to buy Boston Common as a common pasture, militia ground, gallows site and graveyard, it is a good corrective to bear in mind that ancient peoples in Europe, the Mideast, and Asia were also conscious of their reliance and effect upon nature. As a

result, they set aside sacred groves and sacred grounds to make things right with their gods as well as to provide sanctuary and water sources for themselves. Some of these groves and grounds still exist 5,000 years later. As environmental historian Thomas Wellock points out in Preserving the Nation (2007) American conservation stood on the shoulders of French, German, and British development of sustainable forestry, forest conservation, and the urban sanitation movement.<sup>22</sup> And, literally, American conservation stands on lands occupied and managed by Native American people for thousands of years before European “discovery” and settlement.

As we’ll explore in Chapter 1, thinking about nature and its appropriate use and stewardship by humanity reaches back more than 3,000 years – about a thousand generations – into the Classical and Biblical worlds and perhaps even further into Neolithic groups without written language and a legal structure, along with many examples of what we would now call sustainable practices. We can debate whether early farmers in the Nile Valley and Greece -- as well as colonial farmers in New England – practiced forms of conservation in a rigorous sense of the term; or whether ancient farmers who irrigated dry valleys by naturally storing flood waters, who terraced hillsides, and who rotated crops and allowed land to lie fallow on a strict schedule were practicing conservation in our sense of the term. Were early peoples simply pragmatic and skillful, intent on increasing yields from year to year and protecting their crops from all-too-frequent natural threats? Or did they have a sense of responsibility to nature and to future generations? What can we learn from ancient cultures as environmental stewards? Or is their main lesson that religious belief, human insight, an ethics of care, and good intentions often have little to do with minimizing human impacts on the natural environment?

Aldo Leopold (1887-1949) wrote in *Sand County Almanac*,

It is a century now since Darwin gave us the first glimpse of the origin of the species. We know not what was unknown to all the preceding caravan of generations: that men are only fellow-voyagers with other creatures in the odyssey of evolution. This new knowledge should have given us by this time a sense of kinship with fellow-creatures; a wish to live and let live; a sense of wonder over the magnitude and duration of the biotic enterprise.<sup>23</sup>

Although Leopold’s writing can seem deceptively homespun today, this statement of a “land ethic” remains fundamental to many of us in conservation and the



broader environmental movement. In part, that is because Leopold often used “land” as shorthand for the overall natural environment that supports us – air, water, land, plants and animals, everything. I offer this Leopold quote as an epigram for our exploration of land conservation:

Examine each question in terms of what is ethically and aesthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.<sup>24</sup>

### **The British model of conservation**

Part One draws heavily from the British traditions of “nature conservation” and “countryside conservation.” Across British society, people have exhibited a deeply rooted appreciation for the traditional pattern of settlement – self-contained, nucleated villages and towns, and a commitment to maintaining a clear distinction between settlement and countryside. Outside the large cities and metropolitan suburbs, the U.K. has avoided creating low-density residential and commercial sprawl with somewhat greater success than the U.S., especially within the large British national parks, which are quite different in concept and practice from the earlier, breakthrough American version. Although the U.K.’s average population density is much greater than in the U.S. (650 people per square mile in the U.K., compared to 84 people per square mile in the U.S.<sup>25</sup>) a traveler in the U.K., beyond the metropolitan sprawl of London and other large cities, has a much greater sense of a cared-for landscape than in the U.S.

With its own awful exceptions, such as that pervasively gray sprawl around major cities, the U.K. generally has avoided the vast, almost featureless, megalopolitan sprawl we see from Boston to Washington, outside Atlanta, or surrounding San Francisco, Los Angeles, Las Vegas, and in too many other parts of the country. As a result, people in the U.K. generally have better access to the natural and working countryside than in the US, and the countryside is less marred with roadside billboards, mini-malls, and endless sprawl.<sup>26</sup> In the U.K. countryside, people generally have the ancient right to walk on remnants of the ancestral network of footpaths – though enclosure and privatization have constricted that network and, in some places erased it.

These trails or paths often don't skirt but pass through active pastures and commons among sheep and cows – an incursion that American farmers would find abhorrent and modern British farmers have been unable to relegate to history. The public footpaths are shown on the British Ordinance Maps, equivalent to the U.S.G.S Topographic Maps in the U.S. In addition, since 2005 when the Countryside and Rights of Way Act (enacted in 2000) became effective after extensive and detailed mapping was completed, the public has enjoyed a general "Right to Roam" (mainly on foot or on mobility-assist devices) on 3.4 million acres of privately-owned mountain, moor, heath, and down land and registered commons in England and Wales. On that land, the liability of private landowners is limited. Scotland has enacted similar provisions.<sup>27</sup>

As in the U.S., political and ideological differences in Britain over zoning and environmental regulation are frequent, but usually the political parties have joined in supporting measures to retain the traditional pattern of settlement, support agriculture as a priority land use for a highly settled, small county, and to protect public access to beaches and the countryside.<sup>28</sup> In view of our shared history and values over 300 years, do the British and American versions of conservation continue to offer lessons of value for each other?

***How this exploration is organized (though the route and destination may be revised without notice along the way)***

Part One explores the origins, history and philosophy of conservation, beginning with the earliest evidence of environmental consciousness and reaching to the modern land conservation movement in the 19<sup>th</sup> and early 20<sup>th</sup> centuries. The historical focus is primarily the U.S. and the U.K., ending a generation after the founding in 1891 of The Trustees of Public Reservations in Massachusetts, perhaps the first *regional* land conservation organization anywhere, and four years later, the founding in 1895 of the National Trust for Places of Historic Interest or Natural Beauty, serving England, Wales, and Ireland.

In Part Two the emphasis shifts from history to the development, organization, and increasing sophistication of the land conservation movement in the 20<sup>th</sup> century and the roller-coaster of our present 21<sup>st</sup> century, with greatest attention to the practice of land conservation by today's conservation organizations and some of the movements most interesting outliers. Part Two will end with two chapters with a quite different focus. The penultimate chapter will explore international land conservation, largely conducted by sophisticated NGOs reaching out

to rapidly developing Asian countries and the Third World. The final chapter will focus on stories of indigenous conservation around the world as local people, usually with little outside help or support, defend what is left of their communities, cultures, and sacred spaces from powerful forces of modernism, globalization, capitalism, and autocracy.

The Conclusion will look ahead at critical issues facing land conservation as a loose collection of national and international movements in this changing world, especially in the context of climate change. It will summarize the state of conservation in the developing world, and the relationship of conservation to indigenous communities in both developing and developed countries. It will address the relationship of land conservation to climate change, both as a mitigating factor and a means of adapting to the damaging effects of climate change on fragile habitats; and it will pose some difficult questions about the future of land conservation. For example, it will ask whether the continuing lack of racial and ethnic diversity in the U.S. conservation movement will weaken it politically and economically as the population becomes inexorably more diverse. It will ask whether the slow and inadequate national and international response to climate change, and the recent backsliding of the U.S., Australia, China, Brazil and many other countries will relegate land conservation to the fringe of public concerns; or whether conservation or an as-yet apparent offshoot will arise to defend against what Bill McKibben has called “the end of nature.” I hope these questions will provoke discussion and some trenchant and timely answers. Along the way, the Conclusion will offer practical suggestions for meeting conservation’s major challenges and generally strengthening the conservation movement both nationally, internationally, and in beleaguered local communities.

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## Endnotes

<sup>1</sup> Baba Dioum (1968). [https://en.wikipedia.org/wiki/Baba\\_Dioum#CITEREFUwechue1991](https://en.wikipedia.org/wiki/Baba_Dioum#CITEREFUwechue1991). Retrieved, 10-19-2017. Baba Dioum was born in 1937.

<sup>2</sup> For data by country, see <https://www.protectedplanet.net/c/unep-regions>. Retrieved 8/18/2017. For global data, see UNEP-WCMC and IUCN (2016), *Protected Planet: The World Database on Protected Areas (WDPA)*. Global Update 2016. <https://protectedplanet.net/c/protected-planet-report-2016/december-2016--global-update>. Retrieved 8-18-2017

<sup>3</sup> For this view, see Edward O. Wilson (2017), *Half-Earth: Our Planet's Fight for Life* (New York: Liveright), notably Chapter 17, "The Awakening", 169-173.

<sup>4</sup> See Pennsylvania Land Trust Association and ConservationTools.org (2017), "National Poll Results: How Americans View Conservation." [http://conservationtools-Reproduction.s3.amazonaws.com/library\\_item\\_files/1207/1573/CT\\_PollResults170801.pdf?AWSAccessKeyId=AKIAI QFJLILYGVDR4AMQ&Expires=1503120477&Signature=pzyQHJzKK5TYJDGIlGtE23iQtTM%3D](http://conservationtools-Reproduction.s3.amazonaws.com/library_item_files/1207/1573/CT_PollResults170801.pdf?AWSAccessKeyId=AKIAI QFJLILYGVDR4AMQ&Expires=1503120477&Signature=pzyQHJzKK5TYJDGIlGtE23iQtTM%3D). Retrieved 8-18-2017

<sup>5</sup> Foster is also Senior Lecturer in Biology at Harvard University (Department of Organismic and Evolutionary Biology).

<sup>6</sup> David Foster, Kathleen Follen Lambert, David Kittredge, et al. (2017), *Wildlands and Woodlands; Farmlands and Communities* (Petersham, Massachusetts: Harvard Forest, Harvard University), 2; 21-22. That total is in addition to protected non-forested wetland and beaches. It would require an end to the current pattern of sprawling development (which has been greatly reduced in recent years).

<sup>7</sup> Edward O. Wilson (2016), 182.

<sup>8</sup> Bryn Green (1996), *Countryside Conservation*, Third Edition (London: E & FN Spon), 72-91.

<sup>9</sup> Green's use of the word "hygienic" seems fusty; it only confirms that the British and Americans persist in their separate versions of the shared language.

<sup>10</sup> Green, *ibid.* 89.

<sup>11</sup> The splintering of the Millerites after the Great Disappointment led to the founding of the Advent Christian and the Seventh Day Adventist denominations, which thrive today. The belief in a Second Coming was borrowed by the Bahai faith.

<sup>12</sup> See David M. Ludlum (1939), *Social Ferment in Vermont, 1791-1850* (New York: Columbia University Press) and Michael Barkun (1986), *Crucible of the Millennium: The Burned-Over District of New York in the 1840's* (Syracuse: Syracuse University Press).

<sup>13</sup> Oregon is the only state that has imposed strict urban growth boundaries around its large and small cities. The primary purpose is to protect agricultural and forest land from sprawl. This was part of the "Quiet Revolution in Land Use" of the 1970's, which took different forms in several states. The result in Portland, Oregon's largest city, with a population slightly larger than Boston's, is to increase housing density in the central city and the surrounding smaller cities. Although this policy remains controversial, more than half of voters have defended it from attack.

<sup>14</sup> Horace (40 B.C.E.), *Epistles*, Book 1, Epistle X, Line 24.

<sup>15</sup> Dorceta E. Taylor (2016), *The Rise of the American Conservation Movement: Power, Privilege, and Environmental Protection* (Durham: Duke University Press). Taylor is Professor of Environmental Justice at the University of Michigan. Carolyn Finney (2014), *Black Faces, White Spaces: Reimagining the Relationship of African Americans to the Great Outdoors* (Chapel Hill: University of North Carolina. Finney, now Assistant Professor at the University of Kentucky was formerly an Assistant Professor at the University of California, Berkeley.

<sup>16</sup> See *World Population Projections*. U.S. Census, International Data Base; World Population: 1950-2050. <https://www.census.gov/population/international/data/idb/worldpopgraph.php>. Retrieved 8-19-2017.

<sup>17</sup> See William H. Fey (2016), "Mid-decade; big-city growth continues." *The Avenue*, Brookings, May 23, 2016. <https://www.brookings.edu/blog/the-avenue/2016/05/23/mid-decade-big-city-growth-continues/>. Retrieved 8-19-2017.

<sup>18</sup> Donella H. Meadows, Dennis L. Meadows, et al. (1972), *The Limits to Growth*. The Club of Rome (New York: Signet Books).

<sup>19</sup> "CO2 at NOAA's Mauna Loa Observatory reaches new milestone: Tops 400 ppm." Global Monitoring Division – Earth Systems Research Laboratory – Global Monitoring Division. May 10, 2013. Retrieved 8-20-2017. <https://www.esrl.noaa.gov/gmd/news/7074.html>. Also <https://climate.nasa.gov/vital-signs/carbon-dioxide/>

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<sup>20</sup> Nicola Jones (2018), “How the World Passed a Carbon Threshold and Why it Matters.” *Environment* 360, January 26, 2017. <https://e360.yale.edu/features/how-the-world-passed-a-carbon-threshold-400ppm-and-why-it-matters>. Retrieved 6-16-2018.

<sup>21</sup> <https://www.co2.earth/daily-co2>. Retrieved, June 16, 2018.

<sup>22</sup> Thomas R. Wellock (2007), *Preserving the Nations: The Conservation and Environmental Movements* (Wheeling, ILL: Harlan Davidson, Inc), 16-17.

<sup>23</sup> Aldo Leopold (1949) “Sketches Here and There: On a Monument to the Pigeon” in *A Sand County Almanac* (New York: Oxford University Press), 109.

<sup>24</sup> Aldo Leopold (1949), “The Land Ethic” in *Ibid.*, 224-225.

<sup>25</sup> <https://www.infoplease.com/world/population-statistics/population-density-square-mile-countries>. Retrieved 8-19-2017.

<sup>26</sup> On the other hand, Britain has lost much of its natural wetlands and coastal marshes, impoverishing its biological diversity.

<sup>27</sup> See Marion Shoard (1999), *A Right to Roam: Should We Open Up Britain’s Countryside* (Oxford: Oxford University Press). The campaign that Shoard describe culminated in the Countryside and Rights of Way Act of 2000. For the major provisions of the Act, see <https://www.gov.uk/right-of-way-open-access-land/use-your-right-to-roam> and Ramblers Association, “The “Right to Roam” in England and Wales”, <file:///C:/Users/Wesley/Downloads/AccessFactSheet-FS8.pdf>. Websites retrieved 12-31-2017.

<sup>28</sup> However, Conservative governments have generally tried to loosen regulations to allow “markets” more freedom to allocate land use. Nevertheless, the long-standing Tory attachment to the British countryside has been a check on free-market reforms and attempts by landowners to limit traditional public access.

## Image Sources

Page 1      Clinton Correctional Institution, Dannemora, New York:  
<http://s1.ibtimes.com/sites/www.ibtimes.com/files/styles/lg/public/2015/06/06/clinton-prison.jpg>. Note: as I recall from my latest visit in approximately 2005, the old-style tower shown on this photo indicates that it was taken in the early 1960’s, not in 2015. My recollection is confirmed by similar photos in the media, following the 2015 prison escape, that show square-shaped, modern towers.

Page 2      View of Dannemora to the east-southeast. Town of Dannemora, credit: Zachary Babble. [www.nnyacqs.com/town-of-dannemora.html](http://www.nnyacqs.com/town-of-dannemora.html)

View of Whiteface Mountain. Wikipedia Commons.

Page 13      William Miller preaching. Adventist Archives.  
<http://www.adventistreview.org/church-news/great-disappointment-remembered-170-years-on>.

Page 14      Ascension Rock, Hampton, New York.  
Adventist Archive <http://www.adventistreview.org/church-news/great-disappointment-remembered-170-years-on>.

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Page 19      Pogo Cartoon by Walt Kelly. Source: Pinterest.  
<https://www.pinterest.co.uk/pin/165718461258147608/?lp=true>

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