

WILDERNESS: THE HISTORY, SIGNIFICANCE AND PROMISE OF AN
AMERICAN VALUE

A Dissertation

by

DAVID GRAHAM HENDERSON

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2008

Major Subject: Philosophy

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Chair of Committee,	John J. McDermott
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ABSTRACT

Wilderness: The History, Significance and Promise of an American Value.

(August 2008)

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Wilderness has been a central value in the development of the American environmental tradition and has been established in our laws and institutions, first in the National Park System and then more extensively through the Wilderness Act. Some have suggested that valuing wilderness, understood as nature without people or culture, is a peculiarly modern sentiment and that it is internally inconsistent, pathological, and a hindrance to solving real environmental problems. Contrary to this approach, I defend a richer conception of wilderness that undermines each of these claims. Beginning with an etymology of wilderness and a history of the development of wilderness appreciation, I argue that wilderness is not essentially an absence of people or culture but the flourishing of natural purposes: land characterized by untamed animals and plants in untamed relations. This interpretation of wilderness allows for a more cogent reading of the wilderness preservation tradition and the Wilderness Act. It also elucidates philosophical difficulties surrounding the practices of wilderness management and ecological restoration.

DEDICATION

To Gavin and Mackenzie.

ACKNOWLEDGEMENTS

I owe much to the Professors on my committee: John J. McDermott, Gary Varner, Amanda Stronza and Ted George. They have been more than generous in loading me down with more relevant books than I could possibly read. I have studied with each of them, but Amanda Stronza's course on protected lands served as the genesis for my thinking on many of the issues herein. Foremost among the committee is my mentor John J. McDermott, who has been not only teacher to me, but also employer, watcher, spiritual adviser, family and friend. I am also indebted to Professor Lee Fitzgerald and his students in the herpetology lab for training me in the naturalist's science and including me in so much field work.

My wife, Anna, has been gracious and generous in protecting my time and space for writing this dissertation. She has even been appropriately exhortative at times. I am deeply grateful for her love and support.

TABLE OF CONTENTS

	Page
CHAPTER	
I INTRODUCTION.....	1
II APPRECIATION AND ANTIPATHY	6
III THE NATURALISTS' DEPOSIT	42
IV FLOURISHING NATURAL PURPOSE.....	71
V MANAGEMENT AND RESTORATION.....	106
VI CONCLUSION	138
BIBLIOGRAPHY	141
VITA	147

CHAPTER I
INTRODUCTION

I wish to speak a word for Nature, for absolute freedom and wildness ...
Henry David Thoreau¹

Wilderness has a deep significance in the self-understanding of North America. Its mythopoetic richness is coupled with a deep ambivalence as to its meaning. On the one hand, it is the chaos, the howling waste, which is conquered by the pioneer and the lawman to bring order and civilization, the void out of which our forefathers created something new on the face of the earth: a free nation. On the other hand, it is sacred and holy, God's creation undefiled by the works of fallen humanity. Our mountain wildernesses are our American cathedrals, the monuments which best define our character. Perhaps it is to the wilderness that we owe our rugged, can-do spirit. Somehow we manage to hold a deep affection both for the wilderness and for the effort by which it is destroyed.

This ambivalence towards wilderness, while uniquely significant in North American culture, did not originate with us. It can be found in the very oldest bequests of civilization, as witness this passage from the *Epic of Gilgamesh*, where Gilgamesh first enters the forest:

They stood in awe at the foot

This dissertation follows the style of *The Chicago Manual of Style*.

¹ "Walking," 31.

Of the green mountain. Pleasure
Seemed to grow from fear for Gilgamesh.
As when one comes upon a path in woods
Unvisited by men, one is drawn near
The lost and undiscovered in himself;
He was revitalized by danger.²

People have always found delight and fear mixed in the inhospitable beauty of the wilderness. Evident also in the tale of *Gilgamesh*, in its portrayal of deforestation, is the awareness of the human ability to destroy the wilderness and so to bring environmental crises down upon our own heads.

The contemporary environmental movement represents a concerted effort to restrain this ability and to save some wild nature. It has roots in several rich traditions, philosophical and religious, of thinking about nature's value and its relationship to humanity. Similar movements have grown in other regions of the world with interesting affinities and differences to that in North America. I am not unaware of this; indeed I borrow heavily from a philosopher in the Australian tradition. But for reasons of space and familiarity, I focus on the North American tradition of wilderness preservation. Of course this entails considering many developments of Western civilization generally but always with an eye to their significance for understanding the American scene.

The seminal scholar in studies of the American wilderness tradition, as such, is Roderick Nash with his 1967 *Wilderness and the American Mind*. I disagree with Nash

² quoted in Oelschlaeger, *The Idea of Wilderness*, 39.

on many issues and use him as a foil frequently in this dissertation, but I have the greatest respect and gratitude for him and his work. I could not have come to the understanding I have without having first read Nash. His thorough presentation of the original sources always far outstrips what is required to support the interpretation offered, however strong. I can only hope to become as fair a scholar.

In its critical aspect, this dissertation is written against two ideas, which are presently in vogue: the idea that wilderness appreciation is something novel, a peculiarity of our age, and the notion that this is an unhelpful, misanthropic pathology. The first is advanced by Nash and is associated with the claim that wilderness appreciation did not grow out of actual experience of wildernesses but from the romantic discontent with industrial urbanization. Examples of wilderness antipathy are quoted in ancient sources, along with odes of praise for the pastoral, and the suggestion is that these represent the natural extent of human sentiment for nature. But it is not hard to tell a different story with different sources. Examples of wilderness appreciation and antipathy abound throughout history, often in the same places, as I have suggested above with the Gilgamesh example. The contemporary devotion to wilderness does have novel aspects but is not entirely new. Neither is it without feet in authentic wilderness experience. The relevant sources for this sort of experience are not usually found among the conquering pioneers, however, who usually tended to antipathy, but among the explorer scientists and the naturalists. They, unlike the pioneers, came to the wilderness not with a pre-scripted adversarial project but in open inquiry. And the naturalists, I claim, have been and continue to be a major and underappreciated source of wilderness

appreciation. They even inform the romantic poets, who have been much maligned as an inauthentic source for wilderness appreciation. Note, for instance, that Wordsworth and Coleridge were apparently close readers of the American naturalist, William Bartram.³

The second target of my critique, the idea that wilderness appreciation is a decidedly unhelpful and problematic way of approaching environmental issues, is of more recent coinage. Proponents argue that to call North America before European settlement a wilderness is simply to deny humanity and culture to the Native Americans. Valuing landscapes for their pristine, uninhabited character is a denial mechanism for dealing with the guilt of having wiped out the former inhabitants. And by holding up untouched places as true nature, we avoid taking responsibility for our role in the industrial abuse of the greater part. We also, the argument goes, preclude the possibility of reforming our relationship to nature, for if wilderness is the ideal, then human presence is, by definition, the problem.

Both of these ideas rely on an understanding of nature as the polar opposite of culture. Wilderness, on these lines, is nothing more than the absence of humanity or human culture. It is essentially a privation. No wonder these critics find the affirmation of wilderness to be problematic; they hear it as synonymous with the rejection of culture and cultural value. But wilderness is not the absence of people, even though it may often have no people in it. The word *wilderness* literally means something made of wild beasts. *Wilderness* is a positive description, a claim about the kind of animals and plants

³ Smallwood, *Natural History*, 40.

that constitute the landscape and give it its distinctive character. The contrast with people and culture is a practical matter, as people have often tended to clear out and avoid these sorts of plants and animals. The American West was wilderness, not because there were no people, but because there were wolves and grizzly bears. The remarkable fact is that many of the native peoples had cultures that 'got along' with these wild creatures.

Wilderness is best understood as nature which is up to something, at the holistic, ecosystem level. It is land characterized by the unrestrained flourishing of natural purpose. This natural purpose is grounded in the adaptation of organisms, and thus (apart from our own adaptations, our own natural purposes) makes no reference to human needs or vulnerabilities. Wilderness is not so much hostile or benevolent as indifferent to human culture. But human culture cannot be indifferent to it. No matter how grand our institutions and industries become, a human culture only flourishes to the extent that it finds a sustainable niche in its greater ecosystem. If we run roughshod over nature's purposes and care not for the integrity of the land, then we seed our own destruction as well as the land's.

Having understood wilderness in terms of the flourishing of natural purposes, the possibility emerges of working in cooperation with nature, or even on her behalf. The practices of wilderness management and ecological restoration, which were oxymorons under the negative conception of wilderness as the absence of culture, become fires of hope for the possibility of healing the land and establishing a healthy human place within it.

CHAPTER II

APPRECIATION AND ANTIPATHY

We did not think of the great open plains, the beautiful rolling hills, and winding streams with tangled growth, as 'wild.' Only to the white man was nature a 'wilderness' and only to him was the land 'infested' with 'wild' animals and 'savage' people. To us it was tame.

Chief Luther Standing Bear⁴

Wilderness has its being in history. It has a history as a word, as a concept and as an entity. Each of these histories is important in its own right. As an entity, wilderness has gone through a gradual process of reduction and eradication, from once encompassing the whole of the earth to its current state—extensive still in the harshest regions—the arctic, desert and Himalayan—but in the temperate regions mostly represented by a relatively few legally designated pockets. Tropical wilderness is still large but rapidly being burned and cleared for agriculture. This change has played out dramatically in North America as the demise of the frontier. (Whether the other side of the frontier was legitimately a wilderness, given that it was peopled, is an issue for later.) The history of the word *wilderness* is a particularly Anglo story about etymology and usage. It begins with the vague origins of *wild* in Teutonic or even earlier and includes many branches of metaphorical use, from describing a politician's time out of office to designating the world this side of heaven. The history of the concept of wilderness includes not only the English usage but the significance of its cognates in other

⁴ "Indian Wisdom," 201.

languages and across broader cultural heritages. Especially interesting here is the evolution of the moral and aesthetic connotations of wilderness.

Roderick Nash, in his widely read work *Wilderness and the American Mind*, traces the development of wilderness as an idea, from its roots in prehistory to the current battles for its preservation. As he tells it, *wilderness* began “as the unrecognized and unnamed environmental norm for most of earth’s history, created as a concept by civilization, thereafter widely hated and feared, and quite recently and remarkably, appreciated.”⁵ To motivate this account, he considers much in the Old English and Teutonic writings and mythologies to the effect that wilderness is dangerous and evil, a howling wasteland of no positive value, and continues on with a similar interpretation of wilderness in the Judeo-Christian scriptures and in their influence on Western culture. While the recent turning to wilderness as something precious, sacred and in need of protection is indeed remarkable, there was no such homogenously damning opinion of wilderness throughout all prior history. Nor need we think that there was such a uniformity of condemnation in order to appreciate the radical nature of our current love affair. Part of my purpose here is to challenge this interpretation of the Anglophone and Judeo-Christian heritage. I am not the first to push Nash on this point.⁶

This is not to say that there was never a widely held opinion of wilderness as howling wasteland, fit only to be conquered. There was, and the turn to wilderness appreciation is substantially in reaction to it and its material effects. But this position was itself a local historical development, not a universal baseline. It is a perspective

⁵ Nash, *Mind*, 379.

⁶ Cf. Chipeniuk, “Origins of ‘Wilderness’,” *Environments* 21(1991):22-28.

found occasionally, alongside other more positive views, in many times and places, but it reaches a high point in the enlightenment and the reformation. If there had really been a nearly universal deploring of wilderness from prehistory until Henry David Thoreau, the exuberance of our modern affection for it would be more than radical; it would be completely incomprehensible. Rather I suggest that there is in wilderness much to love, much to fear and some that is lovely in its very fearsomeness. People in all times and places have responded to wilderness with both appreciation and apprehension. I offer, in other words, that our present love for wilderness is natural and understandable and that this is not undermined by evidence of wilderness having often been regarded with fear.

The history of the word *wilderness* begins something like this:

wilde (Comm Teut) + *déor* (Comm Teut) => *wil(d)déor* (Old English)

wil(d)déor + *en* (Teut) => *wilddéoren* (Old English)

wilddéoren + *nes* (Old English) => *wild(d)éornes* (Old English)

Etymologically this comes down to the quality of being made of wild animals. *Wilde*, later *wild*, is present in Common Teutonic and the first uses listed in the *Oxford English Dictionary* are describing animals “in a state of nature” as opposed to tame or domesticated.⁷ *Déor*, the root of *deer*, means beast in Old English, applied usually to quadrupeds but sometimes to animals more generally. The modern restriction to a group of ruminant quadrupeds is a later development in Middle English, happening after the coinage of *wilderness*. The suffix *-en*, “pertaining to, of the nature of,” was used in Teutonic “chiefly [to] indicate the material of which a thing is composed,” as in *golden*,

⁷ *Oxford English Dictionary* (henceforth *OED*.)

woolen, and *wooden*.⁸ Thus we get the now obsolete adjective *wildern*, meaning “wild, savage, desert,” but literally, “consisting of wild animals.” To this is joined the suffix *-ness* in an unusually concrete sense to form *wilderness*. Words formed with *-ness* usually signify an abstraction, “a state or condition” of some other concrete object.⁹ But *wilderness* signifies a concrete entity directly, a place.

The centrality of wild animals to the etymology is curious. The modern definitions of *wilderness* make little reference to the animal inhabitants. Perhaps the emphasis on beasts is because it is the beasts which most threaten us, making the land hostile. When the wolves and the bears flourish, the domestic cows and sheep are in danger, and people do not walk alone at night. Perhaps it is also because wild beasts are most easily displaced by human activity and presence, thus they signify places of solitude; the wildest animals seek out where people are not. Aldo Leopold calls the crane “wildness incarnate” because of its love of solitude.¹⁰ The suffix *-en*, though now indistinguishable in the modern spelling, suggests that the wild beast is the very substance from which wilderness is formed. In another article Nash draws out this connection to animals very well, interpreting the etymology as “the place of wild beasts.”¹¹ “If wildlife is removed,” he writes, “although everything else remains visibly the same, the intensity of the sense of wilderness is diminished.”¹² He cites Thoreau’s delight in the New England Lynx, Theodore Roosevelt’s equivocating wilderness with big game ranges and Leopold’s discussion of the last Grizzly on Escudilla. Leopold is

⁸ *OED*.

⁹ *OED*.

¹⁰ Leopold, *Sand County Almanac*, 101.

¹¹ Nash, “Wild-dēor-ness,” 34.

¹² Nash, “Wild-dēor-ness,” 35.

especially interesting in this regard, as he often describes particular species as defining the character of particular wild places.

The history of *wild* must be explored, if this etymology is to be reasonably complete. Our clues to this word's deep roots are vague, difficult and "complicated by uncertainty as to its primary meaning."¹³ One suggestion is that it relates to the Old English *wold*, via Old Teutonic *waldus*, meaning forest. The wilderness familiar to speakers of Old English would have been primarily forest, a connotation only later shaken by its use to describe Near Eastern deserts in English translations of the Bible.¹⁴

But it is more probable that Old Teutonic **wildijaz* represents a pre-Teutonic **ghweltijos*, the root of which is found in Welsh *gwyllt*, Irish *geilt* wild, and may have a parallel form in *ghwērr-*, the base of Latin *ferus*, Greek *θηρ*, Lith. *zvēris*, [and] Old Slavic *zvěř* wild beast."¹⁵

Hence we are brought back again to the beast. The primary definition of *wild* given in the *OED* is as follows: "Of an animal: Living in a state of nature; not tame, not domesticated: opp. to TAME *a.* 1." The earliest uses of *wild* are in this sense and analogously of plants. Later it is applied to regions, and then to people, in senses derivative from this. The key to understanding wildness, then, is rooted in the animal which bears it.

I should share the poet Gary Snyder's limning of the etymology of *wild*, for he gives the diagnosis well:

¹³ *OED*.

¹⁴ Nash, *Mind*, 3.

¹⁵ *OED*.

The word *wild* is like a Gray Fox trotting through the forest, ducking behind bushes, going in and out of sight. Up close, first glance, it is “wild”—then farther into the woods next glance it’s “wyld” and it recedes via Old Norse *villr* and Old Teutonic *wilthjaz* into faint pre-Teutonic *ghweltijos* which means, still, wild and maybe wooded (*wald*) and lurks back there with possible connections to *will*, to Latin *silva* (forest, savage), and to the Indo-European root *ghwer*, base of Latin *ferus* (feral, fierce), which swings us back around to Thoreau’s “awful ferity” shared by virtuous people and lovers.¹⁶

Thoreau records in a journal the claim of one etymologist, that “ ‘Wild’ is the participle past of ‘to-will.’ ”¹⁷ While this is not terribly accurate, it does suggest a philosophical insight and may be useful for properly understanding what Thoreau says about wildness. *Will*, with the meaning of desire or intention, comes rather from Old English *willian*, with no clear relation to *wilde*. The past participle of *will* sometimes takes the form *wild*, but that is not the source of the animal sense of *wild*. Similarly, an adjective *will* did form from *wild*, but meaning “going astray.”¹⁸ A connection in the ideas of *will* and *wild* is not far to find, though. The strong-willed child is difficult to tame, and so is in a sense wild. The more my thoughts and actions are a deliberate choice and activity of my own will rather than the inheritance of custom and society, the more willed, the more wild, I am.

¹⁶ Snyder, “The Etiquette of Freedom,” 171.

¹⁷ Thoreau, *Journal*, V, 530. The source is Trench’s *On the Study of Words*.

¹⁸ *OED*.

Interestingly, Nash agrees with Thoreau's journal, tracing *wild* back to *will*.¹⁹ Following this line, he finds the description of animals as wild to be derived by analogy from *wild* as a description of people. The etymology I have defended is just the opposite. *Wild* is first about animals in their state of nature. Descriptions of people as wild and other uses of the word are derived by analogy.

Moving back to *wilderness*, we find a range of definitions and many metaphorical uses. The original, and still primary, notion evoked "is that of a forest primeval."²⁰ An early and culturally significant use of *wilderness* was in the first English translations of the scriptures where it designated the very arid regions of the Near East, where the Israelites wandered for 40 years and where Jesus fasted and was tempted by Satan. This image of wilderness as desert became a strong secondary connotation.

Through this Biblical usage the concept of a treeless wasteland became so closely associated with wilderness that Samuel Johnson defined it in 1755 in his *Dictionary of the English Language* as "a desert; a tract of solitude and savageness." Johnson's definition remained standard for many years in America as well as England.²¹

The *OED* offers more usual, contemporary and less poetic definitions of wilderness as: "Wild or uncultivated land... A wild or uncultivated region or tract of land, uninhabited,

¹⁹ Nash, *Mind*, 1.

²⁰ Nash, *Mind*, 2.

²¹ Nash, *Mind*, 3.

or inhabited only by wild animals.” Desert is contrasted to wilderness as a place not only uninhabited but uninhabitable.

Metaphorical uses of *wilderness* have been ubiquitous. Many of them, and the earliest, are religious in nature, comparing, for instance, the world this side of heaven to the time of trial and temptation undergone by Israel before entering the promised land. Other uninhabited places were soon described as wildernesses. William Shakespeare first referred to a “wilderness of Sea.”²² A particularly odd use, by modern sensibility, was to describe a certain kind of garden, or section of a garden, especially when arranged as a labyrinth. The metaphorical uses ultimately come full circle from the literal, describing even urban places, when they are found inhospitable or unruly. Rudyard Kipling calls London a “packed wilderness” in this sense.²³

In considering the definitions of *wilderness*, I have begun already to explore the history of the idea of wilderness. The significance of wilderness in the Judeo-Christian heritage is an especially important source for understanding the place wilderness will come to inhabit in American thought and experience. The Puritans especially looked at the American wilderness through the spectacles of scripture, seeing themselves as reliving in many ways the calling of Israel. But the influence of the Christian heritage on American thought and practice also extends far beyond the Puritans and those deliberately living its metaphors.

Nash gives an extended reading of the Judeo-Christian interpretation of wilderness, ultimately concluding that “there was no fondness in the Hebraic tradition

²² *Tit. A. III. i. 94*, cited in *OED*.

²³ Kipling, Rudyard, *Light that Failed*, cited in *OED*.

for wilderness itself.”²⁴ Wilderness stands in contrast to garden and to paradise. Being sent into the wilderness was a punishment, not a reward. Even in its frequent role as a refuge for the oppressed, it is the very hostility of the land that enables it to protect. Both Jewish and Christian folklore treated wilderness as the abode of demons and monsters. In contrast, the blessings of God are manifested in the sending of water to turn the desert into garden.

This reading, however, is misleadingly one-sided. That people in arid country value water, and that the desert is hard to live in, do not together entail that the Israelites were “a people so fearful of the desert.”²⁵ But it does mean that if they did value wilderness, it was not for its material comforts. Looking to the scriptures we find a number of ways in which wilderness is valued.²⁶

First off, the scriptures open with repeated divine proclamations as to the goodness of the world. Six times God declares His creation to be good before He even mentions making people.²⁷ This goodness of the natural world as directly pleasing or glorifying to God is reaffirmed in the Psalms, among other places.²⁸ A surprising number of passages show wilderness to be good for and because of the animals that dwell therein, as instance Psalm 104:18: “The high mountains are for the wild goats; the rocks are a refuge for the rock badgers.” God even enters into covenant relationship

²⁴ Nash, *Mind*, 16.

²⁵ Nash, *Mind*, 14.

²⁶ There are many recent works by environmentally minded theologians and church historians cataloging and exploring the record of nature appreciation in scripture and subsequent Christian thought. I offer here only a suggestive sampling of sources.

²⁷ Gen 1:4,10, 12, 18, 21, 25.

²⁸ For clear examples see Ps 104 and 108.

explicitly with the animals.²⁹ And famously, not one sparrow falls to the ground apart from Him.³⁰

Wilderness is also valued in several ways for its benefit to humanity. Notably among these, it is appreciated for its possibilities of solitude and retreat. Tied to this is the recurring theme that wilderness is a place the individual can go to meet with God. Jacob, Moses, Elijah and Jesus are among those who sought or encountered God in wilderness retreat. Wilderness and wild animals are also valued as pedagogical, speaking to us of God and virtue. Consider here God's response to Job, wherein God justifies and exalts himself before the accusing Job by declaring the splendor and mystery of his creation.³¹ The greater portion of this response is given over to detailed considerations of the glories of several animals, mostly wild.

That wilderness is sometimes the means of punishment and curse does not imply that it is intrinsically a bad thing. When Zephaniah prophesies that God will to turn Nineveh into a desert, a haunt for hedgehogs and owls,³² it is not the presence of wilderness or these particular animals that is feared but the implied destruction of the city. Even a deep aesthetic and spiritual appreciation of the wilderness is no substitute for having an abode.

So in the scriptural tradition, we find not only possibilities for understanding wilderness as a sign of cursedness, as that which could be made or could have been a garden or city, but also a nuanced array of possibilities for appreciation. The subsequent

²⁹ Gen 9:12.

³⁰ Matt 10:29.

³¹ Job 38-42.

³² Zeph 2:13-14.

history of Christian thought in the west bears each of these aspects in turn. Strands of wilderness and nature appreciation run through the monastic movements, especially the desert fathers, St. Basil, St. Francis of Assisi, and the Celtic church. While not addressing wilderness *per se*, consider the biocentric outlook revealed in St. Basil's prayer:

Oh, God, enlarge within us the sense of fellowship with all living things, our brothers the animals to whom Thou gavest the earth in common with us. We remember with shame that in the past we have exercised the high dominion of man with ruthless cruelty so that the voice of the earth, which should have gone up to thee in song, has been a groan of travail.³³

Another strand of Christian thought however, notably informed by neo-Platonism, rejected the whole of the material world, wild and civil together, looking rather inward to the soul and ahead to heaven as the only objects of worth. This viewpoint achieved an unfortunate dominance in the middle ages. Nash presents an intriguing anecdote of this mode of thought in Petrarch and Augustine. It bears recounting in full.

Petrarch's 1336 ascent of Mount Ventoux provides an example. He initially had no other purpose in climbing than experiencing some of the "delight" he found in wandering "free and alone, among the mountains, forests, and streams." After an all-day effort, Petrarch and his brother gained the summit. "The great sweep of the view spread out before me," Petrarch wrote to a friend, and "I stood like one

³³ quoted in Scully, *Dominion*, 13.

dazed.” Clouds floated beneath his feet, and on the horizon he could see the snow-covered Alps. Had he descended from the mountain at this point Petrarch might have retained an undiminished sense of enjoyment in the view, but it occurred to him to look at the copy of Saint Augustine’s *Confessions* he was accustomed to carry. By chance he opened to the passage that admonished men not to take joy in mountains or scenery but rather to look after their salvation. Petrarch responded as a Christian: “I was abashed, and . . . I closed the book, angry with myself that should still be admiring earthly things who might long ago have learned . . . that nothing is wonderful but the soul.” After this he hurriedly left the peak, “turned my inward eye upon myself,” and returned to his inn, muttering imprecations at the way the world’s beauty diverted men from their proper concerns.³⁴

Here indeed is a remarkable and lamentable condemnation of wilderness. Note that both Augustine and Petrarch find such mountain wilderness to be pleasant and beautiful, and that *this* is the problem with it. Some even celebrate this event as the first recorded instance of someone climbing a mountain “for its own sake, and to enjoy the view.”³⁵ Far from finding it to be howling and desolate, they complain that the temptation of this lesser good distracts people from tending to the greater good, salvation. Consider also that this position condemns not only wilderness but all earthly pleasure and worldly endeavor. Pastoral and urban landscapes fair no better than wilderness, for Augustine.

³⁴ Nash, *Mind*, 19-20.

³⁵ Kenneth Clark quoted in Coates, *Nature*, 65.

Another, less religious, sort of antipathy to wild nature had its beginnings in the enlightenment and reformation in Europe. Many environmental writers today, horrified by the legacy of the scientific and industrial revolutions, look back at Francis Bacon, René Descartes and Isaac Newton as an “unholy trinity.”³⁶ Beginning at least with Galileo, enlightenment scientists and philosophers began dividing the world into primary and secondary qualities.³⁷ The primary qualities were those amenable to mathematical treatment—size, shape, weight, position, velocity—and thus appropriate to a scientific analysis. Contrasted with these are the secondary, subjective qualities of appearance—color, taste, odor, feel—which were discounted in importance. Nature on this view was mechanism, clockwork. The organic nature of life was reduced to complexity of arrangement, and mystery was reduced to puzzle. Bacon preached tirelessly that the scientific approach could solve these puzzles, giving man power over nature, making good on the original promise of dominion. Nature could be hospitable, the servant of culture; the Fall could be reversed through science.

Johannes Kepler urged the mechanical understanding of the stars and planets: “My aim is to show that the celestial machine is to be likened not to a divine organism but rather to a clockwork.”³⁸ Descartes took it much further and closer to home; having thoroughly separated the soul and mind of mankind from any foundation in the body, he turned this mechanistic view of nature onto individual animals. Confident to the point of certainty that animals had no subjective experience, Descartes and his followers

³⁶ Coates, *Nature*, 71.

³⁷ Drake, “Galileo Galilei,” 11. The distinction, though not in name, actually goes back to the ancient Greek atomist Democritus, whose ideas were revived and very influential during the Enlightenment.

³⁸ Quoted in Oelschlaeger, *The Idea of Wilderness*, 77.

conducted anatomical investigation on living animals with neither anesthetic nor guilt. Peter Coates, in dry understatement, writes that “The ramifications of Cartesian dualism are generally thought to have been gravest where animals are concerned.”³⁹ And Max Oelschlaeger notes that this mechanization of animals constitutes Descartes’ “most important effect on the idea of wilderness,” which is after all, the place of wild beasts.⁴⁰

This mechanistic view of nature built on the trend of Renaissance humanism to find all value and significance in human experience and culture. If nature is merely a clock, a machine, then its value can only lie in the services and products it can produce for humanity. John Locke turned this mechanistic view of nature into a political and economic view that many consider to be the philosophical foundation of the Constitution of the United States. Nature, according to Locke, obtained value when it was mixed with human labor and thus became property. Protecting the laborer’s right to this property is a, if not *the*, primary purpose of government.⁴¹ Wilderness, as nature not yet transformed by human labor, is nothing but waste for Locke.

Adam Smith, father of free market economics, made this view operative, bringing the primary/secondary quality distinction from science to politics, privileging whatever could be quantified monetarily and thus treated mathematically.⁴² It is the accrual of wealth, Smith tells us, that brings nations out of savagery. Nations and individuals, not only may, but ought to pursue their self interest by making as much wealth as they are able. Transforming the waste of wilderness into economic capital

³⁹ *Nature*, 76.

⁴⁰ Oelschlaeger, *The Idea of Wilderness*, 87.

⁴¹ Locke, *Second Treatise of Government*.

⁴² Oelschlaeger, *The Idea of Wilderness*, 94.

through human labor became, after Smith, a high calling, the very substance of human progress. “With the publication of Smith’s *Wealth of Nations*,” writes Oelschlaeger, “the line between civilization and the wilderness was clearly drawn.”⁴³

The legacy of these enlightenment thinkers still forms the core of the dominant Western approach to nature:

Modernism, that combination of the power of science and technology with political and economic ideologies modeled on the machine metaphor, rules the world. Practically everyone, save a few ecologists and kindred spirits, thinks of wild nature as scientific nature, and the wilderness itself has become a mere landscape.⁴⁴

The colonists’ experience with the American wilderness was interpreted through these old world categories. When initial hopes of paradise—of abundant gold and fountains of youth—were deflated, sentiments quickly turned to fear, loathing and conquest. “When William Bradford stepped off the *Mayflower* into a ‘hideous and desolate wilderness’ he started a tradition of repugnance.”⁴⁵ Paradise might yet be had, but only through the conquest and subjection of nature, by delivering it from its wilderness condition.

The Puritans, especially, approached American wilderness through a strongly biblical metaphor, deliberately reliving the wilderness experience of Israel. Particularly, they wanted to be the new city on the hill, demonstrating to the world to possibility and

⁴³*The Idea of Wilderness*, 94.

⁴⁴Oelschlaeger, *The Idea of Wilderness*, 97.

⁴⁵Nash, *Mind*, 23-4.

desirability of a reformed Christian polity. In their original intention, the Puritans saw the American wilderness as a void, a place where they could set up their society from scratch. They needed a place free of bishops and heretics in which to build their New Jerusalem. They did not intend to stay there, but having demonstrated the viability of such a society and government to an attentive England and Europe, they would carry their model back across the Atlantic. Having been remaindered and abandoned in America, subsequent generations struggled to reconstruct the meaning of their “errand into the wilderness.”⁴⁶

Wilderness, the puritans found, was both physically and morally dangerous. The political void they sought offered too much temptation to license, and they had great difficulty sustaining themselves in it. In their successful transformation of the wilderness to garden, God’s hand of blessing was revealed. In the hardship and severity of the land was seen His wrath. America, like Canaan, was thought of as a Pagan stronghold which had to be taken by conquest. “Cotton Mather believed he knew how it got into this condition: Satan had seduced the first inhabitants for the purpose of making a stronghold. From this perspective, the natives were not merely heathens but active disciples of the devil.”⁴⁷

Though somewhat later, the writings of Nathaniel Hawthorne illustrate the link in Puritan thought between wilderness and evil. Consider what “Young Goodman Brown” found going on in the wilderness. There, “on a dreary road, darkened by the gloomiest trees of the forest,” he met the devil, who showed him all the town folk, including the

⁴⁶ Miller, *Errand into the Wilderness*.

⁴⁷ Nash, *Mind*, 36.

minister, meeting in secret for witchcraft and satanic worship.⁴⁸ In *The Scarlet Letter*, Hester Prynne first sins in the wilderness. And “the illegitimate Pearl, ‘imp of evil, emblem and product of sin’ is the only character at home in the wilderness.”⁴⁹

As the pioneer pressed the frontier westward, the biblical metaphor lessened as the material gospel of progress and manifest destiny took hold. “Although there were a few exceptions,” writes Nash, “American frontiersmen rarely judged wilderness with criteria other than the utilitarian or spoke of their relation to it in other than a military metaphor.”⁵⁰ Alexis de Tocqueville tangled with this attitude in his famous trip to America:

in Europe people talk a great deal of the wilds of America, but the Americans themselves never think about them; they are insensible to the wonders of inanimate nature and they may be said not to perceive the mighty forests that surround them till they fall beneath the hatchet. Their eyes are fixed upon another sight, the ... march across these wilds, draining swamps, turning the course of rivers, peopling solitudes, and subduing nature.⁵¹

The frontiersmen, who were closest to wilderness and actively engaged in transforming and cultivating it, generally evidenced very little appreciation for it as wilderness. They engaged the wilds as an opponent, as a chaos and a waste to which they gave order and purpose. There were exceptions, pioneers who evinced a positive sensibility about the wild landscapes they entered, and some unknown number abandoned their pioneering

⁴⁸ Hawthorne, “Young Goodman Brown,” 90.

⁴⁹ Nash, *Mind*, 40.

⁵⁰ *Mind*, 43.

⁵¹ Quoted in Nash, *Mind*, 23.

project, finding new society among the American natives. But for most part, the frontiersmen marched under the banner of progress hoisted by Locke and Smith.

As the frontier began to break up, as the pioneers' domination of it drew near completion, there was a remarkable turning in American thought. With influence from the European romantics, members of the literate and urban class in the east began to value wilderness for many of the same reasons it was formerly denigrated. To understand this, we must consider at least briefly what the European romantics were up to.

The late enlightenment philosopher Immanuel Kant tore a rift in the building and dominant scientific perspective, in large part by undercutting the privileged status of primary qualities. The quantifiable aspects of experience, that is its spatio-temporal arrangements, are a mock up, a product of the active and constructive nature of cognitive experience. The primary qualities do not constitute a direct grasp of objective reality but are as much in the domain of subjective experience as the more affective, secondary qualities. Kant then worked to legitimate the significance of aesthetic judgments, allowing an interpretation of nature as poetic as well as scientific. "Accordingly, [Kant's] third critique opens the door to Romanticism generally, and Coleridge, Wordsworth, and Shelley in particular."⁵²

The Romantic poets threw themselves into a new aesthetic relation to wild nature, writing both of nature's beauty and of the profundity of their experiences of it. They were intoxicated by the very aspects of nature which Locke and company had

⁵² Oelschlaeger, *The Idea of Wilderness*, 115.

written off as insignificant in both being and consequence—the subjective and affective qualities of its experience. Nature did not sit idly on the material side of the Cartesian mind/body dualism but claimed affinity and kinship to the spirit and mind of the poet. Nature pulsed with moral and spiritual energy. Depending on the poet, it was either the surest path to God or the Divine principle itself. A selection from Wordsworth's *The Prelude* (1805) illustrates the spirit of this turn:

I held unconscious intercourse with beauty

Old as creation, drinking in a pure

Organic pleasure from the silver wreaths

Of curling mist, or from the level plain

Of waters coloured by impending clouds

.

To every natural form, rock, fruit, or flower,

Even the loose stones that cover the highway,

I gave a moral life: I saw them feel,

Or linked them to some feeling; the great mass

Lay bedded in a quickening soul, and all

That I beheld respired with inward meaning.⁵³

Related to the Romantic turn was the rise of primitivism. Disenchanted with the broken promise of the industrial revolution to save humanity from a wretched state of nature, writers like Michel de Montaigne and Jean-Jacques Rousseau looked rather to

⁵³ Quoted in Coates, *Nature*, 126.

nature to save humanity from a wretched state of industrialization, introducing the enduring, if problematic, notion of the noble savage.⁵⁴ Such primitivist ideas about the corrupting influence of civilization and the restoring powers of wild nature continue to characterize much environmental discourse to the present.

Ralph Waldo Emerson gave an original, distinctively American, interpretation of Romanticism in his book *Nature* (1836). Evaluations of Emerson with regard to the history of environmental thought are mixed. He exhilarates in the beauty of nature, like Wordsworth finding an affinity to consciousness in it: "... all natural objects make a kindred impression, when the mind is open to their influence;" and "The greatest delight which the fields and woods minister, is the suggestion of an occult relation between man and the vegetable."⁵⁵ The lover of nature, the uncommon one who still has childlike eyes to see, belongs to nature, and she ministers to him: "Nature says,—he is my creature, and maugre all his impertinent griefs, he shall be glad with me."⁵⁶ But it is clear that, to Emerson, nature is secondary and subservient in value to human spirituality. Do not indulge too much in these nature revelings, but turn back to the care of your soul, he says: "beauty in nature is not ultimate. It is the herald of inward and eternal beauty, and is not alone a solid and satisfactory good."⁵⁷ Nature still exists for humanity, who will eventually realize its dominion over nature, at which time "disagreeable appearances," such as spiders and snakes, will be seen no more.⁵⁸

⁵⁴ Coates, *Nature*, 128-9.

⁵⁵ Emerson, "Selections from *Nature* (1836)," 28, 30.

⁵⁶ Emerson, "Selections from *Nature* (1836)," 29.

⁵⁷ Emerson, *Nature*, quoted in Coates, *Nature*, 136.

⁵⁸ Quoted in Oelschlaeger, *The Idea of Wilderness*, 135.

Henry David Thoreau was early on a disciple and companion of Emerson, and Emerson left a significant deposit in Thoreau's thinking.

His mentor's key contribution was helping Thoreau to establish a belief that nature can be known through the immediate activity of inquiring consciousness (or, alternatively, an absolute separation between consciousness and nature does not exist). This transcendental axiom, or first principle, was the heart of the Emersonian philosophical legacy.⁵⁹

It is Thoreau, however, who is unquestionably the first major luminary in the American wilderness tradition. "It is no exaggeration," Oelschlaeger writes, "to say that today all thought of the wilderness flows in *Walden's* wake."⁶⁰ His essay "Walking," perpetually revised till the end of his life, is equally important in this regard.

Thoreau had several significant influences besides Emerson. He read everything he could get his hands on regarding Eastern thought and spirituality, setting an enduring precedent for American environmentalists.⁶¹ The Prussian explorer and scientist Alexander von Humboldt, to be discussed in more detail in the next chapter, was another great influence. Thoreau may even have modeled some portions of his life after him.⁶² Even so, there is no reducing Thoreau to his influences.

The first and longest chapter of *Walden* is titled "Economy" and is a devastating critique of Adam Smith. The companionship of wild nature is far more enriching than material wealth, offers Thoreau. We are better off in fact, the less we are encumbered by

⁵⁹ Oelschlaeger, *The Idea of Wilderness*, 134.

⁶⁰ *The Idea of Wilderness*, 171.

⁶¹ Coates, *Nature*, 96.

⁶² Sachs, *Humboldt Current*, 97.

the latter. A relatively small amount of cultivation can supply all the material comfort we really need. Neither has Thoreau any patience for the Cartesian version of knowledge as certain and objective: “The highest we can attain is not Knowledge, but Sympathy with Intelligence.”⁶³

A fundamental theme in Thoreau’s writing is that nature exists for its own purposes, and is wonderful therein. This is no mere assumption, but the deliverance of his sympathetic inquiry into nature. A representative passage from “Chesuncook” in *The Maine Woods* is described by Oelschlaeger as the clearest and earliest “statement of the preservationist's credo:”⁶⁴

the pine is no more lumber than man is, and to be made into boards and houses is no more its true and highest use than the truest use of man is to be cut down and made into manure. . . . Every creature is better alive than dead, men and moose and pine-trees, and he who understands it aright will rather preserve its life than destroy it.⁶⁵

Thoreau’s reflections on his bean patch in *Walden* follow a similar tack, finding that nature exists as much for the other animals as for humanity: “These beans have results which are not harvested by me. Do they not grow for woodchucks partly? . . . Shall I not rejoice also at the abundance of weeds whose seeds are the granary of the birds?”⁶⁶

Indeed Thoreau is perpetually eager to point out what a small and modest portion of nature belongs to humanity:

⁶³ Thoreau, quoted in Oelschlaeger, *The Idea of Wilderness*, 166-67.

⁶⁴ *The Idea of Wilderness*, 150.

⁶⁵ *Walden and Other Writings*, 398.

⁶⁶ Thoreau, *Walden and Other Writings*, 228.

The farmers and their works are scarcely more obvious than woodchucks and their burrows. Man and his affairs, church and state and school, trade and commerce, and manufactures and agriculture, even politics, the most alarming of them all,—I am pleased to see how little space they occupy in the landscape.⁶⁷

Wilderness, for Thoreau, stands in an entirely different relation to culture than Locke described. Wilderness is not waste, waiting to be brought into the sphere of culture as property, lumber for instance, but is the mother and nurse of culture. Thoreau finds great significance in the story of Romulus and Remus being suckled by a wolf. This is the context of the frequently cited line, “in Wildness is the preservation of the World.”⁶⁸ If culture does not regularly return to nature, to drink her inspiration afresh, it stagnates and degrades. Wildness is the principle of life and the root of goodness. As with culture, so with the individual; Thoreau offered an ethic of balancing civilizing influence with an inner wildness: “I would not have every man nor every part of man cultivated, any more than I would have every acre of earth cultivated: part will be tillage, but the greater part will be meadow and forest ...”⁶⁹

Thoreau embraced the romantic dictum to inquire openly of nature, and it led him on a walk into the wilderness—and he spent a large part of his life so walking.

Thoreau’s idea of wilderness is rooted in a lifetime of primary experiences or firsthand meetings with nature. Not only did he live in the wilderness alongside Walden Pond for more than two years, but he ranged widely and frequently over

⁶⁷ Thoreau, “Walking,” 32.

⁶⁸ “Walking,” 37.

⁶⁹ “Walking,” 40.

New England and journeyed on occasion to Canada and Minnesota. Thoreau climbed mountains, explored the vast, densely forested regions of Maine, and floated rivers. And he walked—day-hiked, in the popular idiom—almost every day of his life.⁷⁰

He came back with a new view of nature. (An American original relation to the universe?) Nature is not the knowable, quantifiable atoms-in-the-void of science. Indeed, “Nature is a personality so vast and universal that we have never seen one of her features.”⁷¹ Nor is nature a contemplative ladder, whose end is to lead us to the eternal beauty beyond her. No, says Thoreau, only with metaphor can I show you: “Here is this vast, savage, howling mother of ours, Nature, lying all around, with such beauty, and such affection for her children, as the leopard.”⁷²

John Muir, the second giant of American wilderness thought, was a close student of Emerson and Thoreau. When Muir took to the mountains, a copy of Emerson’s essays went in the pack.⁷³ For Muir, as for Emerson, nature leads the soul to God: “The clearest way into the universe is through a forest wilderness.”⁷⁴ But nature’s own purposes are not subservient to this; rather following Thoreau, “all wildness is finer than tameness,” and the creatures, even rattlesnakes, are their own good, exist for their own sake, “and we need not begrudge them their share of life.”⁷⁵ Indeed it is not uncommon

⁷⁰ Oelschlaeger, *The Idea of Wilderness*, 136-37.

⁷¹ “Walking,” 41.

⁷² “Walking,” 40.

⁷³ Nash, *Mind*, 125.

⁷⁴ Nash, *Mind*, 126.

⁷⁵ Quoted in Nash, *Mind* 127-8.

for Muir to nearly plagiarize Thoreau: for instance, “in God’s wildness lies the hope of the world—the great fresh, unblighted, unredeemed wilderness.”⁷⁶

But Muir was also the child of “activist Evangelical Christianity,” and its themes pervade his thought to the end.⁷⁷ Muir was an evangelist on behalf of the wilderness. He compared himself to John the Baptist,⁷⁸ and baptism was his metaphor for understanding the spiritual encounter of God in the wilderness. “I care to live,” he writes, “only to entice people to look at Nature’s loveliness.”⁷⁹ Wild nature was revelatory and healing for Muir, the direct, unfallen creation of God. Only in the works of fallen man, namely civilization, was sin written into the landscape. So Muir called to America to come and receive mountain baptism, and they came in great numbers.

“As a publicizer of the American wilderness Muir had no equal.”⁸⁰ His writings were enormously popular, and everyone from the aging Emerson to the then sitting President Theodore Roosevelt went into the woods with him. Muir also became the first great environmental activist, founding the Sierra Club and giving a great deal of impetus to the formation of the National Parks. Indeed Muir was not an insignificant precipitating factor in the cult of wilderness devotion that swept the nation around the turn of the century, partly also a reaction to the official closing of the frontier. He was also a significant beneficiary of this movement. Nash writes that “it was Muir’s good

⁷⁶ Quoted in Nash, *Mind*, 128.

⁷⁷ Williams, *God’s Wilds*, xi.

⁷⁸ Nash, *Mind*, 129.

⁷⁹ Quoted in Nash, *Mind*, 129.

⁸⁰ Nash, *Mind*, 122.

fortune to live at a time when he could reap the honors that belatedly came to Thoreau's ideas."⁸¹

Muir also saw the beginning of what became a major split in the environmental movement in his parting with Gifford Pinchot. At first fast friends, they both loved the forest and hated to see the abuse it received through human use. But ultimately, Pinchot's forestry (he became the first Chief Forester of the US Forest Service) sought only a more efficient, sustained use of the forest, still subjecting all to the ends of humanity. The final straw for Muir was when Pinchot approved the grazing of sheep in forest reserves—sheep were an arch-nemesis to Muir, the “hoofed locusts” that destroyed so much of the Sierras.⁸² Thus was born the preservationist/conservationist split.

In the end, Muir apparently gave his life to the cause of wilderness preservation. There was a sensational, nation-wide fight over the Hetch Hetchy valley, a particularly spectacular part of the newly formed Yosemite National Park. Nearby San Francisco sought to and eventually succeeded in damming it for hydroelectric power. Muir spent his last years in fervent opposition, growing increasingly fanatic and desperate in his rhetoric, describing those in favor of the dam as “temple destroyers” and worshipers of the “Almighty Dollar.”⁸³ The city of San Francisco he dubbed “the Prince of the Powers of Darkness.”⁸⁴ The dam was approved in 1913, and Muir died the next year. But the

⁸¹ *Mind*, 160.

⁸² Nash, *Mind*, 138.

⁸³ Quoted in Nash, *Mind*, 161.

⁸⁴ Quoted in Nash, *Mind*, 167.

preservationist movement he helped inspire had been galvanized and given a solid education in political action.

Around the turn of the century, the history of wilderness thought in America explodes in breadth. The 1890 census declared the official end of the frontier,⁸⁵ and the general attitude of conquest seemingly turned to one of nostalgia overnight. Fredrick Jackson Turner famously proposed in his 1893 essays, that wilderness was the defining influence on our national, political character. “Turner believed, in short, that democracy was a forest product.”⁸⁶ Theodore Roosevelt, a significant wilderness popularizer in his right, saw this coming and worried about the loss of manly virtue that had risen from our frontier experience. He organized the Boone and Crockett club in 1888 to encourage big game hunting.⁸⁷ *The Call of the Wild*, by Jack London, was published in 1903, and Edgar Rice Burroughs’s *Tarzan of the Apes* first offered its depiction of wilderness virtues to great popularity in 1912. The Boy Scout *Handbook* would soon outsell every book but the Bible, ensuring that every boy could experience the frontier wilderness.⁸⁸

Yet despite this explosion of breadth, there is one more intellectual giant in the wilderness heritage to be considered, one more founding visionary: Aldo Leopold. Leopold was trained in the Yale School of Forestry, an institutional legacy of the Pinchot family, and he essentially founded the science of game management. Over his life, Leopold offered many defenses of wilderness preservation—first recreational, then scientific, and finally ethical—evidencing a shift away from Pinchot and toward Thoreau

⁸⁵ Nash, *Mind*, 143.

⁸⁶ Nash, *Mind*, 146.

⁸⁷ Nash, *Mind*, 152.

⁸⁸ Nash, *Mind*, 148.

and Muir.⁸⁹ His greatest influence on American environmental thought is through his posthumously published book, *A Sand County Almanac and Sketches Here and There* (1949), now second in stature only to *Walden* among the classics of American nature writing.⁹⁰ And the *Sand County Almanac* is replete with echoes of Thoreau's ideas, though always transformed in Leopold's distinctive voice.

Leopold was deeply influenced by the study of ecology, its focus on interconnection and process and its central metaphor of community. Land, for Leopold, is a "biotic community," incorporating "soils, waters, plants, and animals."⁹¹ His central insight is twofold: (1) that this community, as a whole, can be in a state of health or of disease, and (2) that this implies a social ethic for those members of the community capable of following one, namely, the human animal.

In short, a land ethic changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such.⁹²

His frequently quoted summary of this ethic reads as follows:

Examine each question in terms of what is ethically and esthetically 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.⁹³

⁸⁹ Leopold's intellectual development deserves a subtler and more sophisticated treatment than I can give it here. See Oelschlaeger's chapter 7 in *The Idea of Wilderness*.

⁹⁰ Finch, "Introduction," xv.

⁹¹ Leopold, *Sand County Almanac*, 204.

⁹² Leopold, *Sand County Almanac*, 204.

⁹³ Leopold, *Sand County Almanac*, 224-25.

That the land has a health, a good of its own, is not something Leopold started with, but, like Thoreau's realization that nature is not for us, was born out of a profound experience of the wilderness. After working, studying and managing game in many forests, Leopold took a hunting trip to the Sierra Madre in Mexico. "It was here that I first clearly realized that land is an organism, that all my life I had seen only sick land, whereas here was a biota still in perfect aboriginal health."⁹⁴ From then on, the heavily managed forests envisioned by the Pinchot school of resource extraction could only be seen as a travesty.

It is not that humanity can not live in healthy relation to the land, but that we have not known or tried to. Wilderness must now be preserved not least for its scientific importance as an example of healthy land, against which damaged land might be compared. Our previous attempts at land management have been short-cited and ignorant, as witnessed by the extent of predator removal accomplished before the importance of predators was realized. To act intelligently in accordance with the land ethic requires a deep historic, relationally thick understanding of the land community and its functions; it requires, in Leopold's words, "Thinking like a Mountain."⁹⁵

The last major stage in the history of wilderness preservation was the codification of its goals in the Wilderness Act of 1964. This act had a tumultuous path to becoming law, undergoing many hearings, over six-thousand pages of testimony and sixty-six resubmissions.⁹⁶ The number of wilderness proponents was great by this time,

⁹⁴ Quoted in Nash, *Mind* 192.

⁹⁵ Leopold, *Sand County Almanac*, 129.

⁹⁶ Nash, *Mind*, 222.

but notable among the figures instrumental in seeing it through were Robert Marshall and Howard Zahniser, the Act's primary author. The Wilderness Act provided for the designation of wilderness areas based on a number of features, but it especially aimed at large roadless areas. It formed the National Wilderness Preservation System which presently has authority over more than 700 wilderness areas encompassing over 107 million acres.⁹⁷ The Act gives a functional definition of wilderness:

A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.⁹⁸

Yet despite this triumph, the legal and institutional establishment of wilderness preservation as a national priority, there has been a distinct trend in the environmental

⁹⁷ NWPS, "Wilderness Fast Facts."

⁹⁸ §2.c.

movement in recent decades away from this once core and critical value. Several intellectuals sympathetic to the environmental project over all, have offered harsh critiques of such a central focus on wilderness preservation. Wilderness as a value seems to deny humanity a legitimate place in nature, leading to mistreatment especially of indigenous and tribal peoples. The whole idea of the American frontier being a wilderness at all is claimed to involve a denial of real humanity to the original inhabitants. Might not devotion to wilderness be a pathological escape mechanism, a way of avoiding responsibility for past atrocities and ongoing complicity in destructive and exploitative practices?

Ramachandra Guha is an early, and distinctively Third-World, voice in this critique.⁹⁹ Guha's complaint is that a radical version of the wilderness preservation movement, namely deep ecology, is taking over the environmental project, neglecting our most serious environmental problems. This radical version of the environmentalism is characterized by an obsession with the biocentric/anthropocentric distinction and with the preservation and restoration of unspoilt nature. This has been especially harmful, he thinks, in its exportation to the Third World.

The two fundamental ecological problems facing the globe are (i) overconsumption by the industrial world and by urban elites in the Third World and (ii) growing militarization ... Neither of these problems has any tangible connection to the anthropocentric-biocentric distinction. ... If the above

⁹⁹ Guha, "Radical American Environmentalism." First printed in 1989.

dichotomy is irrelevant, the emphasis on wilderness is positively harmful when applied to the Third World.¹⁰⁰

Non-American environmental movements, especially in India, have much more to do with the sustainable and equitable use of nature, than with leaving it alone. As in the case of the famous Chipko, tree-hugging movement, environmental battles are usually fought by poor, rural, subsistence, sustainable users of nature against the wealthy, extractive, commercial-industrial users. Wilderness preservation, as exported to India, tends to be rather a further repression of the poor, rural, historical users, instead of a help.

Because India is a long settled and densely populated country in which agrarian populations have a finely balanced relationship with nature, the setting aside of wilderness areas has resulted in a direct transfer of resources from the poor to the rich. ... The designation of tiger reserves was made possible only by the physical displacement of existing villages and their inhabitants... In no case have the needs of the local population been taken into account, and as in many parts of Africa, the designated wildlands are managed primarily for the benefit of rich tourists.¹⁰¹

Wilderness preservation, in Guha's estimation, is a relatively unimportant and impracticable part of the environmental program, which is possible in America only because of our sparse population and abundant wealth. And worse than being

¹⁰⁰ Guha, "Radical American Environmentalism," 234-35.

¹⁰¹ Guha, "Radical American Environmentalism," 235. That Guha may be merely dismissing the biocentric perspective is suggested by his comment regarding rich tourists. Are the tiger reserves really managed for wealthy tourists, or for the oppressed and persecuted tigers, with some help from the tourist's dollar?

unimportant, its unintended consequences are terribly harmful in the Third World, where American-backed preservation serves to solidify the oppression of the poor by the wealthy, over-consuming urban class.

Jonathan Adams and Thomas McShane's volume, *The Myth of Wild Africa* (1992), offers a related critique of the wilderness preservation in Africa. Preservationists have consistently failed to recognize the native Africans as integral members of the biotic community, the ecosystem. As a result, preservation strategies have followed a model of protecting areas by removing people, which has not kept the balance of the ecosystems and has been oppressive of many Africans. A growing body of work in ecological anthropology is illuminating the depth of connection in many places between wild landscapes and local culture, causing many to wonder whether people might not belong in protected areas after all.

Two prominent American critics of the value of wilderness preservation argue that the very idea of *wilderness* is flawed: William Cronon's "The Trouble with Wilderness, or, Getting Back to the Wrong Nature," and J. Baird Callicott's "The Wilderness Idea Revisited: the Sustainable Development Alternative." The same theme may be found in other wilderness critics, but I take these as representative. Wilderness, for Cronon and Callicott essentially means an absence, the privation of human influence or presence.

The philosophical upshot of wilderness, on Cronon's reading, is "that nature, to be natural, must also be pristine—remote from humanity and untouched by our common

past.”¹⁰² Such a view of wilderness is essentially dualistic: wild nature versus civilized humanity. The wilderness ideology, as Cronon sees it, claims that all goodness, value and worth is found on the wild side of this dichotomy. This ideology grew in response to the pioneer perspective, which embraced the same dualism but put all value on the other side. Wilderness, by this interpretation, is not just one way among many in which nature has value, but the only condition in which it has value. The purported consequence of wilderness thinking, on which Cronon’s complaints are founded, is that it must be the absence of humanity that makes nature valuable.

Part of Cronon’s trouble with this version of wilderness is that it gives us no help; it can counsel only suicide.¹⁰³ Most of our environmental problems are about getting along with nature in the places we do inhabit, but by the wilderness ideology, these places are already degraded and worthless anyway. Cronon wants us to stop thinking in terms of wilderness in favor of a conception of nature and nature’s value which includes humanity and human-influenced landscapes.

Callicott, like Cronon, finds wilderness to be intolerably dualistic.¹⁰⁴ “I ... suggest,” he writes, “that the popular wilderness idea is as inherently flawed as its counterpart, the conventional development idea.”¹⁰⁵ By focusing our environmental efforts on preserving nature from human influence, we have no purchase in reforming the character of human influence in the urban and rural places where it does and must hold sway. Sustainable development is the middle way, for Callicott, the conception of

¹⁰² “The Trouble with Wilderness,” 487.

¹⁰³ “The Trouble with Wilderness,” 487. This would be the only act which would restore our absence.

¹⁰⁴ “The Wilderness Idea Revisited,” 347.

¹⁰⁵ “The Wilderness Idea Revisited,” 348.

our place in nature which affirms both civilization and the wild in relation. This critique, like Cronon's, understands wilderness, and hence purported natural value, to consist in the absence of human influence.

Neither Callicott nor Cronon would do away with or even diminish the legal protections of designated wilderness areas. These areas serve important roles, but they should not be held up as the standard for what all land ought to be. They should not even be called wilderness areas but "biodiversity reserves."¹⁰⁶ The "necessity of managing (and hence artificializing?) wilderness areas in order for them to continue to play their vital part in biological conservation" is further evidence to Callicott that the wilderness idea is flawed.¹⁰⁷

Wilderness, as a conservation value, is accused, in this recent wave of critical evaluation, of being: (1) misanthropic, denying humanity a genuine place in nature; (2) ahistorical,¹⁰⁸ based on a denial of humanity or culture to the Native Americans who inhabited and changed the land; (3) a mistake, resulting from our inability to see the deep influence of indigenous humanity in the landscape; (4) derogatory of 'impure' nature, which has been influenced or transformed by human culture; (5) pathological, the product of guilt evasion and denial; (6) an obstacle to constructing a positive relation to nature, and thus reforming our extractive and consumptive practices, and (7) distracting from more important environmental issues, such as poverty and war. This is an impressive and damning list of charges, which if warranted would justify abandoning the

¹⁰⁶ Callicott, "Biodiversity Reserves."

¹⁰⁷ "The Wilderness Idea Revisited," 348.

¹⁰⁸ Cf. Cronon, "The Trouble with Wilderness," 483: "In virtually all of its manifestations, wilderness represents a flight from history."

wilderness preservation tradition as it now stands. Under almost all of these lies the assumption that *wilderness* means land untouched by people.

The legal definitions of *wilderness* in the Wilderness Act unfortunately invite this interpretation of wilderness—that wilderness is essentially characterized by the absence of human influence on the landscape. Wilderness is recognized, according to the Act, by the absence of “the imprint of man’s work” and “human habitation,” which are generally characterized as trammeling “the earth and its community of life.” Note especially the phrase “where man himself is a visitor who does not remain.” Land is not a wilderness if people are living in it, no matter how they are living. If this kind of wilderness is held up as the purist form of nature, then people and their “works” are just contamination. But this same passage declares that such areas are to be “protected and managed” and elsewhere in the Act that wilderness areas “shall be administered for the use and enjoyment of the American people ...”¹⁰⁹ It is not only to be managed, but managed for our use. The conflicting directions here seem to border on incoherence: how can we preserve land from human influence and presence for use and enjoyment by people?

It is my position in this dissertation that the American tradition of wilderness preservation means far more by “wilderness” than the mere absence of humanity, that it means instead something positive. It is not the absence of people, but the integrity and flourishing of nature which is sought. Understanding this allows for a reconception of wilderness that is both helpful to and contiguous with valuing nature in other conditions, and which requires no dualistic divorce of humanity from nature.

¹⁰⁹ §2.a.

CHAPTER III

THE NATURALISTS' DEPOSIT

The true man of science will know nature better by his finer organization; he will smell, taste, see, hear, feel, better than other men. His will be a deeper and finer experience. We do not learn by inference and deduction and the application of mathematics to philosophy, but by direct intercourse and sympathy.

Henry David Thoreau¹¹⁰

Much is made of the indebtedness of the wilderness preservation movement to literary romanticism. Rarely is its equally significant debt to the legacy of the natural historians and the frontier scientists mentioned, or how these two bequests relate. Indeed, the history of the naturalists is full of non-economic valuing of nature and ecological critiques of civilization. All of the major figures in the wilderness preservation movement drank deeply from the naturalists' science and most were capable practitioners in their own right. Neither has the presence of the conservationist-scientist lessened in the environmental movement today; rather it is the poet who seems to play second fiddle to the scientist. An important upshot from this is that while the romantic poets may be criticized for having a scripted experience of nature, the naturalists deliberately engaged nature in an open inquiry. Their conceptions of nature grew out of careful, attentive study. It is less plausible to claim that they saw only what they wanted, as Nash says of the poets.¹¹¹ Perhaps even more interesting are the several figures who were equally devoted to both roles, scientist and poet, and the struggles they had to marry such disparate projects.

¹¹⁰ Cited in Oelschlaeger, *The Idea of Wilderness*, 139.

¹¹¹ Nash, *Mind*, 44: "The ideas of these literati determined their experience, because in large part they saw in wilderness what they wanted to see."

By *naturalists*, I mean those who set about to study, describe and catalogue the phenomena of the natural world, whether animal, plant or geological. This role would later splinter into a thousand specialties, but “comprehensiveness was the chief intellectual characteristic of the naturalists.”¹¹² They often called themselves botanists, and leaned that way, probably because much of the earliest work and training was tied to the medical schools, which had a very practical interest in the properties of plants. But the naturalists showed a keen interest in all the phenomena of nature and, remarkably, were not at all constrained to merely practical studies.

“The naturalist’s period in America covered roughly the century and more from 1725 to 1840 or 1850.”¹¹³ Of course, there have been naturalists, in this sense, as far back as Aristotle, and I would argue that today’s field ecologists equally qualify. But during the eighteenth and early nineteenth century, this way of doing science flourished. Eventually it gave way in large part to the professionalization and specialization of science, which also tended to bring people out of the field and into the laboratory. In Europe, the naturalists’ period began earlier, underway well before 1725, motivated often by the project of physico-theology, or natural theology.

One consequence of the enlightenment was a robust interest in nature as a source of theology. If nature was mechanical, then it was an extraordinarily intricate and well-ordered machine. Contemplation of these intricacies and efficiencies was considered to be a sound path to the knowledge of God, the supreme clock maker. The study of nature was an exercise in piety, and the parson-naturalist was a regular figure. John Ray’s *The*

¹¹² Smallwood, *Natural History*, 263.

¹¹³ Smallwood, *Natural History*, 213.

Wisdom of God Manifested in the Works of Creation (1691) and William Paley's *Natural Theology* (1802) are representative of this approach. Add to this interest, the continual flow of novel reports and specimens of natural phenomena coming back from the new world and it is not hard to see how natural history became a preoccupation not only of the serious intellectual but also of European high society generally. Indeed, "a king's favor" could be "secured with a flying squirrel and other curiosities."¹¹⁴

By the early eighteenth century, natural history had thus become a thriving cultural project. Specimens were being collected all over the world, species being described, and extensive correspondence and books were flowing freely about them. In cultural centers in the New World, especially Philadelphia, Charleston, New York and Boston, societies, journals and museums were founded, dedicated to the study of natural history.¹¹⁵

William Smallwood, in his thorough historical review, *Natural History and the American Mind* (1941), suggests the cultural importance of these early activities:

As we leave the consideration of the academies of natural science, we realize that America is under a great debt to these learned societies. Their influence was larger than that of any one university, and perhaps of all the universities combined, for the reason that they were composed of adult men rather than of youth. The persistent appeals of the members of the learned organizations promoted the taste for nature and an appreciation of natural

¹¹⁴ Smallwood, *Natural History*, 213.

¹¹⁵ Smallwood, *Natural History*, 101.

scenery. With a more scientific development of natural history came a more intelligent understanding of the meaning of nature.¹¹⁶

John Bartram, a Pennsylvania Quaker and botanist, “carried on the most extensive correspondence with European students of nature.”¹¹⁷ Among these correspondents was Carlos Linnaeus, who described Bartram as “the greatest natural botanist of the age.”¹¹⁸ Bartram was a founding member, along with Benjamin Franklin, of the American Philosophical Society. He also founded one of the earliest botanical gardens in America.¹¹⁹

But John Bartram’s greatest bequest to natural history and environmental thought may well have been his son, William Bartram, who became a botanist as well.

The first American to devote his entire life to what we would now call the environment, [William] Bartram was the most significant nature writer before Thoreau and a nature artist who rivals Audobon.¹²⁰

Science was intimately tied to art in William Bartram, whose ability to draw beautiful sketches from nature earned him a reputation and a commission for a botanical expedition.¹²¹ In the space of four years, Bartram traveled five-thousand miles through the mostly unsettled regions of the Southeast.¹²² The literary fruit of this labor is his *Travels through North and South Carolina, Georgia, East and West Florida* (1791). His powers of observation are evident, and his nuanced descriptions are communicated with

¹¹⁶ 165.

¹¹⁷ Smallwood, *Natural History*, 89.

¹¹⁸ Cited in Smallwood, *Natural History*, 34.

¹¹⁹ Smallwood, *Natural History*, 150.

¹²⁰ Thomas Slaughter, jacket flap material for *William Bartram: Travels and Other Writings*.

¹²¹ Smallwood, *Natural History*, 35.

¹²² Nash, *Mind*, 54.

an elegance of prose which seems unhindered by his scientific terminology. He had his eye not only on the individual plant or animal, but on the whole of which it was a part. He was looking, that is, at both the species and the wilderness, considering all from a viewpoint both scientific and aesthetic. Nash gives an anecdote which serves as a good sketch of Bartram's mode of engagement:

On one occasion in 1775 he climbed a mountain in northern Georgia "from whence I enjoyed a view inexpressibly magnificent and comprehensive ... [of] the mountain wilderness through which I had lately traversed." Then he added: "my imagination thus wholly engaged in the contemplation of this magnificent landscape ... I was almost insensible ... of ... a new species of *Rhododendron*."¹²³

William Bartram was clearly influenced by romantic thought. He uses the word *sublime* on nearly every page of the *Travels*, marking "the first extensive use of that term in American letters."¹²⁴ He also espoused primitivist ideas, describing "the primitive state of man" as "peaceable, contented and sociable."¹²⁵ Yet I should note that Bartram was the older contemporary of Wordsworth and Coleridge, and they were the ones influenced by his work, not *vice versa*.¹²⁶ This turns upside down any idea that the American naturalists' exuberance for wild nature was derivative from or imitative of the European poets. Bartram knew what he was talking about, and his philosophical, aesthetic and ethical insights are neither scripted nor predictable, but grow organically

¹²³ *Mind*, 54.

¹²⁴ Nash, *Mind*, 54.

¹²⁵ Quoted in Nash, *Mind*, 55.

¹²⁶ Smallwood, *Natural History*, 40.

out of his engagement with nature. His observations of the carnivorous plants caused him to wonder whether “the vital principle or efficient cause of motion and action, in the animal and vegetable system, perhaps, may be more similar than we generally apprehend.”¹²⁷ It is in watching a bear grieve for its slain mother that he questions the moral division between “mankind” and “brute creatures:” “The parental and filial affections seem to be as ardent, their sensibility and attachment as active and faithful, as those observed in human nature.”¹²⁸ And the landscapes he admires are not only the usual mountain ranges, but also the alligator-filled swamps. Bartram clearly reveled in the exuberance and diversity of life, and not only in the grandeur of scenery. Even his primitivism was grounded in a great deal of experience and time with the American Indians. Much of his travels were through the Cherokee nation, and he wrote important and pioneering ethnographical studies of that tribe and the Creeks.¹²⁹ The comprehensiveness of many of these early naturalists thus included being students of anthropology.

Another great naturalist who would exert a profound affect on American environmental thought was the Prussian explorer Alexander von Humboldt. Humboldt, like Bartram, combined an aesthetic immersion in nature with rigorous scientific inquiry. His compelling vision of nature was as a complex web of relations, a world fraught with unsuspected interconnections forming a beautiful and intricate harmony. Though the term would not be coined for many more years, Humboldt’s science was undeniably

¹²⁷ Bartram, *Travels and Other Writings*, 17-18.

¹²⁸ Bartram, *Travels and Other Writings*, 20.

¹²⁹ Slaughter, jacket flap material for *William Bartram: Travels and Other Writings*.

ecological. He traveled the world, most notably in the South American tropics, everywhere taking measurements and more measurements—of temperatures, air pressures, magnetic fields, depths, heights and even the blueness of the sky, anything that could be measured. He provided detailed instructions on what other travelers and expeditions should measure and made himself a clearing house for such data.¹³⁰

His own, early description of his project is helpful, especially for its explicitly relational understanding of the unity of nature, that is, as harmony:

I shall collect plants and fossils, and with the best of instruments make astronomic observations. Yet this is not the main purpose of my journey. I shall endeavor to find out how nature's forces act upon one another, and in what manner the geographic environment exerts its influence on animals and plants. *In short, I must find out about the harmony of nature.*¹³¹

Humboldt's ecological vision led to a richer understanding of the consequences of human actions. This in turn provides the ground for a conservation ethic. A sample exhortation shows him to be remarkably close to contemporary environmental concerns:

“By felling the trees which cover the tops and sides of mountains,” he asserted, “men in every climate prepare at once two calamities for future generations; want of fuel and scarcity of water.”¹³²

The want of fuel is easy to predict, but foretelling the scarcity of water demonstrates sophisticated understanding of ecosystem functioning. His ecology also has, as

¹³⁰ Sachs, *Humboldt Current*, 26.

¹³¹ Cited in Worster, *Nature's Economy*, 133. Other translations read “unity of nature.”

¹³² Sachs, *Humboldt Current*, 77-78.

commentator Aaron Sachs says, a “social edge.”¹³³ There is no call to preservation, but devastating critiques of the violence which European conquest and colonialism had done to the social and ecological relations which constituted the American lands, critiques which grew out of an intimate knowledge of and appreciation for those relations.

Humboldt’s influence on American culture, although astoundingly unknown today, is hard to overestimate.

Editions of his books sold out repeatedly. Ralph Waldo Emerson called Humboldt “one of those wonders of the world ... who appear from time to time, as if to show us the possibilities of the human mind”; Henry David Thoreau classified New England’s climate zones according to Humboldt’s model of plant ecology. ... Walt Whitman would start to suffuse his poetry with the concept of “Cosmos,” a term that suggested the world’s overarching but mysterious harmony and that Whitman stole directly from Humboldt ... It is quite possible that no other European had so great an impact on the intellectual culture of nineteenth-century America.¹³⁴

His influence is especially pronounced among the scientific community and the early conservationists. Benjamin Silliman, James Dwight Dana, Asa Gray and Louis Agassiz, fathers of American science, all corresponded with Humboldt significantly, and Agassiz relied extensively on his financial assistance.¹³⁵ The contributions of explorer-scientists

¹³³ *Humboldt Current*, 13.

¹³⁴ Sachs, *Humboldt Current*, 4.

¹³⁵ Sachs, *Humboldt Current*, 93.

like J. N. Reynolds and Clarence King would be nearly unthinkable without the influence of Humboldt.

Humboldt was an especially significant influence on John Muir, who began his career with a naturalist's expedition initially intended to make directly for the same South American tropics Humboldt described in his *Personal Narrative*. California was originally a side-track, and later in life, Muir did finally make it to South America. "How intensely," he wrote in an early letter, "I desire to be a Humboldt!"¹³⁶

Humboldt's view of nature, like Bartram's, is at once both romantic and scientific. Nature is full of affective significance for him, but it is no mere mirror for the soul. Rather, Humboldt spoke of "the power of the external world over the emotions of the mind."¹³⁷ Sachs contrasts this with Emerson's view that "Nature always wears the colors of the spirit":

The person who travels openheartedly into the natural world, the explorer who truly attempts to see, can actually be transformed by the experience; he is not doomed simply to impose his expectations onto the landscape. ... Emerson never quite understood this possibility, but Thoreau did. And so did the landscape painter Frederic Church. And so, too, did America's entire first generation of landscape photographers and explorer-scientists.¹³⁸

Science, at its best, is this activity of 'truly attempting to see.' Unlike the physico-theologians, Humboldt was not trying to see through nature to God; he wanted

¹³⁶ Sachs, *Humboldt Current*, 27.

¹³⁷ Sachs, *Humboldt Current*, 95.

¹³⁸ *Humboldt Current*, 95

to see nature, the *cosmos*, the harmony of all the parts in “the mysterious relations” of “mutual dependence and connection.”¹³⁹ By focusing on the hidden relations, the underlying patterns and laws, Humboldt took the naturalist’s science far beyond taxonomic classification and well into ecology, without losing any of the comprehensiveness. It was Humboldt’s idea, for instance, to draw isothermal lines across the map, dividing the world into climatic zones, and to see that these latitudinal divisions were mirrored, in species composition, by zones of elevation on tropical mountains.¹⁴⁰ Climbing a mountain, one passes through the same zones of vegetation that one passes through on a larger scale when traveling toward higher latitudes. And as with Bartram, this comprehensive study of nature was taken to include the study of peoples.

Humboldt’s ecological bequest is largely mediated today by Charles Darwin. His influence on Darwin was profound: “My whole course of life,” Darwin wrote, “is due to having read and re-read [Humboldt’s *Personal Narrative*] as a youth.”¹⁴¹ Much of Darwin’s famous theory is evidently dependent on Humboldt’s work.¹⁴² But Darwin put front and center an aspect of nature which was notably muted in Humboldt, “the centrality of conflict and violence in nature.”¹⁴³ The relations of nature are not primarily harmonious but competitive, a war of all against all. And whereas Humboldt’s ecology

¹³⁹ Quoted in Sachs, *Humboldt Current*, 76.

¹⁴⁰ Worster, *Nature’s Economy*, 134.

¹⁴¹ Worster, *Nature’s Economy*, 132.

¹⁴² Sachs, *Humboldt Current*, 241.

¹⁴³ Worster, *Nature’s Economy*, 137.

motivated a cosmological, egalitarian sociology, “the desert heat of social Darwinism ... endorsed both human and environmental exploitation.”¹⁴⁴

There were, however, a number of Americans who took on Humboldt’s mantle, who through exploration sought to work out a comprehensive and relational view of nature and, to a greater or lesser extent, continued his cosmological critiques of exploitation and oppression. Thoreau and Muir were among these disciples. But their number also included many known primarily as explorers: J. N. Reynolds, Clarence King, George Melville, and John Wesley Powell.

Clarence King is an important case, because he also embodied both scientist and artist, but in him these roles were not organically united. They rocked him with inner tension as he alternately renounced and swore fealty to the two modes of engaging nature. By King’s time, science was becoming increasingly specialized and professionalized, but he maintained a more Humboldtian drive toward a comprehensive view of nature: “Ironize and ridicule specialism,” he wrote in a note to himself.¹⁴⁵

But his poetic vision got him into trouble in his work for the California Geological Survey. A fellow scientist commented that “that fellow had rather sit on a peak all day, and stare at those snow-mountains, than find a fossil in the metamorphic Sierra.”¹⁴⁶ A chastised King was assigned to do some solitary, serious work, as a way to shape up, work which was clearly subservient to gold prospecting interests, the “vulgar

¹⁴⁴ Sachs, *Humboldt Current*, 13. Leopold, among others, will find a very different social upshot to Darwin, one much more egalitarian. But social Darwinism, which held that the hardships and carnage of economic and military competition were necessary correlates of social progress and should not be avoided, certainly had center stage for awhile.

¹⁴⁵ Sachs, *Humboldt Current*, 238.

¹⁴⁶ William Gab cited in Sachs, *Humboldt Current*, 203.

gold-dirt” as King had called it.¹⁴⁷ And he did, in fact, find a key fossil which dated the gold belt, greatly assisting the exploiters. True to the criticism, however, it left him feeling flat. He became bitter and resentful toward science, finding it mechanical and dehumanizing.

Six years later, however, he made another substantial discovery. This one was on Mt. Shasta, descriptions of which had originally inspired his scientific career.¹⁴⁸ On Shasta, he found active glaciers, unsuspected even by Agassiz to exist in the United States.¹⁴⁹ This was a discovery full of importance to the understanding of nature on the grandest scale, full of imaginative significance and of no use at all to exploitative industry. “Science suddenly recaptured King’s spirit,” writes Sachs.¹⁵⁰ And King did go on to become one of the most significant men of science of his day. He “would become the youngest person ever elected to the American Academy of Sciences” and the first director of the U.S. Geological Survey.¹⁵¹ The latter is more important than may first be supposed, for the founding of the Survey represents a serious shift in land use policy, laying groundwork for future conservation. As Sachs describes it, “suddenly, the opinion of civilian scientists about the appropriate use of federal lands was deemed more important than the opinion of army men or business leaders.”¹⁵²

These explorer scientists, like Bartram, Humboldt and King, spent a great portion of their lives living in the wilderness, studying the wilderness, delighting in the sublimity

¹⁴⁷ King cited in Sachs, *Humboldt Current*, 205.

¹⁴⁸ Sachs, *Humboldt Current*, 186-7.

¹⁴⁹ Sachs, *Humboldt Current*, 225.

¹⁵⁰ *Humboldt Current*, 225.

¹⁵¹ Sachs, *Humboldt Current*, 234.

¹⁵² *Humboldt Current*, 254.

and beauty of the wilderness and often enough being terrified for their lives by the forces of nature which hold sway in the wilderness. Their primary project was not the defense of nature, but understanding nature. Even so, their insights into the workings of nature and the interaction of social and natural forces gave them serious reservations about western “progress.” Humboldt frequently decried the exploitation of nature and indigenous peoples. King called the westward expansion a “vast ACT OF POSSESSION,” a “great sweeping campaign against nature, [a] prodigious advance of a horde of homemakers.”¹⁵³ Nature was no mere blank for them. They knew it was more than a store of resources for economic growth. Nature, they saw, was a balance of forces, forces more powerful than civilization and fraught with complex interconnections. If civilization did not understand and adapt, that is, bow, to these forces, it would be sure to fail.

In the early twentieth century, ecologists continued to make advances in the understanding of wild nature, contributions which would inspire the rise of environmental ethics. They were also thrust into national awareness as the country turned to them for help; the prairie sod had been broken against the naturalists’ advice, and rain had not followed the plow. Great dust storms blew across the country, sprinkling ships on the Atlantic seaboard with sand from the plains of the Midwest.¹⁵⁴

Though ecological perspectives and methods had been clearly present in the naturalists, especially in Humboldt, ecology took its place as a recognized field of professional science with Eugenius Warming’s *The Oecology of Plants: An Introduction*

¹⁵³ Cited in Sachs, *Humboldt Current*, 187.

¹⁵⁴ Worster, *Nature’s Economy*, 221.

to the Study of Plant Communities (1895, revised and translated into English in 1909).¹⁵⁵

If the sciences were going to be split into a multitude of narrow specialties, then ecology would be the specialty that looked at the holistic dynamics, the interconnections; it would be the field that specialized in the big picture once more. As is evident in Warming's title, community was the central metaphor. Ecology studied, according to Warming, "the manifold and complex relations subsisting between the plants and animals that form one community."¹⁵⁶ In 1919, the American ecologist Victor Shelford simply defined ecology as "the science of communities."¹⁵⁷ The communal relations are more complex than just competition. They include many shades of helpful and harmful connections and dependencies from symbiosis to parasitism.

Warming went farther than the idea that plants and animals formed communities though; he claimed that these communities changed gradually until they reached a stable, climax community. Historian of ecology Donald Worster describes the importance of this:

The ultimate goal of nature, in other words, is nothing less than the most diverse, stable, well-balanced, self-perpetuating society that can be devised to meet the requirements of each habitat. Geographers ... were describing with their "formations" and "life zones" the end products of millions of years of trial-and-error experimentation. And it was this idea of successional development toward

¹⁵⁵ Worster, *Nature's Economy*, 198.

¹⁵⁶ Cited in Worster, *Nature's Economy*, 199.

¹⁵⁷ Cited in Worster, *Nature's Economy*, 204.

a climax equilibrium that Warming made central to the new science of ecology.¹⁵⁸

Frederic Clements, of the University of Nebraska, was a particularly influential and adamant supporter of the idea of climax communities through the middle of the century. Taking a page from the social Darwinist, Herbert Spencer, he argued further that the ecological community was actually an organism in its own right:¹⁵⁹

The unit of vegetation, the climax formation, is an organic entity. As an organism, the formation arises, grows, matures, and dies. ... The climax formation is the adult organism, the fully developed community...¹⁶⁰

In any case, it is clear that idea of a climax community had taken on normative elements of being the true end or purpose inherent in the landscape. Many of the ecologists of that day argued for ecological reserves. The “eminent ecologist” Shelford, mentioned above, “was an early proponent of protected wildlands big enough to sustain populations of large carnivores.”¹⁶¹ If the historic, climax community is the best, healthiest state of nature, then the western farmer with his plow is clearly a disrupter and destroyer, an outsider to the system.

The dustbowl could not have made this more evident. The prairie climax, which Clements claimed had held steady for millions of years, was torn up and blowing in the wind.¹⁶² “Rain follows the plow,” declared Charles Dana Wilber in 1881, and it became the hope and motto of the westward advancing sodbuster. “The Creator never imposed a

¹⁵⁸ *Nature's Economy*, 202.

¹⁵⁹ Worster, *Nature's Economy*, 212.

¹⁶⁰ Worster, *Nature's Economy*, 211.

¹⁶¹ Foreman, “From Scenery to Nature,” 572.

¹⁶² Cited in Worster, *Nature's Economy*, 216.

perpetual desert upon the earth,” Wilber said, “but, on the contrary, has so endowed it that man, by the plow, can transform it, in any country, into farm areas.”¹⁶³ And so, against the recommendations of many scientists, including John Wesley Powell, the western prairies were plowed under. Dust storms in the 1890s nearly reversed the trend but were effectively forgotten when the rains returned. During World War I, President Wilson called on the farmers to plant more wheat to support the war effort.¹⁶⁴ In 1879, there were 12 million acres harvested in the plains states; by 1929 that number was 103 million.¹⁶⁵ Then 1934 came, the driest year on record, and a single dust storm dropped twelve tons of dirt on Chicago and continued east until it sifted dust into the White House.¹⁶⁶ And the storms continued to increase for several years, before beginning to subside. Something was clearly wrong.

Debates raged, disturbingly consonant with today’s debates on global warming, over whether these storms were manmade. In 1936, the report of the government panel, the Great Plains Committee, gave its verdict:

Without a murmur of qualification, the committee concluded that the Dust Bowl was a wholly manmade disaster, produced by a history of misguided efforts to “impose upon the region a system of agriculture to which the Plains are not adapted.” The essence of the tragedy, as they understood it, was a failure to heed the lessons of ecology. “Nature,” they observed, “has established a balance in the Great Plains by what in human terms would be called the method of trial and

¹⁶³ Cited in Worster, *Nature’s Economy*, 227.

¹⁶⁴ Worster, *Nature’s Economy*, 228.

¹⁶⁵ Worster, *Nature’s Economy*, 229.

¹⁶⁶ Worster, *Nature’s Economy*, 221-22.

error. The white man has disturbed this balance; he must restore it or devise a new one of his own.”¹⁶⁷

The ecological doctrine of a climax community—the idea that the balance of nature consists in a community of plants and animals, and that this balance is very much disturbable—was indelibly imprinted on the public consciousness.

Ever since, the scientific community has been a driving force in the environmental movement, inclusive of wilderness preservation. Consider the extraordinary impact of the ecologist Rachel Carson’s *Silent Spring* (1962), considered to be one of the two most significant volumes, along with Leopold’s *Sand County Almanac* (1949), in the twentieth-century environmental movement.¹⁶⁸ And do not forget Barry Commoner, the plant physiologist and author of *The Closing Circle* (1971), who became a prominent environmental leader after taking up the issue of atomic fallout and its ecological significance for people and nature.¹⁶⁹ In this volume he popularized the ecological perspective in a set of four “laws”: 1) “Everything is connected to everything else;” 2) “Everything must go somewhere;” 3) “Nature knows best” and 4) “There is no such thing as a free lunch.”¹⁷⁰ These four laws capture nature as relational (first law), finite (second law), tending towards a state of balance (third law) and establishing limits on economic and technological possibilities (fourth law). Beyond Carson and Commoner, through the 1960s and 70s, there arose a large number of environmental leaders and activists who were professional ecologists and biologists.

¹⁶⁷ Worster, *Nature’s Economy*, 230-31.

¹⁶⁸ Sachs, *Humboldt Current*, 343; the ranking of books comes from the 1993 study, *The Environmentalist’s Bookshelf*.

¹⁶⁹ Worster, *Nature’s Economy*, 346-47.

¹⁷⁰ Commoner, *Closing Circle*, 33-46.

In the 1980s a new applied branch of ecology was launched, conservation biology, to work out methods for preserving the abundance and diversity of wild life. This discipline was formed against the growing realization of the enormity of species loss. E. O. Wilson and other biologists declared that we are in the sixth great extinction event in the history of life on earth.¹⁷¹ A focus on species diversity and extinction was growing during the late sixties and the seventies, as witness David Ehrenfeld's 1970 text, *Biological Conservation*.¹⁷² But it was in the nineteen-eighties that an interdisciplinary focus on the preservation of biodiversity really began in earnest in terms of publication and professional activity. Many point to the volume edited by Michael Soulé and B. A. Wilcox, *Conservation Biology: An Evolutionary-Ecological Perspective*, (1980), as a watershed moment for the new field. Soulé, also a founder of the Society for Conservation Biology, called it a crisis discipline.¹⁷³ The Society was founded in 1986 and issues a highly regarded academic journal, *Conservation Biology*.¹⁷⁴ It is a major voice in the current conservation movement.

Some have looked at the birth of conservation biology as the beginning of a scientific conservation. As I hope I have made abundantly clear, that is not the case at all. Concern for species preservation is as old as concern for wilderness preservation.¹⁷⁵ The problems and the concerns are not new. What is new is the professional organization of scientists from across disciplines to address the challenges of actually

¹⁷¹ Foreman, "From Scenery to Nature," 537.

¹⁷² Cited in Meine et al., "Mission Driven Discipline," 635.

¹⁷³ Cited in Foreman, "From Scenery to Nature," 537.

¹⁷⁴ Meine et al., "Mission Driven Discipline," 637. Ehrenfeld would become the first editor of *Conservation Biology*, the journal, in 1985.

¹⁷⁵ For example, Alfred Russel Wallace protested the extinction of species in the *Journal of the Royal Geographical Society* in 1863. Cited in Meine et al., "Mission Driven Discipline," 633.

preserving biodiversity—questions of reserve size and placement, of the relative impact of different land use strategies, and the like—especially through the application of theory from “systematics, genetics, ecology, and evolutionary biology.”¹⁷⁶ Also distinctive was the explicit adoption of a normative stance as foundational to a scientific field, namely, “that biodiversity is good and ought to be preserved.”¹⁷⁷ And wilderness preservation has maintained a prominent place among conservation biology’s strategies for protecting biodiversity, although the field’s domain clearly reaches far beyond the boundaries of protected lands.

The Wildlands Project, at present the most ambitious and comprehensive effort towards wilderness preservation and restoration, is driven and shaped by conservation biology and conservation biologists. Its “four fundamental goals” clearly grow out of an ecological understanding of nature:

1. Represent, in a system of protected areas, all native ecosystem types and seral stages¹⁷⁸ across their natural range of variation.
2. Maintain viable populations of all native species in natural patterns of abundance and distribution.
3. Maintain ecological and evolutionary processes, such as disturbance regimes, hydrological processes, nutrient cycles, and biotic interactions, including predation.

¹⁷⁶ Meine et al., “Mission Driven Discipline,” 639.

¹⁷⁷ Reed Noss quoted in Meine et al., “Mission Driven Discipline,” 640.

¹⁷⁸ A seral stage is a step in the succession towards a climax community.

4. Design and manage the system to be responsive to short-term and long-term environmental change and to maintain the evolutionary potential of lineages.¹⁷⁹

Reed Noss, ecologist, former editor of *Conservation Biology* and science director for the Wildlands Project, sums up the feeling of many contemporary biologists: “Wilderness recovery, I firmly believe, is the most important task of our generation.”¹⁸⁰

The historical development of wilderness appreciation limned in chapter II is not separate from this history of wilderness affirming scientists. Stepping back a bit, chronologically, I wish to discuss the place of the three giants of wilderness thought—Thoreau, Muir and Leopold—in this context of naturalists and ecologists. These three were well informed and significant contributors to this scientific tradition, a fact obviously true Leopold, but less well appreciated of Thoreau and Muir.

Thoreau, as a scientist, was clearly influenced greatly by Humboldt and continued his ecological focus on relations and interconnections. When two translations of Humboldt’s *Ansichten der Natur* were made available, Thoreau bought both.¹⁸¹ He classified vegetative regions in New England according to Humboldt’s schemes. The obsession in Walden with measuring the depths of the ponds and recording freezing and thawing dates seems due also to his influence. But, while Thoreau always exhibited a careful attention to and moral regard for nature, it is the Thoreau after Walden that is most interesting in this regard. After his Walden experience, Thoreau turned his

¹⁷⁹ Cited in Foreman, “From Scenery to Nature,” 578.

¹⁸⁰ Cited in Foreman, “From Scenery to Nature,” 583.

¹⁸¹ Sachs, *Humboldt Current*, 96.

attention more and more to science. He read Linnaeus, Lyell and even the early Darwin.¹⁸² He turned his attention to ecological questions. He became a pioneering expert on the workings of forest succession, was indeed one of the first to use the term.¹⁸³ For instance, it was Thoreau that solved several ecological riddles by demonstrating the important role played by squirrels in distributing the seeds of trees.¹⁸⁴ Worster tells us that “even Louis Agassiz ... was not his superior as a field naturalist.”¹⁸⁵ His studies of the area lakes were a rigorous and lasting bequest to limnology as well.¹⁸⁶

He became especially interested in understanding what New England must have been like before the arrival of whites, and whether the forest could be restored, a question startlingly anticipatory of modern environmental work.

I take infinite pains to know the phenomena of the spring, for instance, thinking that I have here the entire poem, and then, to my chagrin, I hear that it is but an imperfect copy that I possess and have read, that my ancestors have torn out many of the first leaves and grandest passages, and mutilated it in many places. I should not like to think that some demigod had come before me and picked out some of the best of the stars. I wish to know an entire heaven and an entire earth.¹⁸⁷

There is even a passage in which Thoreau anticipates the idea of a climax to succession, of a community of species best fitted to the geographical conditions:

¹⁸² Worster, *Nature's Economy*, 63.

¹⁸³ Waller, “Getting Back to the Right Nature,” 560;

¹⁸⁴ Worster, *Nature's Economy*, 70. See his lecture, published several times, “The Succession of Forest Trees.”

¹⁸⁵ Worster, *Nature's Economy*, 88.

¹⁸⁶ Worster, *Nature's Economy*, 88.

¹⁸⁷ Quoted in Worster, *Nature's Economy*, 66.

In a wood that has been left alone for the longest period the greatest regularity and harmony in the disposition of the trees will be observed, while in our ordinary woods man has often interfered and favored the growth of other kinds than are best fitted to grow there naturally.¹⁸⁸

All of Thoreau's discussions of nature, whether aesthetic or scientific, are all rooted in his commitment to a daily, immersive intimacy with nature. And his intimate familiarity with the diversity of life around him was startling.

Thoreau's knowledge of the lands surrounding Concord was so vast that some of the town's children believed that, like God, Henry had created it all. His knowledge of flora was so precise, a rare fern species not seen for a hundred years was recently rediscovered by examining his surveying notes, and his examination of the succession of forest trees is a seminal essay for modern ecology.¹⁸⁹

The later Thoreau did not leave any major published works spelling out the more ecological view of nature he was developing, but his extensive journals from this period are a rich bequest still appreciated by naturalists, both amateur and professional.¹⁹⁰

Sachs, though perhaps a little too eager to see everything in terms of Humboldt, gives a good sense of the enormous promise that was cut off by Thoreau's early death:

Just as the French poet Charles Baudelaire ... found a soul mate reflected in the horrific work of Edgar Allan Poe (himself an admiring reader of [Humboldt's]

¹⁸⁸ Quoted in Worster, *Nature's Economy*, 72.

¹⁸⁹ Turner, *The Abstract Wild*, 86-87.

¹⁹⁰ Worster, *Nature's Economy*, 61.

Cosmos), so did Thoreau dedicate himself to interpreting Humboldt. ... Many scholars of American literature have expressed dismay at his seeming descent into scientific list making in the 1850s, but [Laura Dassow] Walls argues persuasively that Thoreau died in 1862 while still trying to work out in his journals and essays what Humboldt's social ecology meant for the United States.¹⁹¹

If we suspect that Thoreau may have been at points imitating Humboldt, it is very clear that Muir set out to do just that. Muir tells us as much. Fortunately, perhaps, for the fate of the American wilderness, Muir's original trip, following in the footsteps of Humboldt's *Personal Narrative*, to the Amazon jungles was prevented, and he ended up in California.¹⁹² There, he wandered up into the Sierras and his destiny was sealed. Muir was a serious and avid botanist, and his descriptions of the Sierras and other wildernesses are almost unbearably full of botanical nomenclature. His disputes with Clarence King demonstrate a not insignificant sophistication with respect to geology as well. Indeed, Muir's competence as a naturalist is fairly well known, but a few things are worth mentioning here.

Muir's approach to nature, like Thoreau's, was acutely attentive to detail, informed by a rigorous grounding in science and thoroughly sympathetic and affective. He too accepted the Humboldtian understanding of nature as bound into a relational

¹⁹¹ Sachs, *Humboldt Current*, 97.

¹⁹² Oelschlaeger, *The Idea of Wilderness*, 187.

whole: “When we try to pick out anything by itself, we find it hitched to everything else in the universe.”¹⁹³

Most of Muir’s writings are clearly driven by the project of wilderness preservation. Muir wants his readers to come fall in love with certain places so that they will help protect them. Scientific and philosophical content are sometimes spread very thin. Sachs points to the lesser-known *Cruise of the Corwin* as the great exception to this in Muir’s writings, where nature gets a more balanced and nuanced philosophical treatment.¹⁹⁴ It is only in the *Cruise*, for instance, that we see wilderness as a place where people can belong.¹⁹⁵ Man’s abuse of nature is contrasted to a rich vision of man in harmony with nature, a vision inspired by the lifestyles of the indigenous peoples in Alaska and Siberia. Muir’s treatment of them was not as beings somehow outside of culture; rather he offers a detailed appreciation for their culture—their arts, manufactures, religion—especially the humility with which they approached the environment.¹⁹⁶ He was astounded by their consistent ability to interpret and navigate the seemingly blank landscape which perpetually baffled him and his fellow scientists.¹⁹⁷ The many links between the exploitation of nature and the oppression of the Eskimos did not escape his notice, and he was quick to condemn it in each aspect.

That Muir should be deeply interested in indigenous cultures is not surprising, given his enthusiasm for Humboldt. His own copies of Humboldt’s volumes show

¹⁹³ Cited in Worster, *Nature’s Economy*, 429.

¹⁹⁴ Sachs, *Humboldt Current*, 322.

¹⁹⁵ Sachs, *Humboldt Current*, 317.

¹⁹⁶ Sachs, *Humboldt Current*, 324.

¹⁹⁷ Sachs, *Humboldt Current*, 318

extensive marginalia regarding the discussions of Indians.¹⁹⁸ It is the lack of any attention or sympathy given to the original inhabitants of the wilderness in the U.S. which is both surprising and disturbing. Compared to Muir's treatment of the relation between people and nature in the *Cruise*, Sachs finds the later, purely preservationist project, to be something of a cynical compromise:

Perhaps he also grew to accept the shape of white American civilization as inevitable. He seemed to retreat to the position that, if we were going to have such an effete, meaningless, money-drive culture in our cities and even our rural areas, we ought at least to preserve a few parcels of slightly more wild land. ... Muir's rich social and ecological visions had been reduced to "the cause of saving samples of God's best mountain handiwork."¹⁹⁹

While Sachs clearly understates the depth of Muir's social critique, his preservation project was certainly politically conditioned.

Unlike Thoreau and Muir, Aldo Leopold was a professional scientist his whole life, first for the Forest Service and then as a professor of Game Management at the University of Wisconsin. He had a solid foundation in the ecological sciences, graduating from the Yale School of Forestry,²⁰⁰ and contributed substantially to the development of science and conservation. His 1933 *Game Management* created a new discipline which still thrives today, an application of ecological science to the conservation of wild game. Given the utilitarian emphasis of the Yale School of

¹⁹⁸ Sachs, *Humboldt Current*, 317.

¹⁹⁹ *Humboldt Current*, 330-31.

²⁰⁰ Finch, "Introduction," xvii.

Forestry, funded by the Pinchot family,²⁰¹ one might expect Leopold to be concerned only with the preservation of those species that served as a recreational resource to the sportsman. But he did not take this route for he found it incompatible with the ecological understanding of nature. Even before he published *Game Management*, Leopold had voiced the harshest criticism for the “national game of economic expansion” and its heedless destruction of the land and its biotic community.²⁰² The science of game management was rather a meliorating and subversive attempt to “set up within the economic juggernaut certain new cogs and wheels whereby the residual love of nature ... may be made to recreate at least a fraction of those values which their love of ‘progress’ is destroying.”²⁰³

Leopold was well familiar with the ecological notion of community and made it the core tenet of his view of nature. He had met the Cambridge ecologist, Charles Elton, and many have scholars have speculated that Elton’s *Animal Ecology* (1927) was a significant influence on Leopold’s thought.²⁰⁴ Given the interdependence of all life in a biotic community of organisms, soil and water, argues Leopold, ascribing utility to any one part of this community in isolation is ultimately unintelligible:

The emergence of ecology has placed the economic biologist in a peculiar dilemma: with one hand he points out the accumulated findings of his search for utility, or lack of utility, in this or that species; with the other he lifts the veil from a biota so complex, so conditioned by interwoven cooperating and

²⁰¹ Nash, *Mind*, 183.

²⁰² Cited in Oelschlaeger, *The Idea of Wilderness*, 216.

²⁰³ Cited in Oelschlaeger, *The Idea of Wilderness*, 217.

²⁰⁴ Oelschlaeger, *The Idea of Wilderness*, 223.

competitions, that no man can say where utility begins or ends. No species can be “rated” without the tongue in the cheek; the old categories of “useful” and “harmful” have validity only as conditioned by time, place, and circumstance. The only sure conclusion is that the biota as a whole is useful, and [the] biota includes not only plants and animals, but soils and waters as well.²⁰⁵

So Leopold follows in the train of ecologists who, with Humboldt, find the interconnection and interdependence of nature and culture to require a more egalitarian moral view, a sense that we are all in this together. This Leopold says, is the real lesson of Darwin:

It is a century now since Darwin gave us the first glimpse of the origin of species. We know now ... 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.

Above all we should, in the century since Darwin, have come to know that man, while now captain of the adventuring ship, is hardly the sole object of its quest, and that his prior assumptions to this effect arose from the simple necessity of whistling in the dark.²⁰⁶

Leopold wrote extensively about wilderness, addressing its relation to recreational possibilities, cultural health, scientific knowledge and wildlife preservation. But wilderness was never merely the absence of humanity for Leopold. I can find that

²⁰⁵ Leopold quoted in Meine et al., “Mission Driven Discipline,” 634.

²⁰⁶ Leopold, *Sand County Almanac*, 109-10.

interpretation nowhere. For Leopold, wilderness and conservation are about a state of health in the land, the healthy functioning of the biotic community, and one of the chief values of wilderness to culture is to provide scientists with such an example of health. Without an image of health, we could neither understand nor ameliorate the dysfunction we often cause in rural and urban landscapes.

Importantly, Leopold came to this understanding of nature as biotic community, as having an internal standard of health, through a thorough and wide-ranging study of wild lands, of actual biotic communities. Having recently traveled to the German forests, which had been intensively managed under the utilitarian, resource version of conservation he had studied at Yale, Leopold went to the Chihuahua Mountains of the Rio Gavilan region of Mexico. The contrast was striking to him and enlightening, a *teshuvah* moment in Leopold's development. Here was a "picture of ecological health" that revealed to him just how diseased the other forests he had known were.²⁰⁷

Leopold, the naturalist, attains and offers profound insight into the nature of wilderness because his knowledge has the character of intimate acquaintance. The importance of the scientists' contribution to American conservation is due in part to this character of scientific inquiry. The colonist and pioneer each approached the American landscape with a vision to remake it; they knew what it ought to be before they ever saw it. Understandably, their interpretations of the biotic communities were colored and shaped by their preconceived goals. The chief goal of the naturalist, however, is to bracket her preconceptions as well as she is able in order to see nature more truly. The

²⁰⁷ Cited in Oelschlaeger, *The Idea of Wilderness*, 229.

gift of the scientist is not to tell us, a priori, what is good for nature but to look at nature and tell us when she is healthy.

Of course cultural glasses can never be taken off completely, and the lessons of ecology have been subjected to more than one moral reading. On the one hand, the striving of each animal for survival, eating other animals until being eaten in turn, and the utter indifference with which stochastic disturbances wipe out huge swaths of life would seem to justify a brutal individualism, perhaps even war. On the other hand, the interdependence of all creatures on each other and on the whole community, and the vulnerability of this arrangement to occasional disaster, could motivate a very different egalitarian communitarianism, a sense that we are all in this together. That Herbert Spencer's social Darwinism and Aldo Leopold's land ethic could both find inspiration from evolution is cautionary to the one who would offer a moral reading, to say the least. But the lessons of evolution and ecology can not be without moral significance. We share an interdependence with the whole of the biotic community, a community that has attained a certain amount of balance with the forces and processes of nature. I find I must side with Leopold. Understanding and protecting that balance is ethically, esthetically and prudentially the right thing to do.

CHAPTER IV
FLOURISHING NATURAL PURPOSE

The experience of the Other as a void or an absence is a prelude to invasion and instrumentalization, whereas the experience of the Other as a presence is the prelude to dialogue.

Val Plumwood²⁰⁸

Having thickened the historical tapestry of wilderness thought, I turn now to the problem of how to appropriate this bequest in terms of a conception of wilderness worthy to the best of this tradition and which offers help for the problems of today. Ideally, a philosophical conception of wilderness should illuminate the aesthetic and ethical attitudes which have characterized the preservation movement, be closely tied to the ecological perspective of the naturalists' science and not depend upon an untenable separation of humanity from nature. It would be comendous if this conception were somewhat consonant with the Wilderness Act, such that it may guide its application.

Clearly, what I have called the negative conception will not do. This conception treats wilderness as a polar opposite of culture, seeing its essence and value in the absence of human influence. This is the view which Cronon and Callicott have in mind when they deny the helpfulness and truthfulness of wilderness thinking. Unfortunately, this view, which treats humanity as essentially spoiling of nature, is easily read into the Wilderness Act and is commonly assumed to be the main idea of the wilderness preservation tradition. Fortunately the negative conception is not the main idea in the tradition or the Act, and skepticism about this version of wilderness does not require

²⁰⁸ "Wilderness Skepticism and Dualism," 681.

abandoning the idea of wilderness. Rejecting the nature/culture dualism does not entail losing the distinction. No one is clearer or more helpful on this point than the late Australian ecofeminist Val Plumwood:

The idea that eliminating dualism between nature and culture implies eliminating distinction between nature and culture involves a misinterpretation of dualism, conflating the nature/culture polarity which underlies many of the problems discussed above, with nature/culture differentiation. Dualism creates a polarity, and a polarity involves very much more than a distinction.²⁰⁹

The distinction between nature and culture, between wilderness and pastoral or urban landscapes, is of course essential to the preservation project, but the difference is not defined oppositionally. “We should not abandon concepts of nature and wilderness,” Plumwood argues, “but we need to create new, non-colonizing understandings and situate them within the context of a renewed, radical ecology committed to healing the nature/culture split.”²¹⁰ Unlike the dualistic, negative conception, a helpful, positive conception of wilderness will be compatible

with the kind of thoroughgoing environmentalism that aims to recognize *everywhere* in our lives what has been systematically denied and backgrounded as part of this nature/culture dualism—our dependency on the active agency and “labor” of nature and biospheric processes, even in our joint creations, and the limits this imposes on the development of human culture.²¹¹

²⁰⁹ Plumwood, “Wilderness Skepticism and Dualism,” 676.

²¹⁰ “Wilderness Skepticism and Dualism,” 659.

²¹¹ “Wilderness Skepticism and Dualism,” 670.

I take up her charge here, to create a new, helpful conception of wilderness, as my task. The key to this task, I offer in agreement with Plumwood, is to understand wilderness as a presence instead of an absence.

Such a positive conception of wilderness is indeed possible, one which supports a better interpretation of the Wilderness Act and of the writings of Thoreau, Muir and Leopold and which even illuminates the contemporary dilemmas regarding wilderness management and ecological restoration. To start, I go back to the etymology of *wilderness*. “The only wilderness true to the etymological roots of the word,” claims Nash, “is that which humans do not influence in any way whatsoever.”²¹² But the etymology he gives for *wilderness* is “the place of untamed beasts.”²¹³ How he gets from this etymology to such a strong position on human influence, I don’t know. Surely there is a difference between taming the animals and having any influence on the land whatsoever.

In chapter one, I came to a reading of the etymology of *wilderness* very similar to Nash’s “place of untamed beasts.” *Wildeor* in Old English means “wild animal” or “wild beast.” It was joined with the suffix *-en* to form an adjective *wildern*, now obsolete, literally “consisting of wild animals.” To this was added the suffix *-ness*, which usually signifies an abstract property but is here used to form a concrete noun, “that which consists of wild animals.” There is no mention of human influence in this etymology, except as implied by *wild*, as in untamed. What is clear is the centrality of animal presence to the notion of wilderness.

²¹² Nash, “Historical Roots of Wilderness Management,” 27.

²¹³ Nash, “Historical Roots of Wilderness Management,” 27.

It is tempting at this point to say that wilderness is a place whose character is determined by wild animals. I think this would not be wrong, but I would like to expand it a bit. Our current understanding of wilderness, unlike that of the ancient Anglophones who coined the term for us, has been influenced by the insights afforded by evolution and ecology. The wilderness is not just a collection, a congeries, of wild animals, and the animals are not discrete objects. Wild nature is an assemblage of processes and functions embedded in a complex web of relations. These processes and relations constitute a Heraclitean flux, revealing emergent order and balance, that is *λογος*.

The pertinent lesson from evolution is about the nature of purpose in organisms. Nature is full of purposed being, of features and functions that cannot be understood without reference to their end, their *τελος*. A purpose of leaves is to turn sunlight to energy, and a purpose of wings is usually flight. The lesson of evolution that I am interested in is that the purposes of these adaptations are explicable only when referred to the perpetuation of a species. An analysis of an adaptation that does not reference the biological fitness of the organism is thus untenable. The natural purpose of the bison's coat may be to keep the bison warm; however, it is not to keep the hunter warm, no matter how well it works for this. Other sorts of teleological explanations were common before Darwin.²¹⁴ The doctrine of signatures is a clear case in point, according to which

²¹⁴ I point to Darwin because his doctrine of natural selection gives a clear reason for this limitation of natural purpose, and his is the reason why such purposes are excluded from contemporary scientific explanation. I note however that Aristotle's teleology recognized the same limitation, according to Johnson:

I summarized my interpretation of Aristotle's teleology with the positions that: (1) natural motion happens for the sake of something, and (2) what it happens for is the benefit or good of the natural substance that is moved. I have tried to show that Aristotle holds that the human uses and benefits of natural substances and motions are incidental to the objective causes and ends of those

the purpose of a plant's shape is to communicate its medicinal value. Indeed, some pre-Darwin scientists seemed to think that all natural purposes must ultimately come back to human ends. One such seventeenth-century naturalist "described the starfish, but acknowledged that he did not know its use. However, he felt that 'doubtless it is good for something, there being nothing made in vain.'"²¹⁵

An upshot of this evolutionary lesson is that, in natural teleology, species are ultimate ends. It is fruitless to ask what the purpose of the bison is; that there may be bison is sufficient unto itself. Teleology in nature is thus plural and local, purpose with a lower-case p. This is an egalitarian sort of purpose; if species are ends in themselves and not evaluated in terms of being good for something or other, than there are no intrinsically better or worse species.²¹⁶

Biologists often prefer to discuss adaptations in terms of functions instead of purposes. This is part of an understandable tendency to shy away from terminology which might suggest conscious, mental forethought. The shying takes them too far in this instance though, and they end up using a word which means somewhat less than what they intend.²¹⁷ Allen and Bekoff distinguish various levels of teleology on the one hand from mere effect on the other. Bird migrations may have the effect of signaling to

natural substances themselves. I think that this perspective has profound implications for how we should relate to other natural substances, especially organisms. *Aristotle on Teleology*, 289.

²¹⁵ William Hughes cited in Smallwood, *Natural History*, 21.

²¹⁶ Likewise, evolution has not one but many directions (D. L. Hull cited in Allen and Beckoff, "Natural Design," 579). This similarly renders suspect claims of one species being higher or more evolved than another.

²¹⁷ Or at least from what they usually intend. The place of teleological ideas in biology is continuously debated, and there are some who would like to see teleology tossed out all together. [**]

people that winter is coming²¹⁸, but this is not an adaptive end of migration. It is a mere effect, a side effect, of migration. When biologists speak of a trait's function, they mean something which explains the trait's existence or maintenance in the species.²¹⁹ But in common parlance, the word *function* is ambiguous between a mere effect and a teleological end. The bison's coat may be said to function just fine as a hunter's garment. It does keep him warm. Roundabout adjectives must be added to clarify the sense of *function*: it is not *the* function, the biological function, the proper function. Allen and Bekoff, clearly not meaning psychological intention, resort to speaking of natural design to catch the stronger sense.²²⁰

Function is a weaker word than *purpose*, because it does not as clearly imply that the end is explanatory of the trait. In some contexts it carries this connotation, and biologists generally restrict it to that sense when discussing an adaptation. But something can function for any externally imposed end it happens to work for, such as signaling the change of seasons to interested farmers.

The relevant definition of *function* in the *OED* is sense 3: "The special kind of activity proper to anything; the mode of action by which it fulfills its purpose." This definition explains *function* in terms of purpose, which would count against *function* being in any way less objectionable than *purpose*. It also highlights a subtle issue of usage. *Purpose* designates the teleological end; *function* designates the "mode of action" by which the end is achieved. Thus reproduction is not properly a function of sex but a

²¹⁸ Allen and Bekoff, "Natural Design," 582.

²¹⁹ Allen and Bekoff, "Natural Design," 574.

²²⁰ For Allen and Bekoff, a trait counts as naturally designed if it has been modified to better fulfill the purpose, not merely maintained because it does. They distinguish *function* as stronger than *effect* but weaker than *design*.

purpose of sex; the function is the mode of action which contributes to this, the injection of sperm into the uterus. The general preference of biologists for the term *function* in place of *purpose* is thus not only ambiguous but also poorer English. This distinction further explains why function is ambiguous. To claim something has a function is only to claim that the mode of action belongs to it. The end served could be quite external. Whereas to say that something has a purpose is to say that the end belongs to it in some way.

The relevant definition of *purpose* in the *OED* is sense 2: “The reason for which something is done or made, or for which it exists; the result or effect intended or sought; the end to which an object or action is directed; aim.” “The reason for which something ... exists” is exactly the teleological notion that biologists are after. In Allen and Bekoff’s summary of the standard, etiological view, point 1 is that “Functional claims in biology are intended to explain the existence or maintenance of a trait in a given population.”²²¹ The purpose is the aim or end which explains the nature of the trait. The function is the “mode of action” by which the purpose is accomplished.

Other senses of *purpose* are indeed very psychological, and even this sense is most often used in psychological contexts. But this is not an overriding connotation, such that using the word apart from the psychological context would be awkward. Allen and Bekoff even title their anthology *Nature’s Purposes*. The context of biological discourse is generally such as to preclude much if any genuine misunderstanding on

²²¹ “Natural Design,” 574.

whether mental intention is implied. For these reasons I prefer and continue with the term *purpose* to describe the adaptive ends of biological traits.

Ecology sheds additional light on the nature of natural purposes. While the persistence of each species represents an irreducible purpose in nature, these purposes are not completely separable. The lesson from ecology is that these natural purposes, the adaptations of organisms, have the mediate goal of the organism flourishing in a niche. An organism's niche is the particular way it uses the resources, including other organisms, in the ecosystem. Natural purposes thus reference each other in a complex web. The food web is but one aspect of this; each organism utilizes other organisms for food, and is in turn eaten by yet others. The adaptations which define an organism's niche depend on both the presence of food of a certain character and any number of other background conditions. The spider's web is an adaptation for feeding on insects, which depends upon there being not only insects but insects adapted to flight. It also depends on the presence of trees or other suitable structures on which to build a web. Often, the further up the trophic pyramid a species is, the greater the web of natural purposes its own purposes must depend on. Thus for an apex predator like a wolf or a bear to flourish, a wealth of other natural purposes must flourish over a large scale. The continued flourishing of this web of organisms adapted to each other constitutes ecosystem function or health. This functioning presupposes a variety of natural processes, including dynamics of water and fire, on which many of the constitutive organisms will have adapted dependencies. Abiotic features of the land, although without adaptation themselves, are thus co-opted into the web of teleological relations.

An infrequently mentioned example of a background condition on which there is widespread dependence among the plants and animals, but which has been severely compromised by human activity around the globe, is nighttime darkness and the resulting clear view of the changing constellations. Light pollution, human-generated nighttime lighting especially as directed skyward, is detrimental to many kinds of wild flora and fauna, often severely. On reflection, this is not so surprising, considering that, until now, circadian and stellar rhythms have been constant and reliable since the beginning of life. Many organisms, including humans, make use of these signals in ordering vital functions. Other animals use them for navigation during migration. Darkness itself is an important ecological niche, as witnessed to by the diversity of nocturnal creatures. The Urban Wildlands Group and the UCLA Institute of the Environment held a conference on the *Ecological Consequences of Artificial Lighting* in 2002, where detrimental effects were explored or suggested regarding reptiles, amphibians, fish, birds, mammals, insects and plants. Light pollution may make deciduous trees hold on to their leaves too long.²²² Migrating birds crash into lighted towers.²²³ Sea turtles' hatchlings are prone to wander inland towards the city lights instead of towards the surf, and adults are reluctant to lay their eggs on beaches near lights.²²⁴ And yes, light pollution has been blamed for decreases in moth populations.²²⁵ A physical process of diurnal and stellar rhythms, which has no biological τέλος of its own, is thus made significant in the teleological context of the biotic community.

²²² Briggs, "Plant Photoreceptors."

²²³ Gauthreaux, "Lighting Systems on Tall Towers."

²²⁴ Salmon, "Lighting Problems at Florida."

²²⁵ Frank, "Impact of Artificial Lighting on Moths."

The flourishing of any specific natural purpose, including human, is bound up in the flourishing of other natural purposes, and ultimately, in the flourishing of the whole. The extent to which the individual species are dependent upon and connected to the rest of the system is hard to overemphasize. The effect on the whole of removing any given piece is not easily predicted. When the coyote is exterminated in some areas, for instance, the song birds disappear.²²⁶ Take out the wrong insects, and we could all be lost. The ecosystem as a whole is both the condition to which the species are adapted and the emergent product of their continuous adaptings.²²⁷ Each species adapts towards a sustainable relation with the ecosystem. This can go wrong, but over the long haul and generally, it tends towards a balance. To say that nature has a balance, or tends towards balance, is not to deny disturbance or dynamism at any number of scales. But the very fact that the species here today have persevered demonstrates that some measure of harmony has persisted, that nature has usually shown a kinder hospitality to life than our current plague of ‘development’ is showing. Biotic communities tend towards a balance, albeit contingent and subject to disturbance by geological or technological happenings.

²²⁶ This is due to what is known as mesopredator release. When the large predators no longer hold the medium predators in check, then those animals vulnerable to medium-sized predators suffer. C.f. Foreman, “From Scenery to Nature,” 576:

Michael Soulé has shown that native song birds survive in suburban San Diego canyons where Coyotes remain; they disappear when Coyotes disappear. Coyotes eat foxes and prowling house cats. Foxes and cats eat quail, cactus wrens, gnatcatchers, and their nestlings.

²²⁷ The relationship between natural selection and ecosystem balance is inordinately controversial. The eminent ecologist Eugene Odum argues that there are two “kinds” of natural selection: “organism versus organism, which leads to competition, and organism versus environment, which leads to mutualism” (“Great Ideas in Ecology,” 543). Such an approach is at least highly plausible.

A recent shift in ecological theorizing, the “new ecology,” has rendered suspect discussions of the balance of nature.²²⁸ Extreme versions of this recent emphasis on natural disturbance and disequilibria would claim that all nature is chaos and threaten to render an ecological ethic obsolete, impossible. But as I pointed out above, millions of species have persisted over time, species which we have proved are not without vulnerabilities. Their persistence would be inexplicable on such a radical view; they could not have survived so long under conditions of pure chaos. Some measure of balance in nature therefore is empirically undeniable. The new ecology in its more mature and reasonable form represents a focus on the stochastic and contingent, often through the lens of patch dynamics, which sees different patterns and rules holding at different scales.²²⁹ The balance of nature is a balance as fought against the contingency of time and place. What is thrown out is Balance with a capital B, the idea that there is one preordained community best suited to each climatic situation, and that nature will inexorably work towards this. This move in no way contradicts the idea that the biotic community generally tends towards a stable, hospitable state, so far as geological and climatological forces allow. This stability does not mean stability at all scalar levels. Stochastic events at one level—the rise and fall of populations, disturbance by storm, flood and fire—are compatible with stability across a larger scale. The harmony of

²²⁸ See chapter 17, “Disturbing Nature” in Worster, *Nature’s Economy*, for a full treatment of this trend.

²²⁹ This understanding of the new ecology is given, for example, in Fielder et al., “Paradigm Shift and Implications,” 85:

Our use of the term “new paradigm” here ... is meant not to imply a wholesale replacement of equilibrium states and conditions as descriptors of ecological phenomena, but the broadening of our embrace of ecological theory accepting equilibrational and nonequilibrational phenomena as scale-dependent, and that as a consequence, equilibrational conditions can exist within nonequilibrational ones, and oddly enough, *visa versa*.

nature is Heraclitean *λογος*, not Parmenidean being. The new ecology has indeed given new impetus to the wilderness preservationists' emphasis on *big* areas. The preserved area must be larger than the scale of expected disturbances in order to sustain ecosystems for the long term and especially to preserve those species which have adapted dependencies on those disturbances.²³⁰

In brief, the land consists of a biotic community of teleological organisms, whose beings are incomprehensible and untenable apart from the ecological matrix in which they subsist. Ecosystems have many quantifiable dynamics which emerge at this community level: cycles of energy, nutrients, and water, for instance. But the important point is that the biota taken together, in their relations to each other and to the non-living environmental processes around them, forms a roughly coherent system, a functioning whole. This whole is subject to assessments of function and dysfunction—health and disease, in Leopold's terms. The ecosystem either works for the community of organisms which compose it, or it breaks down in any number of ways and degrees.

To what extent the emergent features of the ecosystem, such as energy cycles, water retention or soil fertility, or ecosystems themselves can be said to have purposes is a difficult question. My account of wilderness is not dependent on a successful

²³⁰ For an illuminating tale of two disturbances, underscoring the importance of large preserve areas, see Foreman, "From Scenery to Nature," 578:

When Yellowstone burned in 1988 ... ecologists tell us the fire was natural and beneficial. Because Yellowstone covers two million acres and is surrounded by several million acres more of National Forest Wilderness Areas and roadless areas, the extensive fires affected only a portion of the total reserve area.

Things didn't turn out so well when The Nature Conservancy's Cathedral Pines Preserve in Connecticut was hammered by tornadoes in 1989. In this tiny patch of remnant old-growth White Pine forest (with some trees 150 feet tall), 70 percent of the trees were knocked flat, devastating the entire forest patch. Had the tornadoes ripped through an old-growth forest of hundreds of thousands of acres, they instead would have played a positive role by opening up small sections to new forest growth.

teleological account of ecosystems, but would be reinforced and bolstered it. Many concepts which ecologists use—as instance, succession, ecosystem function, ecosystem service—are prima facie teleological notions. Compared to the vast literature on natural teleology at the level of the organism, discussions at the ecosystem level have been limited. As products, at least in part, of the activities of organisms, ecosystems have some connection to the process of adaptation. And while ecosystems do not replicate themselves, they are constantly being remade by their constituent organisms in ways more or less harmonious with the flourishing of those organisms. If there are features of ecosystems, beneficial to many species and maintained by the activities of many species, it may be more natural to speak of them as adaptations or functions of the system than of the contributing organisms separately. The existence of mutualist relationships between species, as between flowers and pollinators, are not contested. Perhaps ecosystem functions could be understood as very broad, multi-party, mutualist relations. Even the example of pollination is not a binary species-species relationship, but is a process maintained by a diverse guild of animals across an array of plants. There are conceptual difficulties to be worked out, but naturalized purpose at the ecosystem level does not appear implausible.

Returning now to the interpretation of wilderness, I propose that wilderness is best understood as land which is characterized by the healthy functioning of an untamed biotic community, that is, by the flourishing of natural purposes. The etymology of *wilderness* suggested the idea that wilderness is land characterized by the presence of wild animals. Thinking rather in the holistic terms of the biotic community yields a

richer conception: wilderness is the flourishing of untamed animals and untamed plants in untamed relations. This flourishing achieves a functional wholeness at the system level, when it is allowed to determine the whole character of the landscape. “True wilderness,” as Dave Foreman writes, means “biological diversity with integrity.”²³¹ Thinking in terms of natural purpose illuminates just how biological diversity can have integrity.

This conception of flourishing natural purposes builds on the evolutionary understanding of natural teleology as functions aimed at the flourishing of organisms and species. These functions are mediated by adaptations to ecological niches and are thus embedded in a complex web of relations. The flourishing of a single species thereby requires the flourishing of many others, which in turn requires the flourishing of the whole fabric of natural purposes. The unrestrained flourishing of natural purposes emerges as a large-scale, landscape phenomenon: wilderness.

In contrast to wilderness is land where nature is tamed, cultivated and domesticated. These creatures and landscapes have features whose explanation must include an overt cultural purpose. Why does the wool of domestic sheep differ from that of wild sheep? In order to make better textiles. Why doesn't a certain grain reproduce from seed? In order to protect the market interest of the genetic engineer. Why do many vast fields contain only a single species of plant? For economic efficiency. Some parts of nature we modify by taming—by removing those wild organisms and processes that threaten our wellbeing, for example, predator extermination and fire suppression. Often

²³¹ Foreman, “From Scenery to Nature,” 571.

we go beyond this to cultivation, adapting organisms and landscapes to the fulfillment of our purposes. At the organism level this is done by artificial selection or, more recently, genetic engineering. At the landscape level this is done by planting, plowing, grazing, building, and a host of other activities. People are quite adept at such land management, activities that transform the land for the flourishing and perpetuation of human culture or for the utility of some particular political or economic order. In non-wilderness, cultural purposes come to dominate the character of the landscape.

This is a difference which falls short of being a polarity. Cultural purposes can be at odds with or in harmony with natural purposes to various degrees and can exist together with them in a landscape in various mixtures. Clearly many recreational and spiritual purposes, such as solitude, scenery and primitive travel²³², can be pursued in many wildernesses without significant effect on ecosystem health. Most wildernesses can handle some amount of game harvest and could even handle small populations of people living in primitive style, without thereby ceasing to be wildernesses. All of this however depends on the particular wilderness, and some can take more than others. Many cave ecosystems can withstand almost no human presence at all. Not only can cultural and wilderness sometimes coexist in a place, but both cultural and natural purpose are sometimes absent from a place. A moonscape for instance, having no wild life, is not properly a wilderness. Thus the absence of human culture is neither necessary nor sufficient for wilderness, and the difference falls short of polarity.

²³² Such as by foot, canoe or pack train. The Wilderness Act definition specifically mentions “primitive” recreation (§2.c).

At this point, the definition of wilderness as land characterized by the flourishing of natural purposes, may be found too broad without some further clarification. Many places have flourishing wild species, but they are not all wildernesses. Song birds thrive in and probably depend on the hedgerows of European farms. Raccoons, a native species, flourish in suburban and urban landscapes across the United States. Even living room carpets teem with uncultivated dust mites. But these are not wildernesses. Why not?

William Cronon makes this point from another direction. Part of his trouble with the idea of wilderness is that he finds it denigrating of nature nearer to home. He gives a parable of two trees, one in the wilderness and the other planted in a garden. The wilderness dualism, he says, “sees the tree in the garden as artificial—completely fallen and unnatural—and the tree in the wilderness as natural—completely pristine and wild.”²³³

Nothing could be more misleading. The tree in the garden is in reality no less other, no less worthy of our wonder and our respect, than the tree in an ancient forest that has never known an ax or a saw—even though the tree in the forest reflects a more intricate web of ecological relationships. The tree in the garden could easily have sprung from the same seed as the tree in the forest, and we claim only its location and perhaps its form as our own. Both trees stand apart from us; both share our common world. . . . Both trees in some sense are wild;

²³³ Cronon, “The Trouble with Wilderness,” 494.

both in a practical sense now depend on our management and care. We are responsible for both, even though we can claim credit for neither.²³⁴

In Cronon's terminology: it is all other, so it is all wild. In my terminology, natural purposes are flourishing everywhere, in the garden and the forest. The challenge is the same: what, then, is special about wilderness, if it is not, once again, the absence of people?

One pragmatic response that all seem agreed upon is that many forms of wildness still extant in the world simply cannot flourish in a humanized landscape. This exclusion is not a logical one, inherent in the idea of wilderness, but a practical one, arising from the character of the species or processes in question. Wolves and rattlesnakes do not mix well with civilization. Wilderness preservation allows for the flourishing of these natural purposes to continue.

But there is more to be said. Returning to Cronon's parable, both trees are worthy of wonder and respect, but they are not the same. The "intricate web of ecological relationships," which Cronon mentions but deems inconsequential, is part of the flourishing of the natural purposes embodied in the tree. Both trees are wild to an extent, but the tree in the ancient forest is wilder. The form of the tree is inextricably related to its ecological functions. To the extent that those functions and relations are severed, the wildness in the tree in the garden is wildness *coitus interruptus*. The ecological relations are unrequited; the adaptations are in vain. Now clearly a great portion of the tree's purposes are not stymied in a garden. It still extracts nutrients from

²³⁴ Cronon, "The Trouble with Wilderness," 494.

the soil, photosynthesizes, grows and goes to seed. What is stymied will depend on both the particular characteristics of the tree and of the garden. A native tree species will be wilder in my garden than an imported exotic, in part because it will still flourish in many of its ecological relations: its insect defenses will be adapted to the insects that will try to eat and pollinate it, its adaptations to soil conditions may match the conditions of my yard and the same species of wildlife may eat of it and dwell in it as would in natural conditions.

Consider, though, an organism more dependent on vast space and complex ecosystems. Consider the crane, the bird Aldo Leopold called “wildness incarnate.”²³⁵ What seemed in Cronon’s essay to be a reasonable thought experiment with two trees becomes entirely unconvincing with two cranes. Put one crane in the wild and one in the zoo. The first migrates thousands of miles in a year, has social relations in its flock and eats and breeds in wetlands across the continent. The second is, well, pretty nearly a tragedy, given its stymied potential. The fantastic adaptations so essential to its crane-ness are null and void in the context of a zoo.

Wilderness is more than what can happen in a garden, even with native species. Wilderness is not just a place where some or even many natural purposes flourish; it is a place where the whole character of the land is constituted by the flourishing of natural purposes in natural relations. It is land which is *wildern*—composed of wildness. So understood, wilderness is the full manifestation of the wildness expressed in a limited way in the tree in the garden. Wilderness is land whose structure and character are

²³⁵ *A Sand County Almanac*, 101.

expressions of natural purposes, neither censored nor embellished by our needs for safety and utility. We value wildness everywhere, and wilderness uniquely so, as wildness expressed fully in the land.

One advantage of this approach is that the wildness of nature in the wilderness and the wildness of nature in my backyard are of a piece; both are cut from the fabric of flourishing natural purposes. But my approach, unlike Cronon's, is also able to discern a difference. In wilderness, the flourishing of natural purpose is unrestrained by culture, so that the interaction of natural purposes form the governing processes and structures of the landscape and are so able to achieve a functional wholeness.

This interpretation can also embrace J. Baird Callicott's version of sustainable development—of maintaining as much wildness in our cultivated landscapes as possible—though as a complement, not an alternative as he suggests. He argues that, while much western rangeland should not be set aside as wilderness preserves, it would be much better managed if used to raise bison and deer rather than the ecologically inappropriate cow.²³⁶ However, one need not give up on wilderness to so value wildness in other landscapes. They are as harmonious in spirit as any two projects ever were. Indeed, it is not even clear to me that the managing the western prairies for a harvest of bison would not be consistent with a wilderness condition, at least in portions of the country. The human is one of the bison's native predators, after all, to whom it is well adapted.

²³⁶ Callicott, "The Wilderness Idea Revisited," 359-61.

This conception of wilderness also answers Cronon's complaint that the wilderness idea offers only a counsel of despair, of suicide, and no useful guidance. By saying what wilderness is, and not merely what it isn't, the way is opened for inquiry as to what helps or trammels particular wildernesses, particular natural purposes.

Wilderness preservation thus does not, *a priori*, mean the removal of people, especially those who have lived in the land for an evolutionarily significant period of time. Rather this version of wilderness allows conservationists to evaluate particular land uses (or the cessation of traditional land uses) in terms of their effects on particular wildernesses.

A careful reading of the American wilderness preservation tradition, as I have attempted in chapters two and three, shows that wilderness has overwhelmingly been treated as a presence, not an absence. American wilderness appreciation has been a decidedly botanical, zoological and geological affair. From Thoreau's lament over lost species as leaves and passages torn from the poem of nature²³⁷ to Leopold's question, "Of what use are wild areas destitute of their distinctive fauna?"²³⁸ the object of affection is wild nature as something and as up to something.

The wording of the Wilderness Act may give *prima facie* support to the negative conception of wilderness as human absence, and it is often cited to this effect, but a better, more coherent, reading is possible with the positive conception of wilderness as presence. The key is to recognize the exclusion of people as a contextual and practical requirement rather than a conceptual necessity. The Wilderness Act is written to address a particular problem, the destruction of wilderness under the pressure of economic

²³⁷ Cited in Worster, *Nature's Economy*, 66.

²³⁸ *Sand County Almanac*, 192.

expansion, with a particular solution, legal designation and protection. It aims not for an ontologically accurate definition of wilderness but for a definition that will identify places which could be appropriately and successfully defended in this way.

The Act is admittedly ambivalent on the nature of wilderness. It recognizes wilderness areas by the absence of people (only noting that such areas “may” also have ecological or scenic value) and then requires that “these shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use as wilderness.”²³⁹ Wilderness is treated simultaneously as land free from the dominating influence of humanity and also as “resource” to be managed for human use. How can this be? It even recognizes wilderness as land without extractive industry and then provides for various levels of extraction in certain circumstances. No wonder Plumwood says of American wilderness legislation that “the result of the whole is incoherence.”²⁴⁰

There are, however, clear indications of the positive conception of wilderness in the wording of the Act as well as these shades of the negative. The key phrase, “community of life,” is a mark of Leopold’s influence. *Untrammeled* is perhaps the central word in the Act, with much contest over what is to count as trammeling. But the term is rarely explained, and I suspect, is frequently confused with *untrampled*. To trammel is “to hinder the free action of; to put restraint upon, fetter, hamper, impede, confine.”²⁴¹ The word originally referred to a type of fish net that entangled the fish in

²³⁹ §2 (c), §2 (a).

²⁴⁰ Plumwood, “Wilderness Skepticism and Dualism,” 682.

²⁴¹ *OED*.

little pockets. It was later used to describe ropes tied to a horse's legs, to keep it from galloping. In the Act, the word constitutes an acknowledgement that wilderness has purposes and being all its own, from which it should not be hindered.

So rather than reading the negative conception as primary in the Act, I suggest reading the positive conception as primary for the understanding of wilderness and the exclusion of people as the primary practical means indicated for preserving the integrity of what is positively there. The Wilderness Act does not create wildernesses but recognizes and protects them. Its function is primarily the exclusion of "trammeling" human influence. This accounts for the functional definition of wilderness looking very negative. On this reading, allowing some human use, especially recreational, and even taking this kind of use as a purpose for the act, poses no interpretational difficulties. While exclusion of people is terribly problematic as a definition of wilderness, it is eminently reasonable as a scheme for preserving wilderness. Quoting once again from Plumwood:

If in the present oppositional state of Western society there is a serious problem about its human presences and the assumption of destructiveness is mostly realistic, ensuring the absence of Westernized humans except in transient form may often be, as Birch says, the best we can do for the time being to ensure the presence of nature. But we should not so circumscribe our concepts that we *define* nature as human absence, for to do so is to make any alternative to our present oppositional condition unthinkable.²⁴²

²⁴² "Wilderness Skepticism and Dualism," 683.

The positive conception of wilderness, here explicated as the systemic or holistic flourishing of natural purposes in the landscape, thus provides a reasonable interpretation of the Wilderness Act and a cogent reading of the preservation tradition.

So far I have not attempted to demonstrate why wilderness is of value or why one should care about the flourishing of natural purposes. Rather, my project has been to explicate a coherent, and I hope compelling, version of a substantial cultural tradition, which clearly does value and care about these things. It is appropriate at this point, however, to offer some reasons as to why the flourishing of natural purposes is a sensible thing to value. I hope in these comments, not to establish deductively the moral significance of natural purpose, but to render its value a live option for those who have either not previously embraced the wilderness tradition or who have embraced it as interpreted under the negative conception.

The flourishing of natural purposes is a rich enough notion to be valued in a number of ways, and indeed a great number of reasons for valuing wilderness have been put forward. Wilderness is valuable instrumentally for diverse anthropocentric reasons. Advocates have argued persuasively for a large number of such reasons, from the economic importance of ecosystem functions to the desirability of satisfying the broadest range of recreational preferences. Many of the reasons are serious and persuasive, and they alone justify a stronger preservation policy than is presently in effect. But to value wilderness only for these reasons would mean missing the heart of the wilderness preservation tradition.

Another and richer way to value flourishing natural purpose is to consider not only its benefits to people but to all sentient creatures. This would be the way of the enduring ethical tradition of utilitarianism. This approach keeps all the arguments of enlightened anthropocentrism and adds an additional set of reasons to the balance. The further advantage of wilderness on this perspective is that it provides for sustained and large populations of sentient organisms living in the environment to which they are most suited. A reasonable argument may be made that failure to express their biological functions will often be accompanied by suffering in sentient organisms. Proper bodily function is generally supportive of mental well-being. And behavioral drives will normally be adapted in harmony with the physiological adaptations, such that frustration of the physiological adaptations will often have psychological effects. Rollin, in describing the animal welfare movement, makes this point about animals used in agriculture:

The agenda is not, for mainstream society, making animals “equal” to people. It is rather preserving the commonsense insight that “fish gotta swim and birds gotta fly,” and suffer if they don’t. ... It is not against animal use; it is opposed to animal use that goes against the animals’ natures and tries to force square pegs into round holes, leading to friction and suffering.²⁴³

Flourishing of natural purpose should thus be a rough guide to the psychological well-being of the sentient organisms who embody those purposes. There is suffering and death in the wilderness, but it is often overstated. Even most predation events are quick

²⁴³ Rollin, *Farm Animal Welfare*, 17-18.

and numbed by adrenaline. Farms may be able to hold larger numbers of certain sentient organisms, but pushing this number requires conditions at odds to their natures and thus more suffering. In the wilderness animals are packed in at a diversity of scales, taking advantage of every available niche. And each organism is well adapted to the niche it inhabits. The wilderness is valuable on sentientist grounds as the best available habitat for large numbers of sentient organisms.

In many of the figures in the wilderness tradition, however, is found a more radical approach. The value of flourishing natural purpose is grounded in the value of life, that is, it is valued biocentrically. This is the approach I wish to defend here.²⁴⁴ That life itself matters, that it is of intrinsic worth, is a thesis frequently advanced or supposed in the writings of the naturalists and wilderness thinkers considered in chapters two and three. Thoreau says it most clearly: “Every creature is better alive than dead, men and moose and pine-trees, and he who understands it aright will rather preserve its life than destroy it.”²⁴⁵ In William Bartram’s introduction to his *Travels*, he spends several pages attempting to blur the distinctions between plant and animal life and between animals and people.²⁴⁶ This passage clearly defends the moral nature of animal life and strongly hints at the moral significance of plant life. Muir’s affection for plants is palpable, and he attributes significance to even the “smallest transmicroscopic creature.”²⁴⁷ “No matter what may be the note which any creature forms in the song of

²⁴⁴ Valuing life does not require an absolute commitment not to kill, such as in some sects of Buddhism. It only requires holding that, *other things being equal*, it is better to let live than to kill.

²⁴⁵ *Walden and Other Writings*, 398.

²⁴⁶ 17-24.

²⁴⁷ Cited in Sachs, *The Humboldt Current*, 316.

existence,” Muir writes, “it is made first for itself ...”²⁴⁸ And continuing to today, conservation biologists continue to recognize the “intrinsic value of nonhuman life” as part of the normative content of their discipline.²⁴⁹

Leopold’s stance on the moral value of life is more difficult to pin down. This is ironic given his frequent pronouncements on the need for a new ethic. He frequently speaks as though life or ecosystems have moral value but then pulls back to anthropocentric justifications for these positions. If people fail to show respect for the other organisms and the biotic community, he argues, it will backfire on them.²⁵⁰ Finding enlightened anthropocentrism sufficient for his cause, Leopold simply “will not dispute the point.”²⁵¹ Perhaps, as a philosophical pragmatist, “he saw that the implications of the two converge in practice and that each is equally true in pragmatist terms.”²⁵² Or perhaps he embraced a biocentric perspective and was being careful in his rhetoric to appeal to the grounds with the broadest appeal, the anthropocentric. The significance that the term *biota* takes on in his corpus leads me to suspect the latter.

But why should one think that life has such moral significance? Is it not a simple violation of the is/ought distinction to attribute moral significance to such a property? But what if life is more than a simple descriptive property? It has proven extraordinarily difficult to define descriptively. The *OED* is unabashedly circular in its offering, defining *life*, *live*, *alive* and *animate* each in terms of the all the others. Biology texts are more daring, usually giving something like the following:

²⁴⁸ “Wild Wool,” 603.

²⁴⁹ Meine et al., “Mission Driven Discipline,” 640.

²⁵⁰ *A Sand County Almanac*, 204.

²⁵¹ Cited in Varner, *In Nature’s Interests?* 130.

²⁵² Varner, *In Nature’s Interests?* 131.

life A state of physical entities that utilize substances derived from outside themselves for the purposes of growth, the repair of structure, and the maintenance of their functional systems, and that also reproduce.²⁵³

But even this does not really attempt to describe the “state” of life but only to qualify the sort of physical entities that can be in it. Even these qualifying features, such as growing and healing, seem only contingently associated with life, not essential to it. For example, this definition has the clumsy consequence that mules, not reproducing, are incapable of life.

This apparent failure of attempts to give a reductive analysis of life in terms of mechanism should not be entirely unexpected. A basic step in the romantic turn and the associated rise of holistic biological inquiry, described in the previous chapters, is the rejection of mechanism as an adequate metaphor for nature. Understanding nature instead as essentially organic requires accepting life as basic, known by intuition and not further analyzable. And if life is known by intuition, then the question of its moral significance can only be decided by appeal to the quality of that intuition.

By *intuition*, I do not mean merely a strong feeling about the matter. To know something by intuition is to grasp directly, to see it by the “immediate apprehension by the intellect alone.”²⁵⁴ Think here of Euclid’s axioms. They are the starting point for reasoning about geometry and are not subject to further demonstration. Not everyone knows them to be so, but anyone can know them simply by taking them into careful

²⁵³ Allaby, *Dictionary of Ecology*, 238.

²⁵⁴ *OED*.

consideration. This is the paradigm case of intuition in the sense I am using it, when something is known to be true in the act of understanding it. I propose that something similar happens in the case of life. To understand life, by the careful consideration of living beings, is to see its worth. Anybody can see this, but not everybody does, either because they do not take time to consider the other creatures or because they only consider how the creatures might serve their own purposes instead of considering what they are in themselves, or for some other reason.

Now the naturalists I have considered in chapter three are people who have seriously dedicated themselves to the study and contemplation of all living organisms. So if a full understanding of life includes appreciation of its moral worth, we would expect to find this appreciation strongest among these biologists.²⁵⁵ And so we do. When it comes to the meaning of animal and vegetable life, the naturalists are better poised than most to, as Thoreau says, “understand it aright.”²⁵⁶ Anyone may see it aright, but this requires the attentive study of living organism—it requires thinking like a naturalist.

And what is this moral understanding of life that they describe? A living being is one of independent purpose, one that exists and acts for its own sake, its own good. To understand a being as alive is thus to understand it as having a good of its own. Rolston, a botanist as well as an environmental philosopher, shares this understanding: “Every organism has a *good-of-its-own*; it defends its kind as a *good kind*. To know what a kind

²⁵⁵ There is another mode of biological inquiry following the tradition of the Cartesian vivisections. Practitioners of this approach to biology may report something different. However, the intense social and professional pressure on such biologists to refrain from moralizing or ‘anthropomorphizing’ their subjects suggests that the moral intuitions are only suppressed at great effort.

²⁵⁶ *Walden and Other Writings*, 398.

is is also to know what a good-of-that-kind is.”²⁵⁷ My own experience as a field ecologist is in agreement. To understand an organism’s embodied purposes is to understand what is required for the good, the flourishing, of the organism. In disclosing its teleological nature to the one who inquires of it, the organism presents itself as a series of demands, to wit, this is what I need in order to be, this is what it means for me to be the kind of organism I am, and as a living organism, it is good that I be.

If moral insight accompanies the attentive study of organisms, and the report of the naturalists considered is that it does, then that is reason to take seriously the biocentric values of ecologists and biologists, especially when they depart from the general sentiments of the broader society. This argument is not merely an appeal to the sentiments of some group, such as environmentalists, which has been selected ahead of time on the basis of their having those sentiments. Rather I argue that biocentrism is supported by the intuition of ecologists and biologists, those who have engaged in the sort of inquiry that can produce the relevant moral insight. It just so happens that ecologists and biologists are a driving and originating force in the environmental movement, which is exactly what would be expected if biological inquiry resulted in biocentric values.

Flourishing natural purpose, at the holistic level of wilderness, is best understood as deriving its moral significance from the life of the organisms which embody the natural purposes. Natural purposes gain significance both as the teleological nature of the living organism and as functions aimed at the sustenance and propagation of that life.

²⁵⁷ Rolston, *Conserving Natural Value*, 172.

Life is had by individuals, but the individual beings are thoroughly conditioned by the larger biotic community or ecosystem in which they subsist. The good of the organism, is just that, a good, because the organism lives, but the content of that good is given by the organism's ecological nature. So life, in giving significance to the organism, gives significance to the full reach of its teleological nature. Life is individual, but the natural purposes, which are made significant by life, reach beyond the individual level. The good of the organism is processive and relational; in other words, it is not only an individual good but a species good and an ecological good. Natural purpose, embodied in the adaptations of the organism and mediated by its ecological relations, bridges the gap from individual to holistic value. The flourishing of the *wilder*, the wild beast, is constitutive of wilderness.

The biocentric perspective adds new reasons for the preservation of wilderness while still keeping the reasons given by the anthropocentric and sentientist perspectives. Yet many environmental philosophers have argued that biocentrism does not go far enough to justify the environmental project, holding rather that ecosystems must be directly morally considerable at the holistic level. In addition, thinkers including Callicott have argued that Leopold provides such an holistic ethic. Against this, Bryan Norton and Gary Varner have argued that Leopold was a practical holist and also for the sufficiency of practical holism.²⁵⁸ Varner distinguishes practical holism in this way:

Ethical holists attribute intrinsic moral value to ecosystems, or biotic communities, “as such” rather than (or at least in addition to) their individual

²⁵⁸ Varner, *In Nature's Interests?* Varner includes significant discussion of Norton's position.

members, whereas practical holists hold only that it is necessary, in order to effectively manage environmental systems, to view them as complex systems that must be managed as wholes.²⁵⁹

The biocentric defense I have offered above is practically holistic in this sense, which some environmentalists may find to be an objection. But it also gives clear reason why value grounded in individual life has holistic implications. I argue that the good of the individual living organism is inseparable from the good of the ecosystem. My defense of a positive conception of wilderness as flourishing natural purpose would, I believe, be compatible with any holistic environmental ethic, but I do not see how or why I should argue for that. Surely *system* is not a morally laden notion. Understanding *system* does not push one beyond the reach of mechanistic understanding. Except for the life of the members, I suspect that no one would value the system as such. It is because the members live that it is a community and not merely a system.

A supporting consideration for valuing the flourishing of natural purpose is the relationship between human flourishing and the flourishing of other animals. Human flourishing, which most consider to be of high moral significance, is in fact a special instance of animal flourishing. First, we consider even our biological functions and purposes that are shared with plants and animals to be important: strength, health, appetite, longevity and procreation among others. The advanced intelligence, language and culture that distinguish humanity, which allow for our conscious purposes, are also biological traits with natural purposes. Culture and language have the natural purpose of

²⁵⁹ *In Nature's Interests?* 10.

the flourishing and perpetuation of *Homo sapiens*. Not only the faculties, but also the specific content, albeit consciously formed, can over the long term be subject to natural selection and thus serve natural purposes. Cultural practices and traditions can be adaptations, part of the fabric of ecosystems. Our cultural and conscious purposes are embedded in a larger teleological context. Caring about natural purpose in animals and plants is thus in consonance with caring about cultural purposes and to a greater degree than most would realize.

A recent commentator on Aristotle's version of natural teleology reflects on this point:

Observing the world from Aristotle's perspective can be humbling because, while offering numerous opportunities for the celebration of human uniqueness and magnificence, it at the same time forces us to recognize the great extent to which we, as natural creatures, are animals and, indeed, plants.²⁶⁰ What constitutes the good life for us can be determined by a process parallel to the determination of what is good for any organism, and a not negligible part of our good life just is a flourishing of our plant and animal nature. . . . To consider the contemplation of any organism to be disgusting because unsightly implies a low estimation of oneself, since humans are composed in a similar way: 'if someone has considered the contemplation of other animals to lack value, he ought to think the same about himself as well' (*PA* i 5, 645A26-8).²⁶¹

²⁶⁰ In Aristotle's system, all living things have a plant nature, in that they have nutrition and grow. Animal movement and human rationality further classify our soul or nature.

²⁶¹ Johnson, *Aristotle on Teleology*, 288-89.

Even the rational soul, by which Aristotle distinguishes humans, is enriched by the recognition of other natural purposes. Not only is reason grounded in natural purposes, but it culminates in returning to them:

If practical wisdom was all there was to wisdom, and contemplation had no other or no greater object than human good, then other natural things, like plants and animals, could justifiably be viewed solely as instruments for human ends. But as it is, the framework of practical reason is subordinate to theoretical wisdom. ... Contemplation is of natures, not of tools. Any further use or benefit that can be had from natures is incidental to the theoretical knowledge of which they are the objects—these are ends to themselves.²⁶²

The suggestion here is that, in addition to plants and animals having a good of their own, analogous to our human good of our own, they are the proper objects of the highest human good, namely contemplation. The naturalist's science is among the highest forms of cultural flourishing for Aristotle. Rolston has made the similar suggestion that at least part of the significance of humans is as nature's storytellers, by which he means telling the story of nature, doing natural history. Enjoying diverse natural things is "a condition of human flourishing," he maintains, and "an interest in natural history ennobles persons."²⁶³ Given such thick relations between the spheres of natural and cultural purposes, it should not be difficult to extend the recognition of value across the boundaries.

²⁶² Johnson, *Aristotle on Teleology*, 289.

²⁶³ Rolston, *Conserving Natural Value*, 163.

I am not suggesting that flourishing natural purpose is *the* normative concept, a principle to ground all of ethics. Nor is it even the only environmentally relevant moral principle. Some criticism of the wilderness tradition seems based on the faulty premise that if we value wilderness then we must only value wilderness. Thus, Cronon faults radical environmentalists for excluding from their agenda “problems of occupational health and safety in industrial settings” and other issues of environmental justice.²⁶⁴ That some genuine issues are not supported by an appeal to wilderness is no objection to the value of wilderness. For instance, principles of distributive justice, which are necessary for the much needed environmental justice movement, should not be expected to reduce to the same principles that motivate wilderness preservation. Ethics will never be satisfactorily reduced to a single principle. The character of moral experience is too thick and open to be treated so reductively. A full defense of moral pluralism would take us too far a field from the present project but is of great importance for a satisfyingly rich environmental ethics. Probably no moral philosophy could function properly if actually restricted to any single principle, without at least some supplementary principles to guide its application.²⁶⁵

Wilderness preservation and restoration must be worked alongside and in creative tension with other obligations, values and morally laden projects. In defending wilderness I do not suggest that designated protected areas will solve all environmental problems or even that protected areas are always appropriate. Removing native peoples, which often happens when areas are ‘protected,’ clearly relies on a negative conception

²⁶⁴ Cronon, “The Trouble with Wilderness,” 489.

²⁶⁵ C.f. Singer, “Gewirth’s Ethical Monism.”

of wilderness and is almost never helpful. Wilderness preservation is not a trump card. Indigenous rights, sustainable development, human and animal welfare, individual liberty and distributive justice may at times be set in intractable tension with wilderness preservation and should sometimes prevail. But generally the diversity of life and the integrity of ecosystems which constitute wilderness will serve, beyond their intrinsic worth, to enrich human life and the sustainability of economic and cultural projects. Certainly a dysfunctional ecosystem is not a promising place to find and sustain a niche.

CHAPTER V
MANAGEMENT AND RESTORATION

In reclaiming and reoccupying lands laid waste by human improvidence or malice ... the task is to become a co-worker with nature in the reconstruction of the damaged fabric.

George Perkins Marsh, *Man and Nature* (1864)²⁶⁶

The negative conception of wilderness has given rise to serious conceptual difficulties around the practices of wilderness management and ecological restoration. These practices are well developed and on the surface seem to be clearly helpful activities. Under the usual, negative interpretation of wilderness, however, they are unthinkable. They are performative contradictions. If wilderness is land which is not shaped or created by people, then people clearly cannot shape or create wildernesses. Oddly enough, many who hold strongly to the negative conception are more than happy to encourage the actual practices of wilderness management and restoration, despite the difficulties in speaking about them. But because of these difficulties, some philosophers have been decidedly unhelpful in their counsel. Nash, for instance, writes in a textbook for wilderness managers that true wilderness is not influenced by people at all, and that the wilderness itself, as opposed to the visitors, does not really need management.²⁶⁷ This advice, while well intentioned, is entirely inadequate to the task these managers are entrusted with and may even cause them some philosophical paralysis as they face the real problems of wilderness management. And until recently the only philosophical

²⁶⁶ Quoted in Spirn, "Constructing Nature," 110.

²⁶⁷ Nash, "Historical Roots of Wilderness Management," 27-28.

literature on ecological restoration was decidedly hostile, comparing restoration to art forgery.²⁶⁸ This has had something of an alienating effect between the restoration community and environmental ethicists.²⁶⁹

The practices of wilderness management and ecological restoration are clearly distinct from anything one would normally call cultivation or development. They break the old categories, and they are too important to leave unexamined. Indeed the legitimacy, potential and limitation of these practices are critical issues for understanding and meliorating the ecological crisis. Understanding their legitimacy is certainly important for the application of the Wilderness Act.²⁷⁰ If we have gone too far in our destruction of nature—and clearly we have—then hope and possibility rides on ecological restoration, which may be understood as the physician’s art. But for there to be a physician, there must be a patient. A positive conception of wilderness, as land characterized by the flourishing of natural purposes, allows for a richer array of possibilities in our relationship to wilderness, than does the negative conception. It allows for the possibility that human action may, to a limited degree, work in cooperation with and even restore such flourishing.

I shall consider first the practice of wilderness management, being in some aspects the easier case. The idea of wilderness management strikes many people as

²⁶⁸ E.g. Eliot, “Faking Nature.”

²⁶⁹ Light, “Ecological Restoration,” 399.

²⁷⁰ The possibility of restoration seems to have been counted on in recent interpretations of the Act, which have allowed for more areas to be designated:

The Congressional and judicial rejection of the USFS’s purity definition of wilderness suggested that the untrammeled character of naturalness was more forward-looking: wilderness lands were to be managed in such a way that they *would be* untrammeled and *return* to primeval conditions *in the future*. (Woods, “Federal Wilderness Preservation,” 136).

oxymoronic, and there is no denying that it involves some cognitive tension. If wilderness is essentially constituted by its lack of human influence, as many understand it, then wilderness management can not be real. There can be no management without influence. Having an effect is essential to the idea of managing, and, in being affected by the presumably human managers, the managed wilderness would cease to be wilderness. *Wilderness management* is an oxymoron, a contradiction. Under the negative conception of wilderness, wilderness management is *prima facie* impossible.

But wilderness management is an established discipline with professionals, textbooks²⁷¹ and academic conferences. What are all these professional wilderness managers doing? If Nash's interpretation of wilderness is correct, then either they are doing nothing, and the profession is a ruse, or they are doing something else, like managing visitors, or they diminish the wilderness quality of the land in the act of management. A regular interpretation, and the one offered by Nash, is that wilderness management is in part something else, the management of people, and in part a tragic but necessary diminishment of the wilderness. The wilderness is essentially compromised by management in order to save it from total destruction.

I am going to argue something else: that since wilderness is something other and more than the lack of human influence, human influence might not always destroy this something else, and thus that wilderness management is possible. I do not claim that everything is rosy, that farms are really wildernesses if you look at them rightly, or that I have a formula that will solve all management dilemmas. Rather I offer that a more

²⁷¹ For example, *Wilderness Management*, edited by Hendee, Lukas and Stankey.

substantive account of what wilderness is, and not just what it is not, helps us to better understand what we are doing in wilderness management and why. If our purpose in management is to keep the natural purposes flourishing rather than restructuring the land and its biotic community for our use, then we are managing for wilderness.

Wilderness management does involve loss and change, but it is not the loss of the wilderness itself. It is the loss of the possibility of a particular way of relating to it and being in it. In the presence of management, there is a changed quality of wilderness experience. The freedom of the pioneer is exchanged for a hiking permit. Yet even this loss is ameliorable to a degree.

Changed also is the meaning of wilderness to society: It exists at our permission rather than being a limit to our reach. Two centuries ago, wilderness was wherever Western civilization had not yet established itself. It was the land beyond the reach of the lawman. Today, wilderness is enforced by the lawman. Wilderness areas are wherever we let them be. That is to say, all the North American wilderness is under some degree of human management now.

The earliest history of wilderness management is mostly the history of game management. From ancient times people have found, or speculated, that their interventions in wild lands might increase the abundance of game. Native Americans in many areas frequently burned the land to maintain grassland, preventing succession to forest. This resulted in more forage for game animals and an easier time hunting them. The Mosaic Law of the ancient Hebrews has provisions which appear to be for the maintenance of wildlife populations: "If you come across a bird's nest in any tree or on

the ground, with young ones or eggs and the mother sitting on the young or on the eggs, you shall not take the mother with the young.”²⁷² In 256 BC King Ashoka (Piyadasi) of India issued an edict regarding the protection especially of non-game animals:

Twenty-six years after my coronation various animals were declared to be protected—parrots, mainas, ruddy geese, wild ducks, bats, queen ants, terrapins, boneless fish, fish, tortoises, porcupines, squirrels, deer, bulls, wild asses, wild pigeons, domestic pigeons and all four-footed creatures that are neither useful nor edible...²⁷³

Marco Polo recounts Kublai Khan’s advanced management practices in “The Great Khan”:

There is an order which prohibits every person throughout all countries subject to the Great Khan, from daring to kill hares, roebucks, fallow deer, stags, or other animals of that kind, or any large birds, between the months of March and October. This is that they may increase and multiply; and as the breach of this order is attended with punishment, game of every description increases prodigiously.²⁷⁴

The Khan’s program also included areas specifically managed as habitat for game birds, meeting their needs for shelter and food. This system is remarkably similar to the present strategies of fish and game departments across the United States. Aldo Leopold comments on the significance of this:

²⁷² Deuteronomy 22:6.

²⁷³ Kovarik, “Environmental History Timeline.”

²⁷⁴ Cited in Leopold, *Game Management*, 6.

This is the earliest known instance of food and cover control combined with restrictions on hunting. Its completeness implies a long previous course of evolution. Although now six centuries old, it sets a pace in management technique which our most modern state would be hard pressed to follow.

Kublai's ideas of democracy in sport are of course another matter.²⁷⁵

Sophisticated measures of game management were also practiced in medieval Europe, with similar failings of democracy. *Forest* was a legal designation, applied extensively, in medieval Europe by which the aristocracy dedicated areas for their own exclusive use as hunting grounds.

The forest was the most hated aspect of royal authority throughout western Europe, with forest law especially oppressive in France. French courts dealt brutally with peasants who shot pigeons that fed on their newly planted fields or killed boar and deer that ate grain ready for harvest. Game wardens prohibited weeding and mowing before 24 June so as not to disturb nesting game birds. Peasants were also forbidden to remove stubble before 1 October as this provided vital cover for quail and partridge.²⁷⁶

Leopold claims that the development of game management has usually followed a progression of control mechanisms, which he lists as follows:

1. Restriction on hunting.
2. Predator control.
3. Reservation of game lands (as parks, forests, refuges, etc.).

²⁷⁵ Leopold, *Game Management*, 7.

²⁷⁶ Coates, *Nature*, 47.

4. Artificial replenishment (restocking and game farming).
5. Environmental controls (control of food, cover, special factors, and disease.)²⁷⁷

Negative controls, such as restrictions on hunting, appear first, and positive controls, such as restocking or treating disease, appear later. Some of these methods are more effective than others, and some, notably predator control, are simply misguided in most circumstances. Modern game management in America has become a uniquely scientific and political affair. A large and growing body of research supports extensive management practices on both public and private lands. Wildlife is understood as held in public trust, and a hunting license is available to anyone for a nominal fee. The remarkably democratic nature of game management in America was highlighted to me this morning when I found political commentary in my local paper in Texas on controversial decisions about predators in Wyoming.²⁷⁸ The wolves, having been reintroduced and carefully protected, are no longer considered endangered, but some see this triumph only as an opportunity to once more exterminate them from many areas.

Game management and wilderness management are not exactly the same thing. Game management can be practiced on land that is clearly not wilderness, and wilderness management may include the prohibition of hunting. I include the discussion of game management for two reasons: First, I have argued for a tight relationship between the idea of wilderness and the presence of wild animals; Second, Aldo Leopold,

²⁷⁷ *Game Management*, 4-5.

²⁷⁸ Matthew Brown (Associated Press), "Rockies' Wolves Face Pressure: Stripped of Endangered Status, Animals are Being Hunted," *The Bryan-College Station Eagle*, Monday, April 28, 2008, A2.

who put game management on a scientific foundation, had much more in his sights than improving hunting. He sought to build a practice that would be subversive of traditional ‘development,’ which would work for the flourishing of wildness to some degree across a variety of landscapes. Leopold saw that, properly construed, game management must aim at the health of the biotic community, blurring the distinction between game and non-game animals. And the reverse holds for wilderness managers *per se*: managing the community of life involves managing the game animals.

The development of wilderness management as such, practices aimed at managing land to be wilderness rather than managing wilderness to produce more game, followed the actual preservation of wilderness areas, first in National Parks and then through the Wilderness Act. Wilderness designation was soon found to be insufficient, if the areas were allowed to be abused. Continually increasing recreational use of preserved areas was quickly becoming more than the land could tolerate. An important step was taken very early, in 1937, when Robert Marshall, then working for the Forest Service, was hiking with a group from the Sierra Club. “On the trip the party visited high country severely damaged by the grazing of packstock and by campers.”²⁷⁹ The following discussion resulted in Marshall asking the president of the Sierra Club to form a committee to advise the forest service on issues of wilderness management. Over the next few decades, more and more discussion and energy went into issues of management, instead of simply designation. At first, the response was to develop the National Parks so they could handle more visitors. Roads, motels, latrines, picnic tables

²⁷⁹ Nash, “Historical Roots of Wilderness Management,” 37.

and other facilities were built. Such amenities, while enabling more access to scenic views, were found to be antithetical to the character of wilderness experience. In 1973 permits were first used to limit the number of visitors to some wilderness areas.²⁸⁰ Rules and regulations multiplied on what campers were allowed to do in various areas, from forgoing campfires to packing out their own waste. The leveling off of the numbers of wilderness users and the success of educational programs in minimum impact camping soon allowed a shift to a lighter-handed management of visitors. Eagle Cap Wilderness, for instance, was able to drop its permit system in 1983.²⁸¹

Much of this sort of wilderness management could easily be understood as people management. This might be tolerable to the holder of the negative conception of wilderness, for the acts of management are basically acts of exclusion. “In this regard, it is relevant to remember it is not wilderness that really needs management,” writes Nash in his contribution to *Wilderness Management*, “it is people. Thus ... wilderness management is largely people management.”²⁸² Management by exclusion can account for visitor restrictions, restrictions on development, like road construction, and restrictions on extractive industry, like timber harvest. Still, the absence of these banned activities and of the surplus recreators is now a human influence. It is in some sense an artificial absence of human influence.

But wilderness management involves much more than measures of exclusion. Most wilderness areas are affected by histories of fire suppression and predator

²⁸⁰ Nash, “Historical Roots of Wilderness Management,” 39.

²⁸¹ Nash, “Historical Roots of Wilderness Management,” 40.

²⁸² Nash, “Historical Roots of Wilderness Management,” 28.

extermination as well as ongoing influences from activities on neighboring land. Because of these influences and the limited size and sometimes arbitrary boundaries of preserved areas, maintaining the native species and ecosystems, the “natural conditions” of the Wilderness Act, requires a good deal of game management and other creative activities. It is these activities that give the negative conception so much trouble.

The difficulties may be softened by understanding wilderness in terms of degrees, that is, management may make an area less of a wilderness without destroying its wilderness character all together. Brigantine Wilderness, a marsh important to migratory waterfowl next to Atlantic City, New Jersey, has often been sprayed by aircraft for mosquitoes.²⁸³ Due to human health concerns, this is a compromise that enables the marsh not to be drained. Various measures of protective management may be justified this way, as the lesser of two human influences. Without protective management, wilderness areas would be influenced in much more trammeling and noticeable ways.

Other forms of protective management are a little more problematic, such as the removal of exotic species. Here the direct objects of management activities are not people, but wild or feral plants and animals. Determining which wild animals constitute the “natural conditions” for an area can be problematic. Managers feel justified in exterminating some of these species, because they would not have been there had it not been for human influence. But, notwithstanding that the introduction of these species was a matter of human influence, their removal is also a direct human influence upon the

²⁸³ Jantzen, “Wilderness on Wildlife Refuges,” 33.

“community of life.” If human influence per se is the problem, than the removal is just one more problem.

Wilderness management, as it is practiced today, includes significantly more than such protection. There are also works of maintenance and restoration. The lake and its water quality in Big Lake Wilderness in Arkansas are “now maintained by manmade levees, channels and control structures.”²⁸⁴ Presumably this water maintenance simulates the natural water flow as it was before there was human influence upstream. The Okefenokee Wilderness in Georgia, among other places, is deliberately burned “to perpetuate open wet prairies which have historically been maintained by fires.”²⁸⁵ These works of people leave quite an “imprint “and are certainly not “unnoticeable.” The goal may still be seen as the mitigation of human influence coming indirectly and from a distance, but it is now clearly the land and its biota that are being managed. The management is laborious and intensive, and even, in the case of Big Lake, mechanical. This is not the management of people only, nor is it some small influence such that we might save the wilderness as *nearly* uninfluenced. Yet this permeating and substantial management, this human influence, seems right and is generally agreed upon for these wildernesses, as wildernesses.

Consider now the reintroduction of wolves into wilderness in Yellowstone National Park and central Idaho. More than maintenance, this was an act of wilderness restoration. Yellowstone in its primeval character had wolves. They were exterminated by people in recent history, so the goal may be interpreted as undoing the human

²⁸⁴ Jantzen, “Wilderness on Wildlife Refuges,” 33.

²⁸⁵ Jantzen, “Wilderness on Wildlife Refuges,” 31.

influence of the past. But the act was deliberate and the influence great. Here is a human act by which a land became more of a wilderness than it was before. I maintain that this human touch upon the “earth and its community of life” increased the wilderness character of the region. For a human touch to make a place more of a wilderness than it was before would be an inexplicable puzzle given the negative interpretation of wilderness. It is impossible that the direct affect a human influence be that the object of the influence is less influenced. If influence per se is the contaminant, then there can be no sense in distinguishing more or less trammeling kinds of influence.

With the positive understanding of wilderness, however, as the flourishing of natural purposes, the possibility of managing for wilderness emerges. Managed wilderness is still wilderness if the management is the affirmation or protection of the natural purposes and not the imposition of our own interests. It may be objected that any action taken in the management of wilderness must, as a human action, represent some human purpose. Of course, but we may take as our purpose the flourishing of natural purpose. There may be many reasons for people to desire that the natural purposes flourish—reasons of morality, aesthetics, religion or even economics. But the presence of human purpose is not a problem for wilderness, unless the fulfillment of that human purpose involves a trammeling of natural purposes.

There is no contradiction in designating wilderness areas for the enjoyment of the American people, so long as that enjoyment takes a form that is not disruptive of natural purposes in the landscape. Limiting the numbers of recreators and educating them in minimum impact camping is managing for wilderness because it mitigates the extent that

human presence in the wilderness thwarts, trammels or endangers this natural flourishing. The removal of exotic species can be justified, not *a priori*, but on a per case basis, by seeing whether there are particular natural purposes, such as the persistence of native species, that are threatened by the new arrival. Similarly water and fire management can be justified by seeing whether native species are adapted to and dependent on predevelopment conditions and whether those conditions can be restored through water works or controlled burns. With predator reintroduction, the case is very clear. Not only does the management enable the recovery of those natural purposes dependent on the predator, which have been shown to be extensive, it puts back a major instance of the natural purposes themselves. Indeed, predator restoration is just putting back the *wildeor*, the untamed beast, the very essence of wilderness. How could restoring the *wildeor* not increase wilderness character?

In light of the positive conception of wilderness, as flourishing natural purpose, the wilderness manager is not confronted with the contradictory task of acting so as to erase his or her action, but with the intelligible if difficult task of acting to protect and preserve the natural purposes embodied in the wilderness area.

And yet there is often a loss in the management of wilderness, a tragic diminishment. Not least of all is the problem of mismanagement, of failure to understand the complex dynamics and thus causing harm despite our intentions. While allowing that human activity may be beneficial to wilderness character, I must emphasize the danger of *hubris* and lack of care in such activities. It is abundantly clear that human activity, even when well-intentioned, very often degrades wilderness.

Sometimes the failure of management is political, permitting behavior and activities in the wilderness areas that are known to be heavily trammeling of wilderness character, such as grazing sheep and cattle. Sometimes managers must suppress natural purposes or processes that could cause harm beyond the boundaries of the wilderness area, as with the spraying of mosquitoes in Brigantine Wilderness.

Another loss comes not so much to the wilderness itself but to our possibilities of relating to it. First, the cultural meaning of the wilderness is different. Philip Cafaro points out that “there is a sense in which even the forests of our most remote, unmanaged wilderness areas are enclosed within artificial boundaries; this change, from de facto wilderness to wild only at the mercy of human beings, is important.”²⁸⁶ The wilderness stands no longer as a symbol of individual liberty and the chance to make it on one’s own. It is not the edge of our reach, the chaos beyond. It now stands for our restraint, for our charity toward our mythological mother earth and her other children.

Second, we enter the wilderness as heavily managed. Not only can we not carve out a homestead and a new life from scratch in the wilderness, we frequently can not even walk around in it without filing a hiking itinerary with the appropriate authorities. Jack Turner, in his recent book *The Abstract Wild*, describes this trouble with no small amount of frustration:

Our movements [in national parks] are always subjected to what Foucault calls ‘normalizing surveillance.’ There are traffic police, climbing police, river police, and backcountry police. They carry guns and Mace, wear bullet-proof vests, and

²⁸⁶ Cafaro, “Grounded Conception of Wilderness,” 14-15, fn 4.

levy fines. It is *illegal* to wander around the national parks without a permit defining where you go and where you stay and how long you stay. In every manner conceivable, national parks separate us from the freedom that is the promise of the wild.²⁸⁷

His avowed concern in this book is not to defend wild nature so much as to defend “the authority of its presence in our experience and, hence, in the structure of our lives.”²⁸⁸ The importance of wilderness in human experience is an issue that runs deep in the history of the wilderness idea in America, from the writings of Henry David Thoreau to John Muir and Theodore Roosevelt. This aspect of wilderness, the quality of wilderness experience, is more difficult to manage without trammeling. Some amelioration, at least, has been accomplished in the recent trend from heavy-handed permitting and regulating to a lighter-handed emphasis on visitor education.

What really may be lost for the foreseeable future in North America is the possibility of relating to wilderness as belonging to it. *Homo sapiens* is a natural species embodying natural as well as adopting cultural purposes.²⁸⁹ The conceptual possibility of wilderness people would be another discussion, but would also hinge on rejecting the dualist account of wilderness as the absence of people. Gary Snyder reminds us that “there has been no wilderness without some kind of human presence for several hundred thousand years.”²⁹⁰ Yet our ecological relations, our place in the food web, for instance,

²⁸⁷ Turner, *The Abstract Wild*, 28.

²⁸⁸ Turner, *The Abstract Wild*, xiii.

²⁸⁹ One result of acknowledging this, is that it makes no sense to remove indigenous peoples from ancient homelands where they maintain essentially primeval relations to the land. Ecologically, it is as much folly as any other predator removal; culturally, it is unconscionable.

²⁹⁰ Snyder, “Etiquette of Freedom,” 169.

are now so mediated by mechanical industry that it is nearly impossible to trace out the consequences of our behavior and consumption patterns on the land and its biotic community. Many of us long for healthier relations to the land as we imagine were had by the indigenous peoples who were here before us. The option of a purely primitive way of relating to or experiencing wilderness is probably lost, but much can be done for improving our actual relations to the land and to wild nature generally. As Leopold said, our present task is one “of mixing a degree of wildness with utility.”²⁹¹ The preservation and management of the remaining genuinely wild landscapes is an important part of this task.

Another part of this task is the restoring of damaged lands. The practice of ecological restoration goes much further than wilderness management and seeks to restore the flourishing of nature in places where it has been severely compromised or altogether ceased. Some of what I have described as management overlaps with restoration, such as predator reintroduction. Many restoration projects are actually underway within protected wildernesses, as part of their management.²⁹² But restoration is equally possible on a stream through a city slum. With respect to the topic of wilderness, the interesting question here is to what degree restored ecosystems can approach the status of wilderness. In blunter words, to what extent can a wilderness be built?

Ecological restoration has substantial controversy around it, similar to wilderness management. Many environmental philosophers have been quite hostile to the idea. It

²⁹¹ Leopold, “Wilderness,” 518.

²⁹² cf. Higgs, *Nature by Design*, chapter 1, where he describes restoration work in Jasper National Park.

is thought to perpetuate an arrogant culture of technological mastery over nature. Some, such as Robert Elliot and Eric Katz, claim that what is produced is not nature but a cultural artifact of much less value. Restoration is really just “faking nature.”²⁹³ The claim to restorative powers, the supposed ability to put things back, has in fact been used to justify the destruction of some of our most beautiful landscapes.²⁹⁴ Other issues dog attempts to work out the details, such as the question of how to determine the goal: since a landscape changes over time, ‘when’ should it be restored to? Is a historical condition the goal, or some amount of ecosystem function?

Many of the difficulties around restoration are due to the assumption of a polar dualism between nature and culture. If nature is the absence of human activity, then humans can not participate in nature’s workings. But if we have a positive understanding of nature’s purposes, then there is no conceptual reason people could not work in cooperation with them. Indeed I argue, given the understanding of wilderness as a place characterized by the flourishing of natural purposes, that ecological restoration can in fact rebuild wilderness. A restored wilderness will be different in significant respects from one that was never trammled or destroyed, but it could qualify as a wilderness. This possibility does not license the destruction of wilderness anymore than the existence of physicians justifies the injuring of people.

The history of ecological restoration is not so old as the history of wilderness and game management. No doubt ancient precursors exist, and much historical work

²⁹³ Elliot, “Faking Nature.”

²⁹⁴ Elliot, “Faking Nature,” 81.

remains to be done in this respect, but the practice is essentially new.²⁹⁵ The earliest major forbearer of the field in America is Frederick Olmsted, and only a few recognize him as such. Most point to “the experiments conducted by Aldo Leopold and his colleagues at the University of Wisconsin’s Arboretum in Madison in the 1930s.”²⁹⁶ Many important and path-breaking steps were taken at Madison, but to begin the story there would leave out too much of importance.

Frederick Law Olmsted, the founder of landscape architecture, made a career of building and managing natural scenery. He believed that exposure to beautiful, natural landscapes was vitally important to the psychological health of people, and was relentless in his commitment to make it available to every American. The best landscapes in America, unlike Europe, would not become the private domain of the wealthy few. This commitment had at least two expressions in his work: involvement in wilderness preservation and developing urban parks.

Olmsted was intimately involved in the planning of Yosemite as a Park. After it was designated in 1864, he was asked to chair the commission on what to do with it.²⁹⁷ Another major influence on the course of wilderness preservation was his mentoring of Gifford Pinchot, the pioneering conservationist and first Chief Forester. But it is Olmsted’s penchant for building ‘natural’ places that is of interest here. Central Park, in New York City, was “created from bedrock; all the rivers, ponds, and wooded areas

²⁹⁵ Higgs, *Nature by Design*, 85; Some early nineteenth-century works in Italy and France are of note, and may have inspired Olmsted’s contemporary, the conservationist George Perkins Marsh, in his comments on “the possibility and importance of the restoration of exhausted regions” (cited in Higgs, *Nature by Design*, 88).

²⁹⁶ Higgs, *Nature by Design*, 78.

²⁹⁷ Spirm, “Constructing Nature,” 92.

were engineered.”²⁹⁸ Around Niagara Falls, he removed buildings, re-channeled the river back into a meandering path and planted native riparian vegetation, providing a frame of natural scenery for the falls.²⁹⁹ At Biltmore, he created a forest “out of whole cloth,” which is now part of Pisgah National Forest.³⁰⁰ In Boston, he turned polluted mud flats into beautiful scenery and functioning ecosystems.

Boston’s Fens and Riverway were built over nearly two decades (1880s-1890s) as an urban “wilderness,” the first attempt anywhere, so far as I know, to *construct* a wetland.³⁰¹

Many do not consider Olmsted to be in the tradition of restoration ecology, because he was not aiming to restore the historical condition of the landscape.³⁰² But he has much in common with contemporary restoration. The actual work of building ecosystems is much the same whether the goal is set by reference to historical conditions or generalizations from other wild landscapes—digging, planting, replanting, long term monitoring and guiding through stages of succession, for instance. He understood landscape process and aimed, like restorationists, for both aesthetic and functional results. Anne Spirn finds in his legacy a compelling answer to the preservationist/conservationist split:

Olmsted represented a middle ground—which eroded in the twentieth century—between John Muir’s idea of nature as “temple” and Gifford Pinchot’s idea of

²⁹⁸ Higgs, *Nature by Design*, 90.

²⁹⁹ Spirn, “Constructing Nature,” 96.

³⁰⁰ Spirn, “Constructing Nature,” 99.

³⁰¹ Spirn, “Constructing Nature,” 104.

³⁰² Higgs, *Nature by Design*, 90.

nature as “workshop.” ... Olmsted could reconcile reverence and use, and he did this through art.³⁰³

A recent commentator has suggested that no one goal is definitive of ecological restoration, but that there are “three major themes—the restoration of species, the restoration of whole ecosystems or landscapes, and the restoration of ecosystem services.”³⁰⁴ Olmsted was clearly involved in two out of three of these. I find Olmsted to be significant forerunner of ecological restoration, because he worked with natural processes to achieve an end that was not (entirely) of his own invention but was largely set by nature. He worked to enable the flourishing of natural purpose. “His landscapes were constructed,” writes Spirm, “by human imagination, human labor, and processes of nonhuman nature.”³⁰⁵

Most ecological restorationists look to Madison, Wisconsin, during the great depression, for the birth of their discipline.³⁰⁶ And there is no denying that the Arboretum at the University of Wisconsin – Madison has played a central role in the development of the science of restoration ecology. It still houses “the oldest and most varied collection of restored ecological communities in the world, including tallgrass prairies, savannas, several forest types and wetlands.”³⁰⁷ Many of the restoration projects were begun with Civilian Conservation Corps crews, which were stationed at

³⁰³ “Constructing Nature,” 112.

³⁰⁴ Joan Ehrenfeld, cited in Higgs, *Nature by Design*, 81.

³⁰⁵ “Constructing Nature,” 110.

³⁰⁶ Higgs, *Nature by Design*, 78.

³⁰⁷ Arboretum website, <http://uwarboretum.org>.

the Arboretum from 1935 to 1941.³⁰⁸ The overriding concern at the time was the possibility of prairie restoration in the aftermath of the dustbowls.

Aldo Leopold was involved in the early experiments, and he spoke at the dedication of the Arboretum in 1934:

This Arboretum may be regarded as a place where, in the course of time, we will build up an exhibit of what was, as well as an exhibit of what ought to be. It is with this dim vision of its future destiny that we have dedicated the greater part of the Arboretum to a reconstruction of original Wisconsin, rather than to a “collection” of imported trees.

Several scientists who would play substantial roles in the development of the field began there. The first restoration journal began out of the Arboretum in 1983, *Restoration and Management Notes*, later to become *Restoration Ecology*.³⁰⁹ And it was the first home of the now international Society for Ecological Restoration, founded in 1987.³¹⁰

Since the 1980s the field of restoration ecology has exploded in terms of numbers of projects and practitioners. Some projects are worked by professional scientists with government or corporate funding, others are entirely amateur and volunteer affairs and many are some mix of these. Most projects concern a fairly small area, but a few are very large indeed.

The Kissimmee River Restoration in Florida is the largest ecological restoration to date, and it merits consideration as an important example. A large, meandering river,

³⁰⁸ Arboretum website, <http://uwarboretum.org>.

³⁰⁹ Higgs, *Nature by Design*, 79-80.

³¹⁰ Higgs, *Nature by Design*, 82.

the Kissimmee had an unusually large flood plain and “prolonged periods of inundation.”³¹¹ After extensive flooding in the late 1940s, plans were made for extensive flood control mechanisms. Through the 1960s, the Army Corps of Engineers worked to channel the river into a series of impoundments and canals. They finished in 1971, with immediate public backlash for the environmental and recreational losses. “35,000 acres of wetland ecosystems [had been] lost or significantly altered.”³¹² Water quality and ground water levels went down. Wildlife was disappearing. There were worries about harsher storms and winters without the water and temperature buffer of the wetlands. So the astounding decision was made to try to put it back.

In the early nineteen-eighties a small scale demonstration project was undertaken to show the feasibility of redirecting the river back into its former meanders, and now the Corps of Engineers is well into a half-billion dollar project to undo its own work. Begun in earnest in 1998, completion is projected for 2011. The goals are clearly delineated in terms of ecological integrity and natural process:

The KRR project is intended to restore over 40 square miles of river and floodplain ecosystem including 43 miles of meandering river channel and 27,000 acres of wetlands. Restoration efforts will re-establish an environment conducive to the fauna and flora that existed there prior to the channeling efforts in the 1960s. The following are the Corps's goals and objectives to restore the ecological integrity of the damaged ecosystem:

- re-establish historic hydrologic conditions

³¹¹ USACE, “Kissimmee River Restoration.”

³¹² Higgs, *Nature by Design*, 64-65.

- recreate the historical river/floodplain connectivity
- recreate the historic mosaic of wetland plant communities
- restore the historic biological diversity and functionality³¹³

So far the project has been incredibly successful. Water flow was restored in 2001. Native plant communities are thriving. Bird populations are up, and at least eight species of shore bird and five species of duck that disappeared from the area have returned. Fish communities have come back substantially as the river has seen a six-fold increase in dissolved oxygen, a vital resource for aquatic fauna. By the end, the restoration will include over forty square miles of flood-plain ecosystem and nearly 20,000 acres of wetlands.³¹⁴ By restoring the hydrological processes to which the native biotic community had adapted, the Corps of Engineers are enabling the wild plants and animals to resume their ancient relations and activities. They are enabling the flourishing of the same natural purposes and processes that they had so thoroughly trammled and impounded.

Not everyone finds restoration projects as compelling as I do. Rather than seeing hope and possibility, they see self-deception and the same technological hubris that caused the trouble in the first place. Robert Elliot, in “Faking Nature” (1982), offers some of the earliest philosophical criticism of restoration ecology. His main target is the pernicious claim of mining companies that they can put things back with ecological restoration and should thus be allowed to destroy them as they mine. The mining companies offer what he calls the ‘restoration thesis’: “that the destruction of what has

³¹³ USACE, “Kissimmee River Restoration.”

³¹⁴ USACE, “Kissimmee River Restoration.”

value is compensated for by the later creation (recreation) of something of equal value.”³¹⁵ Elliot’s counter is that what gets put back is not the same, or of as much value, as what is lost. Therefore, the mining companies should not be given a pass on these grounds.

His suggests that, like an art forgery, a restored landscape might be indistinguishable from the original and yet not have the value of the original. The difference is in the origin, no matter how well the restoration is performed. Something’s origin can be deeply relevant to its value, and many value wilderness, at least in part, because of the otherness of its origins. It was incredibly important to John Muir, for instance, that Hetch Hetchy was God’s handiwork and not man’s. In important respects then, Elliot claims, restored nature is a fake. It may deceive us, and it may have real values, such as wildlife habitat, but if we know its true history, then we must value it less than the pristine.

But to what extent are restored landscapes artifacts? What is contrived and how much causal continuity remains? “If ecological restoration is a material practice, like making a piece of art,” asks Andrew Light, “why isn’t it more like art restoration than art forgery?”³¹⁶ The restored ecosystem is in the same place as the damaged one, analogous to being on the same canvas. The restored species are the same, having undiminished causal continuity with the historical populations. They cannot be faked; no restorationist ever made a plant or animal from scratch. Many of the same relations and processes can

³¹⁵ Elliot, “Faking Nature,” 81.

³¹⁶ Light, “Ecological Restoration,” 401.

begin once more. Natural purposes are enabled to flourish and dominate the landscape once more.

Another philosophical critic, Eric Katz, has written extensively in the same vein as Elliot. Ecological restoration not only produces fake nature, a “Big Lie” in his words, it is just another example of humanity’s arrogant attempts to technologically dominate nature.³¹⁷ “In my view,” Katz writes, “the practice of ecological restoration can only represent a misguided faith in the hegemony and infallibility of the human power to control the natural world.”³¹⁸ Restoration is duplicitous, because it passes of a mere artifact for nature. The implication that nature is replaceable undermines the arguments for needed preservation. And all of this contributes to human patterns of arrogant domination of the landscape. For these reasons, Katz is even less willing than Elliot to see value in any restoration.³¹⁹ He does not, like Elliot, limit his critique to those pernicious promises of restoration whose intent is to license destruction.

Even more so than Elliot, Katz treats a restoration as a whole sale human creation and therefore not as nature at all. A polar dualism between nature and culture is clearly at work. But once more, how much is actually a human product in a given restoration? Katz offers us an example:

Steve Packard’s restoration of the midwest savannah is created by a systematic collection of the seeds of wild grasses and the use of controlled burns to prepare the land for sowing. The result is an ecosystem which looks and functions like

³¹⁷ Katz, “The Big Lie.”

³¹⁸ Katz, “Problem of Ecological Restoration,” 222.

³¹⁹ Light, “Ecological Restoration,” 401.

the original savannah—but it is a system that is a product of human science and technology—an artifact.³²⁰

The seeds are naturally given. Their power to germinate in burned, Midwestern soil is naturally given. The ability of the grasses to grow and flourish in that climate is due to the same evolutionary history of adaptation that allows them to flourish in the pristine savannah. The insects and birds which come make their homes in the restored landscape were not created in labs. In the end it is Katz who has an unreasonable faith in technology, who thinks that a functioning ecosystem could be a human artifact. Like Locke, he confuses the mixing of labor with wholesale creation.³²¹ The restorationist is accused of creating ecosystems *ex nihilo*.

So sharp is Katz's distinction between people and nature, that the difference between a lightning strike and a dropped match is enough to turn a forest into an artifact:

The historical continuity of the changes in an ecosystem determine its authentic ontological identity as a natural system. A forest area is hit by lightning and burns. The forest and the undergrowth return, rejuvenated by the cleansing power of the fire. The new growth maintains a natural historical continuity with

³²⁰ Katz, "Problem of Ecological Restoration," 223.

³²¹ Locke, as briefly discussed in chapter two, said that nature takes on value, becomes property, when human labor is mixed with it, a position which entails nature makes no contribution of worth. Compared to human effort, nature comes up as a relative zero. So for Katz, the human labor of the restoration completely eclipses the contribution of nature. Locke thought we could treat nature as worthless because it was super abundant. But today, when we have clearly felt the limits of nature's resources and witnessed the loss of so many them, this position is a manifest absurdity.

the original organisms in the forest before the fire. These events are totally different from a human-induced controlled burn of the forest.³²²

Working, on the contrary, from a positive conception of nature and wilderness, as a teleological presence, allows the possibility of working together, in cooperation with or on behalf of nature. Elliot is repulsed by the idea that replacing natural “objects of these various kinds,” species and such, could count as the restoration of nature.³²³ Species however are not so many separate objects, but processive and relational beings. In restoration, these processes and relations are not created from scratch. Rather, the necessary conditions are provided for them to resume function and to resume maintaining themselves.

A medical metaphor is more apt than the formal art metaphor. When a broken bone is set, the body begins its own work at healing, and eventually function is restored. Sometimes a cast may be put on for awhile or a screw or pin may be inserted, but the patient does not thereby become the doctor’s creation, an artifact. The idea is absurd. So too with restored ecosystems. Replacing seeds and re-digging the curves of a stream are actions like setting bones. The natural processes then begin their own work of healing. As with a physician or an art restorationist, the goals of the project and the designs employed are taken from a careful study of the subject. The restorationist contributes mostly care, attention and labor on behalf of the other. This interpretation is

³²² Katz, “Problem of Ecological Restoration,” 224.

³²³ Elliot, “Faking Nature,” 84,

far from an accusation of hubristic domination. Rather it highlights, in Light's words, "the possibility of having benevolent restorations."³²⁴

Even a project like Olmsted's work on the Boston Fens and Riverway, where the goal was 'natural' scenery and functioning ecosystem, but not historical fidelity, cannot be reduced to the status of artifact. Unlike the painter and the sculptor, the landscape architect works with in a living medium which is working in its own way. The restorer must work in concert with the 'materials' or the project will fail. Even though Olmsted often used non-native species in building the wetland, they were still wild species.³²⁵ The designs for the project were cribbed from nature generally, if not from that particular landscape. When the wetland began to function on its own, it was as a community of wild life, flourishing in its own purposes. Yes, Boston benefited from the ecosystem services, the water purification and scenery for instance, but the relationship was one of cooperation and not exploitation, where the ecosystems and species were treated as ends also and not merely as means. An ecosystem service has this difference from agriculture: an agricultural landscape has been transformed to meet human cultural purposes but a wild ecosystem meets our needs either by chance or because we, as animals, are adapted to it.

The charge may now be answered that ecological restoration enables and excuses ecological destruction. I have defended a strong view of the possibilities of restoration, but this does not entail a Pollyanna attitude regarding the effects of destructive exploitation. The possibilities of restoration can and should license some uses of

³²⁴ Light, "Ecological Restoration," 401.

³²⁵ Spirm, "Constructing Nature," 108.

nature—we must use nature to survive—but knowledge of these possibilities should also limit our treatment of nature. Sympathetically with Elliot and Katz, I deny the possibility of a technically perfect restoration. An ecosystem is more complex than we can know, and so there will inevitably be more wild purposes and processes in a pristine landscape than in a restored one. Holmes Rolston provides a telling anecdote in this regard:

Once, I was deciding where to hike, looking at trails on either side of the road below Independence Pass near Aspen, Colorado. Reading the trail signs, I found that one trail headed into an old-growth forest; the other headed into a forest that had been replanted about a half a century before, after logging. Instantly, I knew which trail I wanted to take. Recent studies in Appalachian forests have found that, though the dominant trees may come back, the forest undercover is only about one-third as rich as it was before, even where there are some efforts at restoration. I look for rare mosses, and I had considerable doubt that the Forest Service restoration team had replanted any undiscovered species of rare mosses! Still, I was glad that the forest had been replanted, even though I chose to hike in the pristine one. So the first point to make is that restorations, although valuable, are not as valuable as pristine nature, because they are simply not as rich.³²⁶

Rolston comes to the same claims as Elliot about the relative value of pristine and restored nature, but for a very different reason. Rather than seeing human influence as ontologically contaminating, he bases his claim on the obvious limits of our restoration

³²⁶ Rolston, *Conserving Natural Value*, 89-90.

abilities. Nobody is going to replant all the described species, much less the unknown ones. Rolston compares the landscapes on grounds treatable in terms of flourishing natural purposes, namely that not all of them are restored.

Another major issue is the enormous expense of doing ecological restoration well; the restoration of the Kissimmee is costing far more than the original channeling did. A major lesson from Olmsted and Pinchot's work at Biltmore for the Vanderbilts was that growing and managing a forest must be a public project, for no individual, no matter how wealthy, can sustain the cost until it becomes profitable.³²⁷ The relevant timescale is often measured in generations. Generally, the cost of restoring an ecosystem well will exceed the benefit of any substantially destructive exploitation. Preservation and conservation, like preventative medicine, are much easier and cheaper than restoration.³²⁸

Fortunately, not all philosophical commentary on ecological restoration has been hostile to the practice. The passage from Rolston cited above gives a balanced assessment. Light has written a few articles defending restoration's legitimacy and helpfulness. The philosopher and anthropologist Eric Higgs has now provided a friendly and extensive philosophical consideration of ecological restoration in his book *Nature by Design*. He, like myself, finds the significance of restoration to be hope and possibility. Actively involved in restoration work in Jasper National Park in British Columbia and Alberta, a protected wilderness, Higgs writes with the advantage firsthand, long-term experience in the practice. Light and Higgs both clearly reject the polar opposition of

³²⁷ Spirm, "Constructing Nature,"

³²⁸ Higgs, *Nature by Design*, 64.

nature to culture and see nature and wildness in terms of presence. Light argues for the possibility of a benevolent relationship with nature.³²⁹ Higgs, like Plumwood, voices the need for a reconception of wilderness without the dualism, if environmental progress is to be made:

The challenge is to devise meanings for wilderness, and nature more generally, ones that are sufficiently open to salutary human activities, that are mindful of the past, and that filter against insidious and destructive patterns and activities.³³⁰

He finds this new meaning in the salutary activity of ecological restoration. Restoration involves human designs upon the landscape, but it is possible to have a “*wild* design, the kind that operates in sympathy with the vitality of life.”³³¹ To have sympathy with something requires a positive understanding of it; there can be no sympathy with an absence. And to restore something requires a positive understanding in some depth, and understanding of just what the biotic community is up to.

To restore something means to consider *what the thing is and what it means*.

This is perhaps the primary value of restoration, a way of reflecting deeply on appropriate action.³³²

So if an ecosystem can be restored in this manner, by careful study and hard work, if the historical processes of water and fire can be returned to the land, if native plant species can be regrown and native animals released or enticed back, what is lacking for this to be a wilderness? The natural purposes are enabled to flourish once

³²⁹ Light, “Ecological Restoration,” throughout, e.g. 409.

³³⁰ Higgs, *Nature by Design*, 21-22.

³³¹ Higgs, *Nature by Design*, 5.

³³² Higgs, *Nature by Design*, 41.

more and to dominate the character of the landscape in their flourishing. None of the restored community of life has been tamed or domesticated. There are no new adaptations which require cultural ends for explanation. The restorationist, by adopting nature's own ends, makes himself a means. The historical, natural, wild condition determines the restorer's design, which in turn determines the structure of the restored landscape. Areas, such as Yellowstone, where the land is not extensively developed and the restoration consists in reintroducing missing predators are a clear case. But even a forest that has been clear cut or a river that has been channeled has significant potential for recovery. A perfect restoration of all the soil microbes and insects will always be beyond the technologically feasible, and an extinct species is gone forever. But when untamed animals and untamed plants are enabled to resume their untamed relations to the level of holistic, ecosystem function, then there is, albeit diminished, a wilderness.

CHAPTER VI
CONCLUSION

The North American tradition of wilderness appreciation and preservation is neither an historical anomaly nor a pathological self-deception. It has deep roots in religious and philosophical traditions of thinking about nature and in the development of natural history and the ecological sciences. A survey of these roots reveals an understanding of wilderness far richer and more sophisticated than that attributed by the tradition's critics. Wilderness is not the mere absence of human influence, not just a name for whatever is not culture. The major figures in the history of wilderness appreciation, the poets, philosophers and especially the naturalists, have all spoken of nature as a presence in its own right. Wilderness is the active product of the strivings of nature; it is the emergent coherence of the purposes embodied in wild plants and animals. These wild organisms are not a collection of discrete objects but an assemblage of processes and functions embedded in a complex web of relations. These processes and relations form a Heraclitean $\lambda\omicron\gamma\omicron\varsigma$ in the flux. Wilderness is the flourishing of natural purpose in an ecological community.

By thus considering wilderness in terms of what it is, rather than merely what it is not, the conception of wilderness as human absence is rejected. Human presence and influence in nature are therefore no longer condemned *a priori*. This approach does not, however, undermine the strong practical reasons for limiting the presence and activities of people in protected wilderness areas. Human influence must be judged by

considering its actual effects on the land in question and its community of life. Some natural purposes are more easily trampled than others, and some human behaviors are more destructive than others. Understanding the exclusion of people as a practical consideration instead of a conceptual necessity allows for a coherent reading of the Wilderness Act. The idea of wilderness as flourishing natural purpose can help guide us both in managing the wilderness that remains, in restoring the wilderness that has been degraded and in reforming our relations to wild nature in the places we inhabit and cultivate.

Natural purposes and emergent ecosystem functions can be studied and understood by those who inquire openly and patiently, allowing for the possibility of laboring in harmony with the biotic community rather than against it. The science of ecology and her practical children, conservation biology and restoration ecology, are vital sources of cultural critique and creative solutions to our pressing environmental problems. The role of the naturalists and ecologists is often underappreciated in the story of the American love of wilderness. But such scientists have been a driving force of the conservation movement since it began and continue to play a guiding role. Their version of science as the contemplation and attentive care of wild life stands in stark and refreshing contrast to the dominant version of science as the technological manipulation of nature in service of industry.

Preserving the remaining wilderness in the world is an extraordinarily important and timely project. But this does not mean conservationists should be complicit in the oppression of people. The presence of people in the land should not be considered *a*

priori detrimental to its wilderness value. And effective preservation requires not merely strong enforcement, but an approach that can be sustained in relative harmony with local culture and development.

Ultimately wilderness is the home in which culture must find an abode. Human flourishing is mostly animal flourishing, dependent on a healthy soil, flora and fauna. We must turn from exploitative, destructive and unsustainable resource use to the creative establishment of sustainable niches within the biotic community. Cultural purposes must be fashioned with respect towards nature's purposes, both as providing for the very possibility of culture and as establishing limits on what ought to be done. The true ideal of wilderness, of a landscape that functions as a healthy, sustained organic community, with *Homo sapiens* as "plain member and citizen of it,"³³³ is an important intellectual bequest and resource that should not be abandoned.

I close, as I began, with words from Thoreau:

*Here is this vast, savage, howling mother of ours, Nature, lying all around, with such beauty, and such affection for her children, as the leopard.*³³⁴

³³³ Leopold, *Sand County Almanac*, 204.

³³⁴ "Walking," 40.

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