

## – The Science and Ethics of Stewardship – The Case for Environmental Preservation

“... we see repeated the same basic paradoxes: man the conqueror *versus* man the biotic citizen; science the sharpener of his sword *versus* science the searchlight on his universe; land the slave and servant *versus* land the collective organism.”<sup>1</sup>

- Aldo Leopold

“... in Wildness is the preservation of the world.”<sup>2</sup>

- Henry David Thoreau

### Introduction – The Dissertation

Central to debates in environmental ethics and philosophy is the clash between instrumental and intrinsic value. Whereas viewing the environment as instrumentally valuable emphasizes the usefulness of the things of nature as means for meeting the needs and desires of human beings, recognizing the environment as intrinsically valuable grants nonhuman beings moral standing independent of any interests human beings might have in them. My research seeks to bridge the gap between these by theorizing environmental values and politics as matters of making and defending homes for humans and nonhumans alike—for what is the environment but the places in which humans and nonhumans live? I seek to investigate environmental politics as the politics of what I call *ecological belonging*, a series of relations and experiences that bind humans and nonhumans together in a common home.<sup>3</sup>

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<sup>1</sup> Aldo Leopold, *A Sand County Almanac: with Essays on Conservation from Round River*, Ballantine Books, [1949] 1966, pp. 260-1, emphasis in original.

<sup>2</sup> Henry David Thoreau, “Walking,” in *Henry David Thoreau: Collected Essays and Poems*, Library of America, 2001, pp. 225-255.

<sup>3</sup> I use the term “nonhuman” throughout this chapter in a capacious sense to include all beings that are not humans. Though debates rage in the field of environmental ethics as to which nonhumans are entitled to

My dissertation seeks to read environmental politics and philosophy through the lens of belonging, of being at home in the world. My intuition is that, underlying all the competing claims regarding ethical obligations, scientific expertise, economic reform, and cultural critique that make up environmentalism in all its internal diversity, the heart of the matter has to do with how we think of the human condition and our place in relation to each other, to our nonhuman neighbors, to the places in which we live, and to the cosmos. To ask the question of how we should comport ourselves to the environment raises questions about why we should (and often do) *care* about the environment in the first place. I suspect that these questions are best answered by thinking about them as a matter of belonging, of being-at-home.

Indeed, these questions are all the more urgent given the dearth of political action on environmental issues despite broad majority support for many environmental policies as reported in American public opinion polling – a problem John Meyer attributes to what he calls the “resonance dilemma” in which environmental social criticism fails to resonate adequately with the public.<sup>4</sup> Whereas he has promisingly suggested that environmental political theorists engage with

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moral standing (sentient animals? complex organisms? living things? ecosystems? landscapes?), I hope to set aside the question of which classes of nonhuman things should be granted moral standing by simply noting that any and all entities in the universe might be objects of ecological belonging, albeit in different ways and with different degrees of intensity and intimacy. For the most part, belonging is experienced with *particular* things rather than *classes* of things. As Wendell Berry argues, belonging is a relation with *this* tree, *this* field, *this* house, *this* landscape (Wendell Berry, “The Whole Horse,” in *Citizenship Papers*, Counterpoint, 2004, p. 116). Insofar as our environs are the places in which we live, any of our ecological neighbors might be the subjects and objects of belonging – whether sentient, living, or inanimate.

<sup>4</sup> John Meyer, *Engaging the Everyday: Environmental Social Criticism and the Resonance Dilemma*, MIT Press, 2015, pp. 1-4. As Meyer points out, the political problem is largely one of priorities – environmental policies are often supported by large majorities of Americans, yet those same Americans often prioritize environmental policies far below others, such as jobs, the economy, defense, and public safety.

everyday practices to make environmental social criticism better resonate with the public, my approach studies environmental political thought from a somewhat different though by no means mutually exclusive angle, focusing on the phenomenological question of how we *experience* the environment and in what ways we belong to it and it belongs to us – and thus what *ends* we pursue when we engage in environmental politics. What good is the forester after when he surveys and then harvests a stand of trees? What does the wildlife ecologist seek when she collects data on water acidity in coastal estuaries? What does the backpacker hope to find during a camping trip into the wild, or the gardener when he tills the soil in his backyard? What does the activist hope to accomplish by resisting efforts to build luxury apartments on a vacant urban lot? In sum – I ask, inspired by Aristotle: toward what goods do environmentalists aim?<sup>5</sup>

I argue that we experience nature as a field of *multifaceted* belonging, and that we can best understand the competing stakes of environmentalism by thinking of the environment as the home shared by humans and nonhumans. Partly inspired by the oft-noted etymological origin of the term *ecology* in the Greek word for the home (*oikos*), I study environmental political thought as a debate about the question of how best to *inhabit* the earth, that is to say, how best to be at home in the world and dwell with our human and nonhuman neighbors. Posing the question of environmentalism in this way leads me to study the phenomenon of belonging, a fundamental feature

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<sup>5</sup> For Aristotle's famous discussion of goods as ends toward which we might aim, see the *Nicomachean Ethics* (trans. Martin Ostwald, Library of Liberal Arts, 1999) Book I, esp. §1.

of the human condition in which one feels more or less at home in various places and circumstances.

The core of my dissertation presents three modes of ecological belonging—three ways in which human beings seek to be at home in their environs. The first, discussed in the chapter preceding this one, has to do with the instrumental and largely economic activities through which human beings seek to make the earth habitable to them by using the things of nature to supply themselves with sustenance, shelter, and various comforts and conveniences. Here nature presents itself as so many natural resources with which we build houses and habitations for ourselves, and it belongs to us (and we to it) through using, building, and cultivating. The second mode, which is the subject of this chapter draft and will be explained in more detail below, encounters nature as so many beings to which we owe ethical obligations of stewardship and of which we seek scientific and philosophical knowledge to come to a more intimate understanding of them. Here we belong through knowing and protecting. The third and final mode—the subject of my next chapter—treats nature as a field of experiences for the unfolding of one’s personality, one’s identity, and one’s culture. As a rough heuristic for the three modes, we might say that in the first mode we make homes *from* nature, in the second we preserve homes *for* nature, and in the third we experience home *in* nature.<sup>6</sup> Nature’s value is instrumental in the first, intrinsic in the second, and experiential

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<sup>6</sup> My thanks to Jeff Green, my dissertation committee chair, for proposing this helpful heuristic.

in the third.<sup>7</sup> To be sure, these three modes rarely exist independently – all three are likely to be at play for most environmentalists. My study of the three modes amounts to passing the multifaceted phenomenon of ecological belonging through an analytic prism so that different and even competing purposes and priorities become clearer.

### **Introduction – The Stewardship Mode and Environmental Preservation**

Writing in 1989 as climate change and species extinctions were swiftly becoming headline news, writer and activist Bill McKibben laments the death of nature – that is, the end of the idea of nature as something separate from the control and manipulation of human beings. Especially unsettling for him is the prospect of the *domestication* of nature – whereas nature once existed beyond us and not (solely) for us, it is now swiftly becoming more like the homes we leave to get out into it:

Now that we have changed the most basic forces around us, the noise of [the] chain saw will always be in the woods. [...] Even in the most remote wilderness, where the strictest laws forbid the felling of a single tree, the sound of that saw will be clear, and a walk in the woods will be changed – tainted – by its whine. *The world outdoors will mean much the same as the world indoors, the hill the same thing as the house.*<sup>8</sup>

Why is it so disturbing to McKibben that the outdoors are becoming more like the indoors – why is the prospect of domesticating the wilderness so disquieting? First, notice that the way McKibben values wild nature cannot be adequately explained

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<sup>7</sup> The three modes of ecological belonging roughly correspond to the three elements of environmental history glossed by William Cronon, though in a different order: “the ecology of people as organisms sharing the universe with many other organisms, the political economy of people as social beings reshaping nature and one another to produce their collective life, and the cultural values of people as storytelling creatures struggling to find the meaning of their place in the world (William Cronon, “Kennecott Journey: The Paths Out of Town,” *Under an Open Sky: Rethinking America’s Western Past*, ed. William Cronon, George Miles, Jay Gitlin, WW Norton & Company, 1992, pg. 32).

<sup>8</sup> Bill McKibben, *The End of Nature*, Random House, 2006 [1989], pg. 40, emphasis my own.

through the lens of the instrumental-economic mode of belonging I discussed in the previous chapter. To be sure, an economist might account for McKibben's valuation of nature by treating it as a form of utility or welfare – perhaps adding it to the model as a taste or preference – but not without reducing McKibben's sense of loss to a variable exogenous to the economist's model, and thus not without missing the point entirely. McKibben and other environmentalists decry environmental degradation, habitat destruction, species extinctions, and other dimensions of the End of Nature for reasons beyond the economic wellbeing humans derive from the things of nature. A desire other than to build, cultivate, or otherwise *use* nature moves him to grieve. Something else motivates this distaste for domestication.

In considering the question of what is at stake for McKibben and like-minded environmentalists, I argue that we come to two analytically distinct answers. The first is that McKibben imparts intrinsic value – or, better, an independent moral status – on the nonhuman beings (animals, plants, ecosystems, landscapes) that make up nature. He laments a moral wrong we have done to them, an ethical duty we have neglected to the detriment of our nonhuman neighbors. Nature is something we should respect and revere, and in our failure to do both, we have run roughshod over something important in its own right. This first answer is the subject of this chapter. The second answer is that McKibben values the personal experiences and cultural meanings that emerge from nature like water from a wellspring – here, the End of Nature is a crisis of identity and of meaning for *McKibben* rather than a crime

against *nature*, a personal loss rather than a moral wrong. This second answer will be addressed in my next chapter.

In this chapter I seek to elaborate on the first answer by analyzing my second mode of ecological belonging, which I call *stewardship*.<sup>9</sup> First, I will distinguish the stewardship mode from the economic mode (itself the subject of an earlier chapter) by contrasting the figures of the steward and the shepherd, noting the potential for stewardship to serve as a counterweight to the tendency of unstrained economism to commodify all the things of nature for the sake of wealth creation. Next, I will turn to Aldo Leopold's *Sand County Almanac* to establish the pivotal roles of science and rationality in both the historical and philosophical development of the stewardship mode. Here it is noteworthy that some of the most influential exponents of the ethic of environmental stewardship, such as Aldo Leopold and Rachel Carson, are scientists by training and see stewardship as founded upon a recognition of truth in a scientific and rational sense, which leads them to view those who exploit nature as simply wrong – and wrong in no small part out of ignorance. Finally, I will reflect on some of the limits and shortcomings of the stewardship mode while seeking to uphold its importance, and I will close with a brief transition from the steward's reliance on science and reason to the poet's emphasis on identity, ecstatic experience, and cultural meaning. While just about any lover of wilderness and nature might

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<sup>9</sup> As the etymology of the word indicates, a steward is one who guards or watches over a ward in his care – much as supporters of environmental preservation and restoration seek to do for their nonhuman neighbors. I will discuss the etymology of the term more below.

relate to the third as well as the second mode of ecological belonging, I maintain that there are analytical advantages in treating the two separately, allowing for clearer reflection on the stakes and competing goals of each, however much they might overlap in the hearts and minds of many environmentalists.

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The stewardship mode of ecological belonging dwells on the intrinsic value of nonhuman beings—animals, plants, ecosystems, landforms—above and beyond our instrumental uses for them. This mode has played an especially prominent role in environmental philosophy and politics since World War II and especially since the 1970s, with seminal texts such as Aldo Leopold’s *A Sand County Almanac* and Rachel Carson’s *Silent Spring* paving the way for an ethic that touts nature’s intrinsic value and the moral obligations that stem from it. Landmarks of environmental law also owe much to this mode, especially the Wilderness Act of 1964 and the Endangered Species Act of 1973, both of which sought to protect nonhuman beings from human destruction. The former was motivated by fears that nature “untrammeled by man” might be swallowed up by industrial society, the latter by the prospect of entire species being exterminated by human activity. Whereas the first (economic) mode of ecological belonging foregrounds the extent to which environmental degradation harms human interests—whether in terms of wealth, health, or security—environmental stewardship addresses such problems as natural habitat loss, species extinction, animal cruelty, and destruction of landscapes and ecosystems. Yet both can be understood as a politics of (and against) a sort of ecological eminent domain—in the first, *human* habitations are degraded,



destroyed, dispossessed, and generally made unlivable, and in the second the same is done to habitats inhabited by our *nonhuman* neighbors. Whereas threats in the economic mode portend human homelessness, environmental stewards work to forestall the homelessness of nonhuman beings in the form of habitat loss.

To be sure, one can argue forcefully that nature and human beings cannot and should not be understood separately.<sup>10</sup> Yet the history of environmental thought would be incomprehensible without some attention to the idea of that which is *beyond* the human, that which is *not* us, that which is *Other* and to which we owe ethical obligations precisely *because* it is not us. Indeed, there has long been a tension in environmental philosophy between two competing ethical instincts – on the one hand, the instinct to *identify* with nature and treat its protection as a matter of self-interest broadly understood, and, on the other, the instinct to honor nature as something *different* from us, something beyond our control, beyond our ken, and beyond ourselves. Both ideas – of nature as an

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<sup>10</sup> Indeed, a host of environmental philosophers have variously critiqued the nature-culture divide by taking aim at supporting binaries that risk alienating humans from the environs of which they are inextricably a part. For example, Jane Bennett seeks to overcome the divide between the human and nonhuman by critiquing the distinction between the agentic and the non-agentic (Jane Bennett, *Vibrant Matter: A Political Ecology of Things*, Duke University Press, 2010). Her strategy follows a long line of environmental philosophy which seeks to overcome dualisms deemed to be sources of humanity's alienation from nature, with such dualisms as subject-object, mind-body, reason-instinct, and nature-culture attracting environmental critique. In critiquing these dualisms, environmental theorists often seek an expansion or even outright obliteration of the self, with the argument being that environmental problems require an extension of what one sees as one's "self-interest." For an argument for the expansion of the self, see Freya Mathews, *The Ecological Self*, Routledge, 1994. For one favoring the all-out abandonment of the self, see Timothy Morton, *Hyperobjects: Philosophy and Ecology After the End of the World*, University of Minnesota Press, 2013, pp. 122-4, 138-9. Importantly, all of these approaches stress the inseparability of humans from nature and critique schools of thought that neglect this fact.

inseparable part of us and as an awe-inspiring (or uncanny) Other—hold undeniable appeal in environmental thought.<sup>11</sup>

The ethical question of how humans should best relate to nonhuman others has occupied academic philosophers for decades, with an upsurge in interest dating back to the 1970s stemming from widespread recognition that traditional Western philosophy largely consigned nonhuman beings to mere instrumental value. Inspired by such earlier thinkers as John Muir, Aldo Leopold, and Rachel Carson, environmental philosophers began to critique what they called *anthropocentrism*, the view that the moral value of humans and their interests far outweigh those of nonhumans.<sup>12</sup> The alternative ethical worldview has been variously described as biocentric, ecocentric, and bio-egalitarian. Debates about the basis and extent of nature's intrinsic value rage to this day, but its advocates largely agree that only assigning instrumental value to nonhuman beings results in unethical exploitation of nature, and that the remedy requires respecting some sort of value or rights intrinsic to nonhumans.<sup>13</sup> Only in this way, argue the critics of anthropocentrism, can we hope to limit the wanton destruction of ecosystems and the nonhuman beings that inhabit them.

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<sup>11</sup> Indeed, the writings of Freud and Heidegger on the concept of the uncanny—in German, *das Unheimliche* (literally, the *unhomely*)—serve as a reminder that the ecological belonging is not solely a feeling of harmony, but can also be experienced as a *strange* familiarity (Freud) or even as an angst-ridden confrontation with finitude (Heidegger). See Freud's *The Uncanny* (Sigmund Freud, *The Uncanny*, trans. David McLintock, Penguin Classics, [1919] 2003) and Heidegger's *Being and Time* (trans. John Macquarrie and Edward Robinson, Harper Perennial, [1927] 2008), I.VI, ¶ 40, pp. 233-4.

<sup>12</sup> This is an exceedingly rough definition. For a critical and more fine-grained discussion that differentiates between weak and strong anthropocentrism and defends the former, see Bryan Norton, "Environmental Ethics and Weak Anthropocentrism," *Environmental Ethics*, Vol. 6, Summer 1984, pp. 131-48.

<sup>13</sup> I will discuss some prevailing strains of non-anthropocentric ethics in more detail in the next section.

Stewardship and preservationism have long served as counterweights to the economic mode of environmental conservation that seeks justification only in the long-term interests of human beings. Indeed, the partisans of stewardship often critique merely economic conservation as ethically hamstrung by anthropocentrism. According to the ecocentric imperatives of stewardship, we should preserve the Grand Canyon, set aside tracts of untrammeled wilderness, and minimize suffering in animals not because of any singularly human interest in doing so, but because our knowledge of nonhuman beings helps reveal ethical obligations arising from their intrinsic value. We should serve as stewards for nonhuman beings because it is *right*, because our knowledge about them demands it of us.<sup>14</sup>

Tellingly, the first national parks were set aside in no small part because they were considered wastes – that is to say, they were deemed more useful for human beings as playgrounds for recreation or laboratories for scientific study rather than as lodes for natural resource extraction.<sup>15</sup> On the one hand, this fact reminds us that the instrumental mode is difficult to disentangle in practice from the second mode that so often limits its reach – scientific and recreational uses are still (human) uses, broadly understood. On the

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<sup>14</sup> I might be accused at this point of committing what moral philosophers call the “is-ought” fallacy in which claims about the way things *ought to be* are uncritically derived from claims about the way things *are*. However, my goal in this chapter is not to argue for a rigorous moral doctrine, but rather to identify a particular mode of ecological belonging that, in my view, owes much of its force to knowledge purveyed by the ecological sciences. For the is-ought fallacy, see David Hume’s *A Treatise of Human Nature* (ed. L.A. Selby-Bigge, Oxford University Press, [1739] 1978), Book III, Part I, Section I, pp. 469-70.

<sup>15</sup> Indeed, the word *wilderness* was once nearly synonymous with *waste*. Cronon observes that, “[a]s late as the eighteenth century, the most common usage of the word ‘wilderness’ in the English language referred to landscapes that generally carried adjectives far different from the ones they attract today. To be a wilderness then was to be ‘deserted,’ ‘savage,’ ‘desolate,’ ‘barren’ – in short, a ‘waste,’ the word’s nearest synonym” (William Cronon, “The Trouble with Wilderness, Or, Getting Back to the Wrong Nature,” *Environmental History* 1.1, January 1996, pp. 7-28, at 8).

other hand, this should not distract us from the ethical and phenomenological difference between using nature to build homes for ourselves and stewarding it for its own sake. Even so, the value of wilderness and nonhuman nature is not entirely separable from human interests and desires. This will become especially clear as I explore the third mode of belonging in my next chapter, but even here in the second mode, stewardship has just as much to do with the question of what it means to be human as it does with the wellbeing of nonhumans. Even here the human being finds a way to be at home in the world – in this case, as a steward, as a knower and caretaker of our nonhuman neighbors. Thus, the stewardship mode of ecological belonging entails a double relation of humanity with home, devoted at the same time to preserving homes *for* nature and a particular way for human beings to be at home *in* nature – as seekers of knowledge and as caretakers.<sup>16</sup> Even in the second mode of ecological belonging, which ostensibly dwells on the wellbeing of nonhuman beings, the stakes are eminently human.

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*[For the sake of space I have excised about five pages in which I further distinguish the aims of the economic and stewardship modes by way of a contrast between two figures – the shepherd and the steward.<sup>17</sup> Whereas the shepherd attends to his flock for the sake of the harvest, the steward guards his flock for its own sake. The wages of stewardship are scientific and ethical rather than*

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<sup>16</sup> As we will see, the enterprises of seeking knowledge and caretaking are not always synonymous – one can imagine a scientific seeker of knowledge practicing unspeakable cruelty to animals (sadly, history furnishes nearly as many examples as the imagination can conjure on this score). Nonetheless, characteristic of ecological stewardship is the marriage of scientific knowledge to the vocation of the environmental caretaker, especially in our time.

<sup>17</sup> I also note that the word *steward* once meant *housekeeper*, from the Old English *stig* for hall or house and *ward* for guard or ward (“Steward, n” *OED Online*, Oxford University Press, Retrieved March 1, 2017).

*economic – the shepherd-conservationist reaps flesh, lumber, minerals, water and even scenic vistas, whereas the steward primarily reaps scientific knowledge and moral satisfaction. I map this distinction out on the differing purposes of land management in National Forests and Wilderness Areas, and I quote the Wilderness Act’s definition of wilderness and emphasize its goal of preserving ecosystems “untrammelled by man.”<sup>18</sup> I also note that, especially beyond the case of wilderness preservation, stewardship is often tied up with economic considerations, such as in National Parks and especially in zoos and aquariums. Nonetheless, the goal of the steward is to preserve and study the habitats in which nonhuman beings live – this is the steward’s vocation.]*

I turn now to the writings of Aldo Leopold, an exemplary environmental steward, to help draw out the content of the stewardship mode of ecological belonging. Rather than aiming to contribute something original to debates about Leopold as a thinker – my reading of him is hardly groundbreaking – I seek to use his defense of what he calls the “land ethic” as a means of illuminating the stewardship worldview. A pioneer in the sciences of game management and wildlife ecology, Leopold left an enduring mark on environmental studies with his *A Sand County Almanac*, a sustained reflection on humanity’s proper relationship with the land.<sup>19</sup> Given his influence on both

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<sup>18</sup> “A wilderness, in contrast with those areas where man and his 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.” U.S. Congress, “The Wilderness Act,” Public Law 88-577 (16 U.S. Code §§ 1131-6), 88<sup>th</sup> Congress, Second Session, Sept. 3, 1964. Emphasis my own.

<sup>19</sup> Born in Burlington, Iowa in 1887, Leopold worked for the U.S. Forest Service in the American Southwest for the first 15 years of his career, helping spur the creation of the United States’ first wilderness area – today’s Gila National Forest in New Mexico – and becoming a founding member of the Wilderness Society. In 1924, the Forest Service transferred him to the Forest Products Laboratory in Madison, Wisconsin, where he would become a professor of game management at the University of Wisconsin. He spent much of his later years on a run-down farm in nearby Baraboo County he purchased with the intent of restoring it to ecological health. There he wrote *A Sand County Almanac*, which was published posthumously and destined to become a classic in environmental writing. He died in 1948 of a heart attack while fighting a fire on a neighbor’s farm.

environmental science and ethics, Leopold's most famous text serves as an ideal statement of the worldview animating the stewardship mode. In the following section, I will read Leopold's land ethic with the goal of drawing out three core elements of the ecological steward's worldview – (1) its critical appraisal of the complete economization of humanity's relationship to nature; (2) its ethical commitment to the intrinsic value of nonhuman beings and the ecosystems they inhabit, and; (3) the guiding and even foundational role of science in allowing humanity to know and care for their nonhuman neighbors – or at least science of a particular kind, one guided by a posture of humility born of a sense of wonder. By reading Leopold's work in this way, I hope to reveal the core elements of the stewardship mode and its preservationist political project.

### **Aldo Leopold on the Ethics and Science of Stewardship**

Leopold's land ethic begins with a pointed critique of the economic mode of environmentalism, at least in its unbridled form. He illustrates this at the outset by reflecting on Odysseus' decision to execute his slaves upon returning to Ithaca in the *Odyssey*, which Leopold reads as revealing a purely instrumental attitude toward the accused. "This hanging involved no question of propriety," Leopold observes. "The girls were property. The disposal of property was then, as now, a matter of expediency, not of right and wrong."<sup>20</sup> To be sure, Leopold's suggestion that disposal of property is and ever was purely a matter of expediency is both simplistic and thoroughly modern, but his insistent distinction between matters of economic expediency and ethical right form the

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<sup>20</sup> Aldo Leopold, *Sand County Almanac*, p. 237.

bedrock of his land ethic. For Leopold, American conservation policies of his day were “still strictly economic, entailing privileges but no obligations,” based solely in “economic self-interest.”<sup>21</sup> Even the conservation education of his day “makes no mention of obligations to land over and above those dictated by self-interest.”<sup>22</sup> By allowing land owners to only practice conservation when it is profitable to them, their efforts only resulted in measures “that yielded an immediate and visible economic gain.”<sup>23</sup> Efforts to limit soil runoff, deforestation, and other forms of environmental degradation were hamstrung from the start because any measures that did not improve the economic welfare of landowners were dead on arrival. “In our attempt to make conservation easy,” laments Leopold, “we have made it trivial.”<sup>24</sup>

The purely economic mode of conservation proves especially troublesome for the preservation of wildlife because so many species lack immediate economic value – they are invisible to modes of valuation tied to money and economic expediency.<sup>25</sup> Indeed, the economic mode even deems entire spaces – such as “marshes, bogs, dunes, and ‘deserts’” – to be “wastes,” making them invisible to conservation efforts driven only by profit and expediency.<sup>26</sup> The myopic vision of purely economic conservation forces those who seek the preservation of endangered species, habitats, and terrains to “invent

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<sup>21</sup> *Ibid*, 238, 244-5. At best, the economic mode of conservation preached only the “enlightened self-interest” of land owners (244).

<sup>22</sup> *Ibid*, 245.

<sup>23</sup> *Ibid*, 244.

<sup>24</sup> *Ibid*, 246.

<sup>25</sup> *Ibid*, 246.

<sup>26</sup> *Ibid*, 249. I discuss this tendency of conventional economic valuation to render both habitats and homes invisible in the previous chapter.

subterfuges to give [them] economic importance.”<sup>27</sup> Leopold cites the example of ornithologists seeking to preserve endangered species of songbirds who argue—on “distinctly shaky evidence”—that the elimination of songbirds would result in a proliferation of insect pests. Leopold laments that “[t]he evidence had to be economic in order to be valid.”<sup>28</sup> Without some recourse to an ethic beyond economic value, ecological stewards can only justify their work by imperfectly translating the value of nonhuman beings into metrics of usefulness for humans. Indeed, this tendency lives on today in the calculation of “ecosystem services,” in which economists attempt to quantify the economic value of ecosystems, climate processes, and even the entire globe’s ‘natural capital.’<sup>29</sup> By translating their value into a monetary idiom that everyone understands, well-intentioned scientists and economists seek to make them more resonant in a public sphere so heavily saturated with the values of economic growth and productivity.

Thus Leopold takes aim against the problematic strain of economic engagement with the environment that I call “developmentalism,” or the view that the things of nature are so many objects to be commodified, exchanged, and transformed in pursuit of

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<sup>27</sup> *Ibid*, 247.

<sup>28</sup> *Ibid*, 247.

<sup>29</sup> For an especially famous early attempt to estimate the value of global ecological services, see Robert Costanza, Ralph D’Arge, Rudolf de Groot, Stephen Farber, Monica Grasso, Bruce Hannon, Karin Limburg, Shahid Naeem, Robert O’Neill, Jose Paruelo, Robert G. Raskin, Paul Sutton, and Marjan van den Belt, “The Value of the World’s Ecosystem Services and Natural Capital,” *Nature* 387, pp. 253 – 260, May 1997. For an updated estimate as well as a response to critics of the original article, see Robert Costanza, Rudolf de Groot, Paul Sutton, Sander van der Ploeg, Sharolyn J. Anderson, Ida Kubiszewski, Stephen Farber, and R. Kerry Turner, “Changes in the Global Value of Ecosystem Services,” *Global Environmental Change* 26, pp. 152-158, 2014. The former study estimated the value of the globe’s ecosystem services at about \$46 trillion per year, the latter at about \$125 trillion per year (both in 2007 US\$). Yet the principled environmental steward might ask: would our duty to protect ecosystems and their inhabitants be any stronger if their value were more than (or any weaker if it were less than) what the studies estimate them to be? Such metrics *may* be rhetorically powerful—that depends on their magnitude—but they seem to miss the ethical point.



monetary wealth.<sup>30</sup> The problem arises from the fact that economistic conservationism leaves something essential out of the equation, ignoring values and ethical principles that should be taken into account. Leopold states the problem in this way:

[A] system of conservation based solely on economic self-interest is hopelessly lopsided. It tends to ignore, and thus eventually to eliminate, many elements in the land community that lack commercial value, but that are (as far as we know) essential to its healthy functioning. It assumes, falsely, I think, that the economic parts of the biotic clock will function without the uneconomic parts.<sup>31</sup>

The problem is that the economic and noneconomic elements of ecosystems are difficult if not impossible to disentangle. Indeed, this is true almost by definition because the distinct advantage of conceiving of the natural world as so many ecosystems highlights the interconnections between the parts. As a result, the commercial value of a particular species, individual, or terrain may bear little or no relation to its *ecological* value—that is to say, its value to the larger inter-species community. While a particular moss or mammal might not sell for much on the market, it might be vital to its ecological neighbors. Thus, for Leopold, economistic conservation is reductive in its scope of values

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<sup>30</sup> I develop a sustained analysis and critique of the developmentalist mode of economic thought and practice in an earlier chapter. Building on the work of such thinkers as Karl Polanyi, Wendell Berry, and Margaret Radin, my treatment of the economic mode of ecological belonging suggests that economic instrumentality is not the true problem facing the environment, nor even is anthropocentrism more generally. Rather, I argue that the fundamental problem is a particular but pervasive economic worldview, which I call “developmentalism,” that obscures the difference between distinct kinds of *economic* value—namely, fungible monetary wealth and human habitations. To express their difference in terms of ideal types, habitation value is exemplified by a house that is perfectly serviceable as a dwelling but has little value on the real estate market, whereas pure monetary value can be found in a bank account whose value is not directly backed by any real property or physical assets. At its base, developmentalism systematically ignores the qualitative differences between these two kinds of *economic* value while attempting to value all things in the world *as if* they were perfectly convertible into fungible monetary wealth or could be made to behave accordingly—including human homes and natural habitats. My distinction between fungible monetary value and the inhabitation value of human homes and habitats is partly inspired by Radin’s distinction between personal and fungible property and by Marx’s distinction between use and exchange value. See especially Radin’s *Reinterpreting Property* (University of Chicago Press, 1993, pp. 35-71).

<sup>31</sup> *Ibid*, 251.

and ethical principles worth pursuing, leading him to conclude that we need to “quit thinking about decent land-use as solely an economic problem.”<sup>32</sup> His proposed alternative is his ecocentric land ethic.

Leopold’s critique of economistic conservationism marks a break in environmental thought, both historically and philosophically. Historically speaking, Leopold can be read as reacting to an older generation of conservationists and policy makers who viewed conservation primarily – though not entirely – through an economic lens that cast their mission as one of responsibly shepherding natural resources from generation to generation. As such, he stands at a pivotal moment between early 20<sup>th</sup> century conservationism and the preservationist impulses of post-World War II environmentalism, between the conservationism of Gifford Pinchot and the preservationism of the Wilderness Act and Endangered Species Act.

At the same time, Leopold’s text marks a philosophical divide between anthropocentric and ecocentric justifications for conservation – and, for my purposes, the distinction between the economic and stewardship modes of ecological belonging. Leopold points to this distinction by invoking what he calls the “A-B Cleavage,” or an internal separation within conservationism between two groups whose views on the nature and purposes of land are at odds. Group A “regards the land as soil, and its function as commodity-production,” while Group B “regards the land as a biota, and its function as something broader.”<sup>33</sup> After tracing the divide through the fields of forestry,

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<sup>32</sup> *Ibid*, 262.

<sup>33</sup> *Ibid*, 258-9.

wildlife biology, and agronomy, Leopold concludes with the passage I quoted in this chapter's first epigraph which contrasts the anthropocentric view of man, science, and the land with the ecocentric alternative he seeks to champion by way of the land ethic.<sup>34</sup> Underlying this alternative worldview is a particular philosophical anthropology, one that views human beings not as conquerors of nature but as fellow ecological citizens with and alongside nonhuman beings. Rather than being our vassals, nonhuman beings are our ecological *neighbors*.

For Leopold, and for so many environmentalists after him, the solution involves an ethical sea-change, one that grants nonhuman beings—animals, plants, microbes, ecosystems, and terrains— independent moral status and attends to their wellbeing. In Group B Leopold finds “the stirrings of an ecological conscience” according to which the preservation of ecosystems and their nonhuman inhabitants is “a matter of biotic right” rather than “mere economic value.”<sup>35</sup> For this view's adherents, justifying conservation by means of strained economic accounting is not entirely *honest* because the proper justification is not really economic at all.<sup>36</sup> For them, human-centered justifications for conservation miss the point. We should preserve endangered species, protect wilderness areas, and set aside habitats because it is *right* to do so—because it is our duty to our nonhuman neighbors to look after their interests. With this in mind, Leopold proposes

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<sup>34</sup> *Ibid*, 260-1. See above, pg. 1.

<sup>35</sup> *Ibid*, 259, 261, 247.

<sup>36</sup> As Leopold puts it: “We have no land ethic yet, but we have at least drawn nearer the point of admitting that birds should continue as a matter of biotic right, regardless of the presence or absence of economic advantage to us. ... It is only in recent years that we hear the more honest argument that [they] are members of the community, and that no special interest has the right to exterminate them for the sake of a benefit, real or fancied, to itself” (247).

his famous 'land ethic' which "enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land," thereby changing the role of human beings "from conqueror of the land-community to plain members and citizen of it" and implying "respect for [our] fellow-members, and also respect for the community as such."<sup>37</sup> Such an ethic includes "obligations to land over and above those dictated by self-interest."<sup>38</sup> At the very least, the land ethic implies that we have no right to exterminate nonhumans for our mere convenience – that is, out of mere expediency.<sup>39</sup>

Aldo Leopold's land ethic helped lay the groundwork for a revolution in the field of ethics in the post-World War II period, especially starting in the 1970s, against the prevailing ethical norm of anthropocentrism and in favor of some form of ecocentrism or biocentrism that acknowledged the independent moral standing of nonhuman beings and the resulting duties and obligations humans owe to them. Citing Leopold, Richard Sylvan argued in 1973 that a position of "human chauvinism" – i.e., anthropocentrism – dominates the Western ethical tradition and leaves it without theoretical resources to speak to what Sylvan called the problem of the "last man."<sup>40</sup> What would happen, asks Sylvan, if a human being who survived an apocalyptic event that destroyed human society and all its inhabitants decided to summarily destroy as many nonhuman beings as he could get his hands on? If a purely anthropocentric ethic guides his actions – according to which his actions cannot be immoral unless they impinge on human

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<sup>37</sup> *Ibid*, 239-40.

<sup>38</sup> *Ibid*, 245.

<sup>39</sup> *Ibid*, 247. See above, pg. XX.

<sup>40</sup> Richard Routley (now Sylvan), "Is There a Need for a New, an Environmental, Ethic?" *Proceedings of the XVth World Congress of Philosophy*, September, 17<sup>th</sup>-22<sup>nd</sup>, 1973, Sofia Press, pp. 205-210.

interests and wellbeing—his actions cannot be immoral. However, instincts emanating from what I am calling the stewardship mode of ecological belonging—instincts very much at play in Leopold’s writings and in Sylvan’s essay—tell us that such activity is morally wrong, and on two interrelated grounds. First, nonhuman beings might have some sort of value *intrinsic* to them—a value independent of human valuation, or at least of our use of them as instruments to meet human needs and wants.<sup>41</sup> The second is that, even for the last man, there is something perverse about his conduct that reflects poorly on him and on his understanding of the proper relation between the human and the nonhuman.<sup>42</sup> Either way, for Leopold and Sylvan, anthropocentrism lacks the theoretical tools necessary to address the proper relation of humans with their ecological neighbors.

In response to this problem, environmental philosophers have proposed a panoply of ethical theories. One of them, advanced by J. Baird Callicott, is inspired by Leopold’s own land ethic and especially his maxim that “[a] thing is right when it tends to preserve

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<sup>41</sup> I am using the term “intrinsic value” capaciously to mark all moral justifications that are (at least ostensibly) independent of human interests. Sylvan’s thought experiment communicates the intuition well—if it is immoral for even the last man to lay waste to nonhuman beings, then it is wrong for reasons that have little or nothing to do with the needs and interests of humans—the reasons lie *beyond* humanity. As Katie McShane points out, “one of the things that we might be asking when we ask whether something has value in its own right is whether it would still have this value even if we were not around, even if no [human] valuers were around...” (48-9). See generally her article “Why Environmental Ethics Shouldn’t Give Up on Intrinsic Value,” *Environmental Ethics* 29:1, pp. 43-61, Spring 2007. For key theorists of the intrinsic value of nonhumans, see Paul Taylor, *Respect for Nature: A Theory of Environmental Ethics*, Princeton University Press, 2011 [1986]; Holmes Rolston III, *Environmental Ethics: Duties To and Values In the Natural World*, Temple University Press, 1988; Michael Zimmerman, *The Nature of Intrinsic Value*, Rowman and Littlefield, 2001.

<sup>42</sup> At the risk of oversimplifying, the difference between reasons (1) and (2) roughly correspond to the division in ethical theory between, on the one hand, deontological and consequentialist ethics, and, on the other, virtue ethics. In deontological and consequentialist ethics, morality stems from something about the intentions or consequences of one’s actions that violate the intrinsic value or rights of nonhuman beings. In virtue ethics, morality stems from the content of one’s character—here the problem is the state of the last man’s soul rather than his intention’s or action’s conformity to moral rules or the intrinsic value of his nonhuman victims.

the integrity, stability, and beauty of the biotic community [and] is wrong when it tends otherwise.”<sup>43</sup> Here the immorality of environmental degradation has less to do with the welfare or rights of any particular nonhuman being, but rather with the individual’s relation to the ecological whole. In part as a response to the perceived holism of Callicott’s land ethic, Tom Regan argues that animals have individual rights that humans ought to respect.<sup>44</sup> Whereas Regan’s theory of animal rights falls into the Kantian deontological tradition, Peter Singer argues on utilitarian grounds for a theory of animal welfare in which he extends considerations of welfare and wellbeing to animals, following the course charted by such early utilitarians as Jeremy Bentham.<sup>45</sup> Of course, in both the utilitarian worldview of Singer and the deontological alternative proposed by Regan, much hinges on where one draws the boundaries of intrinsic value – are they to be drawn on the basis of rationality, humanity, sentience, organic life, or what?<sup>46</sup> Self-avowed “deep ecologists” such as Arne Naess and George Sessions insist on a thoroughgoing ecological egalitarianism in which all lifeforms – including ecological entities that many would not consider to be alive, such as rivers and landscapes – are of equal intrinsic

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<sup>43</sup> *Ibid*, 262. For Callicott’s most recent treatment of the land ethic, see *Thinking Like a Planet: The Land Ethic and the Earth Ethic*, Oxford University Press, 2013. For earlier treatments, see *In Defense of the Land Ethic: Essays in Environmental Philosophy*, SUNY Press, 1989; *Beyond the Land Ethic: More Essays in Environmental Philosophy*, SUNY Press, 1999.

<sup>44</sup> See especially Tom Regan, *The Case for Animal Rights*, University of California Press, 2<sup>nd</sup> Edition, 2004 [1983]. See also Regan’s *Defending Animal Rights*, University of Illinois Press, 2001.

<sup>45</sup> See Peter Singer, *Animal Welfare: The Definitive Classic of the Animal Movement, Updated Edition*, Harper Perennial 2009 [1975], as well as Peter Singer, *Ethics in the Real World: 82 Brief Essays on Things That Matter*, Princeton University Press, 2016, pp. 39-69.

<sup>46</sup> In light of this debate, Jane Bennett’s vital materialism can be read as an effort to ground moral obligation in agency while extending agency to all matter so that our ethical obligations encompass everything, including (seemingly) inanimate things (see Jane Bennett, *Vibrant Matter: a Political Ecology of Things*, Duke University Press, 2010).

value.<sup>47</sup> These arguments for the intrinsic value of nature have not gone without critique, as we will see below. Nonetheless, the intuitions of stewardship underlying these approaches play a prominent role in environmental politics, a role evidenced by public support for preserving natural habitat and endangered species.

### **Science as a Searchlight – the Quest for Ecological Knowledge**

There is one more element of the stewardship ethic that requires investigation – namely, the source of its content. Where does this ethic come from? How do we come to know its requirements? And how are we to be persuaded to follow it? If we find the anthropocentrism of the first (economic) mode of environmental thought to be unsatisfactory, what resources do we have to counteract and limit it? Here the prominent role of scientists and rationalist philosophers in shaping environmental thought is suggestive. At least for them, environmental ethics depends on environmental knowledge, and environmental knowledge comes from environmental science. I will argue in this section that the stewardship mode of ecological belonging – at least as it is understood and practiced today – owes a debt to modes of human inquiry driven by science and rationality. To be sure, scientific reason is no more sufficient than economic reason – indeed, we will arrive at the limits of ecological science below. Nonetheless, when practiced with due humility and for the right purposes under the banner of ecological

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<sup>47</sup> See Bill Devall and George Sessions, *Deep Ecology: Living as if Nature Mattered*, [1985] Salt Lake City: Gibbs Smith, 2001, esp. 54-5 on the deep ecologist's critique of animal welfare theory, and pp. 67-8 on biotic egalitarianism. See also *Deep Ecology for the 21<sup>st</sup> Century*, ed. George Sessions, Boston: Shambhala, 1995, as well as the works of Arne Naess, such as *Ecology, Community, and Lifestyle*, trans. David Rothenberg, Cambridge University Press, 1993.

stewardship, scientific rationality can help us do a great deal of good for our nonhuman neighbors.

As noted earlier, whereas the economic mode deals with human endeavors to use, build, and cultivate the things of nature, stewardship centers on the desires to *know* and *care for* the world around us. Indeed, we might understand a core mission of scientific disciplines as diverse as biology, physics, and cosmology as so many enterprises of humans coming to know the universe in which they reside and to understand their precinct in it. As Stephen Hawking writes,

[E]ver since the dawn of civilization, people have not been content to see events as unconnected and inexplicable. They have craved an understanding of the underlying order of the world. Today we still yearn to know why we are here and where we came from. Humanity's deepest desire for knowledge is justification enough for our continuing quest.<sup>48</sup>

Such an instinct – what historian Daniel Boorstin calls “mankind’s need to *know* – to know what is out there” – drives the ecologist as much as any other scientist.<sup>49</sup> Perhaps more important, the instinct to belong through knowing is hardly the exclusive province of trained scientists and philosophers. It is also the passion of many amateur stewards, from bird-watchers and nature enthusiasts to park volunteers and environmental activists. Following in the footsteps of natural scientists like Aldo Leopold and Rachel Carson, amateur naturalists love their environs in no small part because they yearn to come to know nature on its own

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<sup>48</sup> Stephen Hawking, *A Brief History of Time*, Bantam Book, 1988, p. 13.

<sup>49</sup> Daniel Boorstin, *The Discoverers: A History of Man’s Search to Know His World and Himself*, Vintage Books, 1985 [1983], xvi.



terms. In seeking knowledge of nonhuman nature, naturalists, whether amateur or expert, yearn to make the environment their own – hence stewardship as a mode of *belonging*. In the spirit of discovery, naturalists make nature their own. As Boorstin puts it, the most alluring parts of the map for the scientific discoverer are those marked as “terra incognita.”<sup>50</sup> Curiosity spurs the naturalist’s study of the nonhuman Other, perhaps the most profound kind of terra incognita. By serving as “the searchlight on [our] universe,” science is as much a home-making endeavor for the humans who seek a sense of belonging in the cosmos through knowledge as it is one for the nonhumans whose habitats stewards seek to protect.

Of course, it must be said that, for the purposes of environmental stewardship, not any and every kind of science will do. Again, as Leopold puts it, science can either serve as “the sharpener of [humanity’s] sword” or “the searchlight on [our] universe.”<sup>51</sup> Indeed, just as economics might be sustainable or unsustainable in the eyes of environmentalists, science can just as easily be dismissed by environmentalists as exploitative, hubristic, arrogant, and disenchanting or lauded as stewardly, humble, and inspired by curiosity and wonder. The difference between the scientific spirit behind animal testing and that used to justify wilderness preservation is at least suggestive of such a distinction. In one, the methods of science seek to exploit nonhuman subjects – and our moral disregard for them – as instruments for the sake of human ends related to our convenience and wellbeing.

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<sup>50</sup> *Ibid.*

<sup>51</sup> Leopold, *Sand County Almanac*, 261.

Here science is used as the sharpener of our (anthropocentric) sword. In the other, scientists use their methods as a means of illuminating the interconnections between nature's inhabitants, helping to justify and guide their preservation. Here science is a moral as well as epistemological compass, allowing us to further our sense of belonging to a world filled with neighbors whose needs might be inscrutable to us without some method of extending our senses and common sense – and, at its best, that is precisely what scientific rationality offers. The stewardly scientist studies ecosystems to protect them rather than to use them.

What else distinguishes exploitative science from the science of stewardship? Along with their commitment to the wellbeing of nonhuman beings, stewardly scientists pay due deference to uncertainty and ignorance – they do not profess total knowledge about their wards. “The ordinary citizen today,” Leopold insists, “assumes that science knows what makes the [ecological] community clock tick; the scientist is equally sure that he does not. He knows that the biotic mechanism is so complex that its workings may never be fully understood.”<sup>52</sup> Thus, for Leopold, truly *ecological* science proceeds without hubris, knowing full well that ecosystems are irreducibly complex and dynamic, and thus cannot be exhaustively understood, modeled, or controlled. Guided by a sense of awe and wonder in the face of ecological mysteries that they know cannot be fully solved, stewardly science views

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<sup>52</sup> *Ibid*, 240-1. Note that the scientific steward's reflective ignorance extends even to the economic mode – the scientist knows that things of nature may be useful to humanity in ways that we cannot yet fathom: “What of the vanishing species, the preservation of which we now regard as an esthetic luxury? [...] [W]ho knows for what purpose cranes and condors, otters and grizzlies may someday be used?” (257-8).

ignorance as a fact of life. Even as they pursue their desire to come to know the ecosystems under their protection, ecological stewards respect the limits of scientific knowledge. Practiced properly, ecological science is humble science.

Such humility comes in no small part from the feeling of smallness that many report when studying or exploring wilderness. As stewards watch over their nonhuman wards, they often feel a sense of smallness in a cosmic system of immense scale and complexity, orders of magnitude larger than any human artifice. As many observers have noted, the encounter with nonhuman nature often invites a recognition of human frailty and mortality in the face of an Other that is far beyond their ken and control.<sup>53</sup> The steward's investigation of and care for her nonhuman wards is a task that may make her knowledge of the world around her grow, but it will simultaneously make that knowledge – and her very being – seem quite small.<sup>54</sup> Thus, the stewardship mode of ecological belonging finds its meaning not just in the pursuit of knowledge but in due respect for its limits. Science treats the unknown as a frontier to be explored, but the scientific enterprise depends on the unexhausted presence of further unknowns – and the ecological scientist knows that this terra

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<sup>53</sup> As Cronon puts it, part of the steward's experience of the nonhuman involves those encounters with "those powerful landscapes where one could not help feeling insignificant and being reminded of one's own mortality" ("The Trouble with Wilderness," p. 10). Here, insists Cronon, "you will know as well as I do that you were in the presence of something irreducibly nonhuman, something profoundly Other than yourself." (8).

<sup>54</sup> Indeed, for McKibben, it is precisely the loss of this awe-inspiring otherness that makes the End of Nature so distressing: "We can no longer imagine that we are part of something larger than ourselves – that is what all this boils down to" (McKibben, *The End of Nature*, 71).

incognita can never be fully charted. Indeed, the prospect of its full conquest would portend a tragic loss of awe for the true steward.

Yet, despite the steward's humble appreciation of the unknown, the scientific-rational mode of environmental thought still asserts a powerful claim to truth. Stewards like Leopold and Carson insist that, scientifically as well as morally, nature's exploiters are in error, and they are in error out of ignorance – ignorance of the wrong kind. Just as moral philosophers as far back as Socrates have suggested that vice is the product of ignorance, the partisans of stewardship often view their adversaries as ecologically ill-informed. Nature's exploiters know not what they do – or, they act out of willful ignorance so they might skirt responsibility for the consequences of the environmental degradation they cause.<sup>55</sup> They think of nature solely as a storehouse of raw materials, for how could they not when hundreds (arguably thousands) of years of Western thought have taught them to think this way? They think of man as having dominion over the earth, for how could they not when ecological science, a mode of inquiry devoted to tracing the interconnections and interdependences between species, is still only a few generations old? Thus, for many stewards, error and vice are born of *scientific ignorance*. And ignorance is best combated by science and reason – or at least science and reason of the right kind. This is part of the reason why so many partisans of stewardship and ecocentrism

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<sup>55</sup> This is especially true in the case of climate denial, in which industries with an economic interest in ecological degradation fund efforts to cast doubt on climate science. See Naomi Oreskes and Erik M. Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming*, Bloomsbury Press, 2010, esp. 169-215.

endorse the twin strategies of ecological education and consciousness-raising.<sup>56</sup> For the rationalist steward, the antidote for both moral and scientific ignorance is knowledge, and especially of the sort that opens the learner's eyes to the wondrous interconnections and interdependences between species.

What does the scientist's eye see, and what do stewardly scientists hope to educate the public to see? What does the "searchlight" of science illuminate for us?

Aldo Leopold puts it this way:

Ecological science has wrought a change in the mental eye. It has disclosed origins and functions for what to [early American settlers like Daniel] Boone were only facts. It has disclosed mechanisms for what to Boone were only attributes. We have no yardstick to measure this change, but we may safely say that, as compared with the competent ecologist of the present day, Boone saw only the surface of things. The incredible intricacies of the plant and animal community [...] were as invisible and incomprehensible to Daniel Boone as they are today to Babbitt.<sup>57</sup>

Used properly as a searchlight rather than a sword, scientific education can reveal nonhuman beings to us as our ecological neighbors and fellow citizens of the ecosystems we all call home.<sup>58</sup> Even as the science of stewardship respects the

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<sup>56</sup> For just one example of this, see Sessions and Devall, *Deep Ecology*, esp. pp. ix-x, 7-15, 179-191.

<sup>57</sup> Leopold, *op. cit.*, 291. Leopold is quick to insist, however, that the role of scientific knowledge in the cultivation of this "mental eye" does not exclude the layman: "Let no man jump to the conclusion that Babbitt must take his Ph.D. in ecology before he can 'see' his country. On the contrary, the Ph.D. may become as callous as an undertaker to the mysteries at which he officiates" (291-2).

<sup>58</sup> Notice that, at least for Leopold, the vision revealed by the ecologically-attuned eye is not just informative but enchanting. Whereas such thinkers as Friedrich Nietzsche, Max Weber, and Charles Taylor have highlighted the capacity for scientific rationality to disenchant the modern world, environmental stewardship reminds us that scientific rationality can reveal to us wonders as well as knowledge. McKibben argues that "we have come to accept, and enjoy, the intrusion of scientific explanation—to know that we can marvel with undiminished awe at the south wall of the Grand Canyon even while understanding the geologic forces that carved it" (McKibben, *End of Nature*, 46-7). Indeed, the natural scientist might go a step further and insist that we may regard the Grand Canyon with *greater* awe because geological science has revealed the forces at work in its making. For the disenchantment thesis, see especially Max Weber, "Science as a Vocation" (in *The Vocation Lectures*, trans. Rodney Livingstone, Hackett Classics, 2004, pp. 12-13).

autonomy and mystery of the ecological Other, for Leopold and other scientists the emphasis must be on knowledge—for without it we are blind behemoths in a wilderness we are doomed to destroy. By defending climate science, preserving habitats, and protecting endangered species, the partisans of stewardship seek through knowledge and care to forestall such a moral tragedy.

### **Getting Back to the Wrong Nature? – The Limits of Stewardship**

*[For the sake of space, I have condensed this section into a three-page summary]:*

*Here I survey various critiques of the stewardship ethic. Drawing heavily from Bill Cronon's critique of the wilderness ideal and citing scholars of the end of nature and the rise of the Anthropocene (such as Timothy Morton, Bruno Latour, Jedidiah Purdy and Donna Haraway), I identify two pragmatic critiques internal to the movement and five that cut more directly to the core of the stewardship ethic.<sup>59</sup> The two pragmatic critiques, leveled by voices sympathetic to the task of stewarding our nonhuman neighbors, warn that the movement's ideals and strategies are self-defeating. First, the wilderness ideal privileges "wild" over "domesticated" nature, thereby focusing stewardship on nonhuman inhabitants of wild lands rather than those of factory farms and human households, which in turn allows us to shirk responsibility for nonhuman neighbors closer to home. Second, the wilderness ideal pressures preservationists to displace human beings from "natural" spaces, thereby alienating members of the most politically powerful species and depriving wild spaces of*

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<sup>59</sup> Timothy Morton, *Ecology Without Nature: Rethinking Environmental Aesthetics*, Harvard University Press, 2007; Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy*, trans. Catherine Porter, Harvard University Press, 2004; Jedediah Purdy, *After Nature: A Politics for the Anthropocene*, Harvard University Press, 2015; Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene*, Duke University Press, 2016.

*potential advocates. When wilderness preservationism leads to a politics of environmental eminent domain in which human beings – often indigenous and very often politically vulnerable – are evicted from their homes to make way for pristine natural habitats, the result is not just a human injustice, but also a political liability. Thus, in sum, environmental preservation guided too much by the wilderness ideal may lead stewards to neglect their duties to domesticated nonhumans and alienate political support among fellow humans.*

*I then discuss five other, more fundamental critiques of the stewardship enterprise as such. First, stewardship cannot speak to questions of sustainable economic use of nature because it casts all human use of nature as abuse to be strictly limited, leading to a temptation to deem civilization as such to be irredeemably anthropocentric and thus morally bankrupt. Second, unfettered stewardship runs the risk of encouraging the sort of misanthropy of which Earth First! and other radical activist groups have been accused. In general, by casting environmental politics as a contest between pestilential humans and victimized nonhumans, extreme forms of ecological stewardship risk making humanity into an enemy – a way of thinking that is both philosophically nihilistic and politically ill-conceived. Third, even when stewards are not overtly misanthropic, their efforts to frame environmentalism around the division between humans and nonhumans risks eliding exploitation and power struggles within the human species, sidelining concerns related to environmental justice. Fourth, the rhetoric of stewardship risks entrenching the very perception of separation between nature and humanity that so many environmental theorists have decried, casting the nonhuman as an Other rather than fellow beings to which we are*

*inextricably connected.<sup>60</sup> Finally, in light of numerous scholars declaring the end of nature and the onset of the Anthropocene, one could argue that the very idea of a nonhuman community to be “preserved” or “protected” from human interference is simply outdated. If this is true, what is left for the ecological steward to save and preserve? In short, stewardship may suffer from fatal blind-spots when it comes to environmental justice, the broader human relation to nature, and the pervasive saturation of the human in nature (and vice versa).*

I conclude this section by arguing that these critiques are well-taken and reveal the very real limits of the stewardship mode of ecological belonging, but that we should not throw the baby out with the bathwater. The critiques of preservationism do not invalidate the stewardship enterprise – they simply exposes its limitations. The lesson is that stewardship and environmental preservation do not exhaust the concerns and issues that should properly be called “environmental,” and that tempering and balancing stewardship with the other two modes of ecological belonging – the economic and the affective – can help mitigate stewardship’s blind-spots and excesses.<sup>61</sup>

Part of my goal in discussing the second (stewardship) mode of environmental politics as a mode of ecological *belonging* is to highlight the sense in which human

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<sup>60</sup> Here I return to the tension in environmental politics between identity and difference, and I come to the defense of the stewardship ethic on this score. We may be ontologically and biologically intertwined with our environs, but the stewardship mode reminds us that, *phenomenologically speaking*, we do encounter nonhumans as mysterious, as other, and as something arousing curiosity and revealing duties of stewardship. We must understand nature as at once radically Other and intimately intertwined with us, for it is unavoidably both – our nonhuman neighbors are at once a part of ourselves and radically other from us, and our ethical duties to them arise from both identity and difference.

<sup>61</sup> I have not yet settled on a final name for the third mode of ecological belonging. Several competing candidates include: affective, romantic, nostalgic, poetic, aesthetic, and personal. Indeed, it was not until I started drafting the present chapter that I settled on “stewardship” as the name of the second mode, which I had previously called the scientific or ecocentric mode. As I conceive of it now, the division between the second and third modes corresponds roughly between the division between Enlightenment rationalism and counter-enlightenment romanticism.



beings *experience* the nonhuman as something other than themselves and thus as making certain demands on our understanding, both ethical and scientific. For many who consider themselves environmentalists, encounters with nonhuman others are a source of wonder, awe, and contemplation. Yet these emotions clearly extend beyond what one would call rational science or even feelings of ethical compassion and care. Thus, lest the reader object that I am ignoring the poetry and even outright spirituality that saturates the writings of even the most scientific and stewardly environmental thinkers, I close this chapter with a gesture toward the third mode of ecological belonging in which human culture and meaning are always at stake. Attending to the third mode reminds us that the question of ecological belonging blurs into the question of what it means to be human – and to be oneself.

### **Beyond Stewardship – The Third Mode of Ecological Belonging**

My approach to environmental political thought takes its departure from the insight that the human place in nature is one of ecological belonging – of the ways in which one considers nature and one's environs to be *one's own*. In the first mode of ecological belonging, the things of nature come to be our own as property, as instruments to be used, built, and cultivated for the sake of our material wellbeing. In the second mode, our nonhuman neighbors come to be our own as others to which we owe responsibilities and about which we seek knowledge and understanding. But to ask the question of what it means for something to be one's own raises the question of personal and cultural identity – that which is most my own is myself, and my self is wrapped up in history and narrative, in culture and in community.

The limits of the stewardship ethic that I discussed above primarily relate to either pragmatic internal critiques of the stewardship mode or external critiques raised by the first (economic) mode. Here I will briefly gesture toward a few of the critiques of scientific stewardship inspired by the third mode of ecological belonging.

Whereas the steward's critique of the first (economic) mode emphasizes the limits of instrumental reason, the critique of stewardship leveled by the third mode hones in on the limits of scientific and objective reason. Here the humanist reminds us that human beings do not simply inhabit ecological systems to be studied scientifically and preserved rationally—they also inhabit cultural worlds and experiential fields saturated by meanings that are eminently emotional, narrative and personal—that is to say, eminently *human*. Indeed, as Cronon reminds us, the very idea of wilderness—ostensibly the purest version of untrammelled nature—is saturated with cultural and even religious meaning, as evidenced by John Muir's repeated suggestion that mountains and forests are veritable cathedrals.<sup>62</sup> Similarly, the pastoral ideal that informs so much environmental art and thought depends on a wistful longing for an older, simpler, more rooted existence tied to rolling hills and amber waves of grain. Finally, the primitivist strains of ecological thought that seek a return to the primeval forest arise as much from anti-modern longings for a long-lost Edenic condition as they do from ethical commitments to the rights of nonhumans. In all these cases, something more is at stake than questions of economic

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<sup>62</sup> Cronon, *op. cit.*, esp. 8-12.

sustainability and scientific stewardship – beyond such concerns over the good and the true are concerns over the *beautiful*, and about human identity and personal attachments. Defenses and critiques of instrumental and objective reason do not exhaust the content of environmental political thought – to confine the account to these would lead us to ignore much at stake in environmental politics. I may not own the river that runs through my hometown, and I may lack scientific knowledge of its ecosystems or a well-developed sense of duty to protect its ecological health, but I may nonetheless feel that the river is a part of me – that it is very much *my own*, and thus worth defending from destruction.

Considering the third mode of ecological belonging in addition to the economic and stewardship modes helps us make sense of the full depth of Bill McKibben’s lament for the end of nature. Tellingly, he likens this event to the death of God, decrying the “disenchantment” of nature’s processes and the “loss of mystery” that results.<sup>63</sup> As McKibben’s sense of loss reminds us, environmental thought often moves far beyond the confines of rationalist and scientific modes of inquiry into the personal and even the spiritual.<sup>64</sup> It also reminds us that, when environmentalists seek to defend those things that they cannot bear to lose, the

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<sup>63</sup> McKibben, *op. cit.*, 52, 60-8, 72.

<sup>64</sup> Here it is noteworthy that canonical environment writers such as John Muir and Rachel Carson had religious upbringings which contributed to their quasi-religious regard for nature. For more on the influence of religion on environmental thought, see Mark Stoll, *Inherit the Holy Mountain: Religion and the Rise of American Environmentalism*, Oxford University Press, 2015. For an earlier and influential treatment of the relationship between religion and environmentalism that emphasized the antagonism of dominant strains of the Judeo-Christian tradition toward the natural environment, see Lynn White, Jr. “The Historical Roots of Our Ecologic Crisis,” *Science* 155.3767, 1967, pp. 1203-1207.

stakes are just as often sentimental as they are economic or ethical. Hurricane Katrina certainly exacted financial losses on the human inhabitants of the Gulf Coast as well as ecological losses for scientists and the nonhuman inhabitants they steward, but the loss was also personal, as anyone whose home was destroyed in the storm and whose displacement uprooted the regular flow of life would attest. Given that the environment is nothing other than the places in which humans and nonhumans live, a satisfactory account of ecological belonging must attend to this third dimension of being-at-home in the world. The stewardship mode establishes the environmentalist's commitment to the wellbeing of nonhumans, but the third mode reminds us that being-at-home is also an eminently human activity, and that this mode of dwelling on the earth is worthy of environmental concern precisely because ecological belonging is a deeply emotional experience for so many who call themselves environmentalists and call their environs home.