2016

A Case for Untrammeledness as the Foundational Goal of Wilderness Management

Robert A. McGlothlin
University of Montana

A CASE FOR UNTRAMMELEDNESS AS THE FOUNDATIONAL GOAL OF WILDERNESS MANAGEMENT

By

ROBERT AARON MCGLOTHLIN

Bachelor of Arts, Philosophy, Emory & Henry College, Emory,VA, 2011

THESIS

presented in partial fulfillment of the requirements for the degree of

Master of Arts in PHILOSOPHY

The University of Montana
Missoula, MT

May 2016

Approved by:
Scott Whittenburg, Dean of The Graduate School
Graduate School

Deborah Slicer, Chair
Philosophy

Christopher Preston
Philosophy

William Borrie
College of Forestry and Conservation

ABSTRACT

McGlothlin, Robert, M.A., Spring, 2016 *Philosophy*

A CASE FOR UNTRAMMELEDNESS AS THE FOUNDATIONAL GOAL OF WILDERNESS MANAGEMENT

Chairperson: Deborah Slicer

This thesis addresses the quandary faced by wilderness managers in a time of heightening anthropogenic change, who are tasked with the conflicting goals of leaving wilderness untrammeled from management control, while simultaneously maintaining natural conditions free from human influence. I explain how this debate between conflicting management goals reflects a deeper rift between two competing philosophical paradigms of wilderness stewardship, which I term the Naturalness-paradigm and the Untrammeledness-paradigm. The Naturalness-paradigm embraces a techno-centric view of wilderness stewardship that exalts the role of managers in shaping wilderness ecosystems, whose persistence it considers to be dependent upon human provisioning. The Untrammeledness-paradigm maintains that managerial restraint is the foundational aspect of wilderness stewardship, which is inherently bound by epistemic and technological limitations.

I critique the Naturalness-paradigm for its lack of conceptual coherence, and for enabling the conversion of wildlands into artificial, domesticated landscapes. Its techno-optimistic approach is not only ineffective in preventing anthropogenic disturbances, but it instantiates a consumptive worldview that is incompatible with any viable ethos of wilderness stewardship. I proceed to offer reasons why the Untrammeledness-paradigm is the more compelling foundation of wilderness preservation. Unlike its rival, it is conceptually coherent, scientifically grounded, and acts as an effective regulatory hurdle against management actions that overtly or inadvertently domesticate wilderness areas. Most profoundly, this form of wilderness stewardship serves as a counter-practice in response to certain disquieting trends in modern techno-industrial society: the lack of self-limitation, lack of perceptiveness, and the lack of control over macro-level social processes.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

Many people were involved in the development of this thesis.

First and foremost, I would like to thank Deborah Slicer, my advisor and committee chair, for her patience, dedication and wisdom throughout this process. Her attention to language and clarity was invaluable as I worked to articulate and refine the thoughts floating around my head. More so, her encouragement spurred me in those moments where I doubted myself. I could not ask for a better advisor.

This paper greatly benefited from the feedback I received from Christopher Preston and William "Bill" Borrie, who both served on my committee. I appreciate them for their kindness, and for all of the engaging conversations. The ideas brought out in this paper were incubated in their respective courses.

I would also like to thank my other graduate and undergraduate professors: Albert Borgmann, Patrick Burke, Bridget Clarke, Soazig Le Bihan and Armond Duwell, Kathryn Shanley, Kathleen Ryan, Ben Letson, Ed Damer, and John Morgan. I am fortunate to have crossed paths with them throughout my journey in academia.

I appreciate my colleagues for their spirited discussions, support, and the camaraderie that we shared together, in particular Mark Douglas, John Stanfield, Chris Reed, Chris Humm, and Daniel Congdon. Thanks, guys!

I cannot give enough praise and thanks to the good folks at Wilderness Watch, especially George Nickas, Jeff Smith and Dawn Serra. Their dedication to the dream of wilderness preservation has truly been a source of inspiration in my professional and personal life.

I am eternally grateful for my family and my hometown community of Buchanan County, Virginia. They are my original teachers who have shown me how it is possible to love and care while practicing the discipline of restraint and humility

And last but not least, this thesis is dedicated to my beloved wife, Sarah. Her tireless support and intellectual engagement has made this all possible. While the words written are my own, the breath and heartbeat of this paper is hers.

"What is there to love or preserve in a universe of chaos?"
Donald Worster, "The Ecology of Order and Chaos"

1.0 Setting up the dilemma

The American wilderness movement is struggling with unprecedented questions as to what it means to preserve wilderness in this brave new world where the human species has emerged as one of the primary drivers of global ecological change. Designated wilderness areas are supposed to be places where society does not seek to physically impose our artificial order, where wild, untrammeled nature is allowed to operate unimpeded by the trappings of modern civilization. Yet given the heightening degree in which climate change and other anthropogenic influences are factoring into the ecology of wilderness areas, it is no longer clear how to go about preserving wilderness in a way that does not essentially absorb it into the humanized landscape.

Wilderness managers face a predicament: do they uphold the customary precepts of restraint and humility while wilderness areas are being transformed by indirect human influences? Or should they abandon this disposition of self-restraint in favor of a new stewardship ethic, one that boldly pursues intentional ecological manipulations in order to try to arrest or reverse these changes? (Cole 1996; 2008; Landres et. al, 2000) This dilemma cannot be resolved solely by appeal to value-neutral empirical description. Rather, each position reflects a distinct philosophical perspective that presupposes the appropriate means and ends of wilderness preservation, along with some notion of how we should take responsibility for the ecological damages

brought about by our society. The primary task of this thesis involves the evaluation of these two competing philosophies of wilderness stewardship.

1.1 Two foundational goals of wilderness management

Wilderness managers working under the auspices of the federal wilderness system[1] are required to fulfill various, sometimes conflicting land management goals.[2] Of these goals, maintaining the "natural" and "untrammeled" conditions of designated wilderness are often highlighted as being the two most foundational (Landres et. al, 2000). Other management objectives can either be secured through pursuing one of these two more basic goals, or else involves providing certain concessions (i.e. non-conforming actions) that are legally mandated yet understood to be at odds with the spirit of wilderness preservation. The following are definitions of these two foundational management goals: naturalness and untrammeledness.

Naturalness refers to the goal of managing wilderness areas in their "natural condition," free from disruptive human influences (Cole, 2000). As a management goal, naturalness is akin to the ideal of safeguarding wilderness as pure, pristine nature (Cole 1996). Often times, managers will operationalize naturalness by using proxy goals that

[1] Known officially as the National Wilderness Preservation System (NWPS). These are federally administered lands held in the public domain, subject to the authority of the Wilderness Act of 1964, along with subsequent legislation from which additional public lands were officially designated into the federal wilderness system.

[2] In addition to naturalness and untrammeledness, this includes maintaining "wilderness characteristics" such as its quality to offer outstanding opportunities for solitude and unconfined recreation, along with whatever important scientific, ecological, geologic, historical and cultural values are found in particular wilderness areas. Sometimes wilderness managers are also required to support certain land uses that are "non-conforming" with the intent of the Wilderness Act, but are selectively allowed due to legislative compromise (ex. cattle grazing and mining claims).

lend to more scientific precision (Cole, 2012). For instance, they might seek to maintain wilderness ecosystems within a "natural range of variability," defined in reference to geographically bounded, historical patterns of change.[3] These conditions are commonly expressed in terms of being native, indigenous, or endemic (Landres et. al, 2001). Or they might try to maintain the ecological integrity[4] of wilderness areas, defined as the intactness of the composite parts and whole of a sustainably functioning ecosystem (Woodley, 2010, p.109). Both single out anthropogenic influence as being the factor that diminishes the integrity of wilderness, or causes deviation from *natural* variability. The common thread underlying these varying articulations of naturalness is that managers should preserve or restore the ecological conditions and processes that would exist in the absence of human disturbance.

Untrammeledness refers to the management goal of leaving wilderness areas unconstrained from human manipulation and control (Landres et. al, 2001). The idea of "untrammeled" wilderness— famously evoked by Howard Zahniser's use of the term in the Wilderness Act to suggest a trapping net that hiders the free movement of its prey— entails that wilderness management should not capture and condition these places through the technological "trapping net" of modern industrial civilization. It does not predetermine what specific conditions should be found in wilderness, nor does it attenuate these environments for anthropocentric purposes. Rather, it allows these

[3] Historical range of variability

[4] Although ecological integrity and historic fidelity are defined as two separate management concepts, the former is related to the latter in that what constitutes a structurally intact ecosystem in an ever-changing world implies a reference to historically bounded conditions.

conditions to be determined primary through natural selection dynamics. As wilderness management scholar Robert Lucas famously says, "The object [of wilderness management] is to let nature 'roll the dice' and accept what results with interest and scientific curiosity" (Nickas, 2004, p.499). To say that a place is untrammeled by human control is not to say that it lacks any traces of human influence, but that it is presently and indefinitely withdrawn from any human efforts to control it.

Due to the all-too-common tendency to conflate the meaning of naturalness and untrammeledness[5], it is crucial that our working definition offers a sharp differentiation between these two distinct management goals. Naturalness is defined by the absence of human "influence," while untrammeledness is defined by the absence of human "control" (Landres et. al, 2001). This distinction hinges on the possibility that a place could be affected by human influences without being subject to human control[6]. To make sense of this possibility, we need to establish the qualitative difference between relationships of influence and those of control. *Influence* refers to the broad category of phenomenon[7] where one person or thing has some sort of effect on another: *X* factors into the behavior or movements of *Y.* Influences can be positive or negative, or more often quite incidental, a minor interaction where a living being adjusts itself in relation to other beings occupying space in a shared life-world. The act of influencing and

[5] For an example where untrammeledness is mistakenly equated with pristineness, see Watt, 2002.

[6] This is in response to the assumption that human influences effectively, if not necessarily, constitute a form of control and domination over non-humans. This issue will reemerge in **3.3**, where I talk about the "sinister feedback loop."

[7] Influence is a broad category from which control is but one subset. When I speak of "influence" as a type of relationship that stands in opposition to control, I mean this to emphasize the non-controlling forms of influence.

reciprocally being influenced is an inescapable feature of living in a non-solipsist universe. One can influence another without violating their integrity or sense of agency. Influence does not necessarily take the form of control. *Control,* on the other hand, is a specific type of influence where one assumes a possessive and domineering power over another, subordinating their livelihood for one's own interests. *X* imposes their will onto *Y*. This can happen in two forms. The controller might directly instrumentalize the other for her or his own projects. Or, the controller's actions might constrain the other to such a degree that their continued wellbeing becomes dependent upon the support of the dominant actor. In both cases the controlee's sense of integrity and self-directedness has been greatly compromised.

Often times in the management literature this difference between control and (non-controlling) influence—and by extension untrammeledness and naturalness—is made on the basis of intentional and unintentional effects. Human control is the outcome of intentional actions, while human influence is an unintended byproduct of various social activities. This distinction holds up for the most part. In many instances, intentional management actions indeed work to try to control Nature, bending it to our will. Likewise, unintentional human influences do not necessarily equate with human control. For instance, who could sincerely claim that the feral mountain lion is a subservient instrument of our whims and desires, or is not self-directed in her pursuits, despite how we have damaged and fragmented her habitat range? This suggestion applies to other, less threatening forms of life as well.

However, we would run amiss if we made too strong of a logical connection between intentional actions and control, and unintentional actions and (non-controlling) influence. Intentional management actions do not always result in relationships of control and domination. It is possible that certain deliberate interventions could be pursued in a limited manner that removes anthropogenic structures and impediments, thereby effectively diminishing human control rather than enhancing or entrenching it. [8] It is also possible that the unintentional byproducts of human actions could become so destructive and constraining towards non-humans that it effectively results in a relationship of control and domination. [9] To determine whether this is so, we must study both the ecological consequences of our actions, along with self-examining the stated and unstated motivations that inform how we interact with our environment.

Getting back to the difference between naturalness and untrammeledness, the former is directed towards preventing a wide spectrum of human influences (both controlling and non-controlling), while the latter restricts its concern towards controlling forms of influence that either commandeer or severely constrain a landscape's life-supporting capacities. Establishing this difference between relationships of influence and control is crucial in order to meaningfully distinguish naturalness and untrammeledness as two separate management goals.

In the early decades of the federal wilderness system, naturalness and untrammeledness were assumed to be complementary management goals (Landres et

[8] See **3.1,** where I explicate the difference between management interventions that are "removal actions" and those that are "shaping actions."
[9] See **3.3**.

al, 2000). Managers and policy makers generally believed that if wilderness areas were protected from direct human manipulation or impact, then these wilderness areas would continue to exist in their pristine state (Cole, 2000; 2001; 2008). Or, if these lands were subject to past human disturbances, they could rely upon ecological succession mechanisms to revert these areas back into a pre-disturbance, climax state. *Briefly put, if wilderness areas are left untrammeled, then they will exist in their natural state.*

However, the assumption that naturalness and untrammeledness were complimentary management goals began to break down in the latter decades of the 20th century due to two primary reasons. The first involves the growing recognition of the prevalence and ubiquity of human influences across the biosphere, due to such anthropogenic factors like global warming, fire suppression, and extensive water and air pollution (Landres et al., 2000, p. 378). These externally sourced human influences transgress ecologically porous boundaries, resulting in anthropogenic changes in otherwise undeveloped wilderness areas. Human influence, instead of being episodic and limited, is now understood to be pervasive. The second reason follows from the changing paradigms in ecological science, moving away from assumptions that undisturbed nature generally exists in a perpetual state of order and equilibrium towards a belief that nature is more accurately depicted in terms of instability, contingency and novelty (Hobbs et. al, 2010, pp. 37-8). While it was once believed that the effects of human disturbance would be phased out over time through natural succession mechanisms, the consensus nowadays is that wilderness areas subjected to pervasive human influence will result in novel conditions that—left to its own devices—

will not revert back to historical, pre-disturbance conditions (Cole, 2008). Taken together, these new insights lead us to believe that even if wilderness areas are left untrammeled without any direct modifications within the internal boundaries, they will nevertheless be affected by upstream human influences, which will indefinitely result in novel, anthropogenic conditions. *Briefly put, if wilderness areas are left untrammeled, then they will not exist in a natural state.*

1.2 The Dilemma of wilderness management

Now we have properly set the stage for *the* dilemma of wilderness management. The current federal wilderness management policy framework mandates that managers optimize both the naturalness and untrammeledness of designated wilderness area. Yet scholars and policy makers have become increasingly aware that it is becoming less plausible to faithfully carry out one goal without compromising the other[10] (Cole, 1996; 2000; 2001; 2008; Landres et. al, 2000). As human influence becomes more widespread and transformative, land managers can attempt to manipulate wilderness areas in order to maintain or artificially restore the ecological conditions that would exist in the absence of human influence. Through these measures, they might go about making good on their responsibility to maintain natural conditions. Yet these heavy-handed management interventions would constitute a radical departure from the traditional imperative against trammeling wilderness. They would be carrying out the goal of naturalness while directly violating the goal of untrammeledness. On the other side of

[10] David N. Cole and Peter Landres are the two wilderness scholars who have probably written the most extensively on this management dilemma, although not the only ones.

the coin, wilderness managers can continue to exercise restraint from intentionally manipulating wilderness ecosystems, making good on the goal of untrammeledness. However, in leaving wilderness areas untrammeled in an age when the effects of human activity are ubiquitous, they are leaving these areas vulnerable to upstream anthropogenic disturbances that will irreversibly transform them away from historical conditions. In this case, managers would be keeping faithful to the goal of untrammeledness, but would be abandoning the goal of naturalness to the wayside.

Federal wilderness policy calls on managers to make good on both of these goals, which have each been considered essential to what it means to carry out wilderness preservation. The problem is that it underdetermines what managers should do in situations where not only are they unable to optimize both goals, but in pursuing one they have to violate the other. So, what be done in situations where both of these basic, legally mandated wilderness management goals cannot be fulfilled? This, in condensed form, is the dilemma of wilderness management.

1.3 Failed Solutions

The current federal wilderness policy does not offer any clear guidance for how managers should navigate situations where these basic goals are incompatible, forcing them to have to privilege one over the other. Wilderness scholars have tried to draw upon their disciplinary backgrounds in ecology, biology, and the social and organizational sciences to offer guidance in resolving this dilemma. Yet these efforts largely fail for reasons I will demonstrate. First, I will problematize David Cole's attempt

to reconcile this dilemma through a sort of pragmatic compromise I term the "technocratic zoning solution." Then, I will elaborate and critique a common approach to this quandary that draws upon a subtly circular presupposition that one of the goals is more essential than the other, without giving a straightforward argument why naturalness or untrammeledness is the more valuable as an end-in-itself. These two approaches fall short in that they shy away from delving into the openly philosophical dimension of the value-laden debate between two competing wilderness stewardship paradigms.

David Cole advocates a zoning compromise as a way to split the difference between naturalness and untrammeledness (1996; 2000; 2001). Cole proposes that the federal wilderness system should be bifurcated into two distinct zones: one exclusively managed for naturalness, and the other for untrammeledness. Since the current policy lacks guidance as to which goal to privilege when conflicting, Cole fears that managers will haphazardly try to fulfill both goals, effectively leading to a "mediocre" system whereby most wilderness areas will possess neither a high level of freedom from human influence or control (Cole, 2006, p.30). By zoning certain wilderness areas to be managed for naturalness and others for untrammeledness, he foresees a greater likelihood for more desirable outcome where some lands possess a high degree of naturalness while others possess a high degree of untrammeledness, thus splitting the difference. Cole suggests that larger wilderness areas would be good candidates to be managed exclusively for untrammeledness, as their size better insulates them from anthropogenic disturbances. These areas would typically not require ecosystem

manipulation in order to keep human influences from settling in and disrupting their historical conditions. On the other end, Cole thinks that smaller wilderness areas, due to their vulnerability being located in closer proximity to human activities, would require more active management interventions in order to prevent them from being subject to anthropogenic disturbances (Cole, 1996, p.17).

This technocratic zoning solution is appealing in its pragmatism, seeking compromise between these two basic yet conflicting wilderness management goals. It appeals to our sense that different land areas are valuable for different reasons, allowing managers flexibility to pursue different conservation approaches to fulfill place-specific conservation values. However, this appealing feature—its compromise and neutrality—is also the source of its inadequacy as an approach to resolve the dilemma of wilderness management. Cole punts the important question by failing to directly address the underlying normative issue at hand, namely whether naturalness or untrammeledness is the more important and compelling stewardship goal for managers to pursue. This technocratic zoning approach is a stopgap measure that buys time until future consensus, yet leaves us without any guidance on how to work through the depths of this dilemma so that we might converge onto this future consensus. As it so happens, the underlying dilemma not only refuses to go away, but remains as persistent and pressing as ever. This value dilemma will inevitably resurface when wilderness administrators and the general public have to determine whether a particular unit of wilderness land is placed in the naturalness-zone or the untrammeledness-zone. They will have to resume this basic debate over which goal better conveys the essential

purposes of wilderness stewardship as it relates to their individual protected area, thereby leading us back to square one.

A second approach to resolving this dilemma seeks to address outright which wilderness management goal is more important. This involves the argument that untrammeledness is an outmoded management goal in the ecological context of the 21st century. Nathan Stephenson and Constance Millar—ecologists for the National Park Service and Forest Service, respectively— suggest that untrammeledness was written into the federal Wilderness Act under the misguided assumption that it would ensure the pristineness and historic fidelity of protected wilderness areas (2011-2012). Because untrammeledness is no longer considered a successful means for maintaining natural conditions, this gives rise for experimenting with more active, heavy-handed management interventions that hold out the possibility of fulfilling these conservation ends. Likewise, the biologists Barry Noon and Brett Dickson argue that leaving wildlands untrammeled is an impotent conservation strategy in the face of "indirect human degradation." In order to preserve the integrity of wilderness areas from anthropogenic change, they promote a vision of "management and restoration as a form of sustainable gardening" (Noon and Dickson, 2004). This way of approaching of the dilemma of wilderness management views untrammeledness primarily as a means of attaining the end of naturalness. At one time untrammeledness was valued because it was seen as a successful strategy for attaining this end. However, since untrammeledness is no longer sufficient to maintain pristineness and historic fidelity, it should accordingly be discarded as a guiding goal of wilderness stewardship. It should be superseded by a

bolder, more heavy-handed management approach that might be able to get the job done.

This approach to the untrammeledness versus naturalness question ultimately fails because it already presupposes what it is that is yet to be resolved; namely, whether or not wilderness preservation essentially involves withholding manipulation in the face of ecosystem change, or if it calls for preserving historically persistent natural conditions free from human influences. Instead of providing an explicit argument why the latter is more valuable than the former, these researchers beg the question by assuming that maintaining naturalness is the essential guiding purpose of wilderness preservation, and basing their critique of untrammeledness on its shortcomings in fulfilling this purpose compared with the promises of a more heavy-handed management approach.[11] This claim — guised in the terms of objective scientific rationality—takes the form of an arbitrary individual choice on behalf of maintaining putative natural conditions to the detriment of untrammeled wilderness. A strong historical case could be made that the authors of the Wilderness Act—along subsequent wilderness advocates— understood untrammeledness to be more than just a means for attaining putative natural conditions, but more so was a foundational value in itself (Harvey, 2005; Scott, n.d.). By subtly bypassing the real quandary posed between having

[11] On the other end of the coin, if one were to dogmatically reckon—without directly addressing the foundational value debate between naturalness and untrammeledness — that any sort of management intervention constituted trammeling and thus ought to be prohibited, this too would be question-begging since it presupposes that the genuine purpose of wilderness stewardship is to refrain from intentionally manipulating it.

to decide between two foundational management goals that are both ends-in-themselves, this question-begging approach does not move us past square one.

What these aforementioned attempts at resolving the dilemma of wilderness management have in common is that their proponents try to solve the problem within the comfortable disciplinary parameters of the natural and social sciences, shying away from the philosophical depths of the issue. Yet the debate between whether to privilege naturalness or untrammeledness is a question of competing interpretations of what wilderness preservation, in its basic sense, should be. This dilemma is not one that can be neatly resolved via value-neutral empirical description, determining one to be factually accurate while the other factually inaccurate. Nor can it be reconciled by determining which strategy—active management or deliberate restraint—better achieves the predetermined end, because to privilege either naturalness or untrammeledness is to presuppose a distinct end that ought to be pursued. In order to further pursue this problem, we must bring these ends more closely into view by elucidating on the philosophical perspectives that respectively inform each of these wilderness management goals.

1.4 Competing philosophical paradigms of wilderness stewardship

The honest ramification of this dilemma of wilderness management is that we can no longer have a coherent wilderness stewardship paradigm that tries to simultaneously hold both goals as essential. Thus, in order to recognize this dilemma as the philosophical quandary that it is, we must understand that the management goals

naturalness and untrammeledness correspond to two distinct paradigms of wilderness stewardship. A wilderness preservation policy that privileges naturalness over untrammeledness is philosophically distinct from one that privileges untrammeledness over naturalness. These two stewardship paradigms are not separated merely by different means to attaining the same ends, but more fundamentally they presuppose different ends, undergirded by a separate applied environmental ethic. I term these philosophical stewardship paradigms in conjunction with the wilderness management goal that it privileges: the Naturalness-paradigm and the Untrammeledness-paradigm. [12]

Naturalness-paradigm. A wilderness management policy privileging naturalness as its primary goal adopts an applied environmental ethic that advocates the centrality of human action in fulfilling our responsibility to restore the integrity of wilderness ecosystems disrupted or influenced by humans. It assumes that formerly wild nonhuman species, habitats and ecosystems are so damaged and degraded that they will not be able to flourish on their own if humans do not try to actively restore them through intentional environmental modification. Although past and present human actors have caused widespread harm throughout the biosphere, there are ecologically enlightened and technologically savvy land managers who have the knowledge, capability, and benevolence to restore the natural integrity of wilderness areas.

[12] These terms each represent an amalgamation of interrelated viewpoints commonly expressed or implied in environmental scholarship and wilderness management literature. Researchers and administrators working on behalf of federal wilderness agencies would generally not endorse either paradigm in the way that one might espouse their partisan leanings. However, these paradigms do reflect a genuine intellectual rift among the broader community of wilderness administrators and advocates.

Furthermore, because the presence of human effects are ubiquitous and pristine nature is no longer believed to exist in pure form, the traditional prohibition against manipulating wild nature is no longer thought to be as morally compelling as it might have been in less fallen times.

Untrammeledness-paradigm. A wilderness management policy privileging untrammeledness as its essential guiding principle ardently maintains that there is great moral significance in deliberately leaving wild non-human species, habitats and ecosystems outside the scope of human control and manipulation, even if these lands were indirectly influenced by human activity. It questions the moral intentions of human actors seeking to manipulate wilderness areas, even those putatively acting from biocentric motivation, fearing that these actions will inevitably (if unintentionally) serve anthropocentric purposes. It acknowledges the limitations of human knowledge and technical ability to transform wilderness areas in alignment with some better, more idealized state. Furthermore, this viewpoint recognizes the ways in which Other-than-human life forms and processes possess a self-directedness, or agential power, even if they have been influenced by human activity. It does not hold humanity up as the lynchpin or sustaining force of the more-than-human world, but instead urges us to try to mitigate or diminish the intensity of our society's impact on the environment.

Both of these stewardship paradigms recognize that land managers and public at-large have a responsibility to address the negative environmental impact we have brought about. Nor are they differentiated by any strictly empirical claim, such as the case with climate-change deniers and the rest of the scientific community. Instead, they

offer conflicting assessments on the limitations and capabilities of human agents to address disruptive anthropogenic influences in wilderness areas. The Naturalness-paradigm sees this as an exciting opportunity where humans can redeem our past transgressions by ascending to a more central role in the guiding the functioning of ecosystems. In this sense ecological manipulations would embody the highest ideals of human benevolence and ingenuity. The Untrammeledness-paradigm, on the other hand, perceives this as a continuation of the same old grounding myth of Western civilization that pathologically fetishizes control and order. In the context of ecology and the Other-than-human world, the problem is not that humans are not involved enough, but rather that we assert ourselves into the ecological web too greatly, often without proper concern about the consequences. The decision between whether to privilege naturalness or untrammeledness as the more foundational management goal entails having to evaluate these two conflicting environmental philosophies.

2.0 Towards a concept of wilderness and wilderness preservation

The meaning of the word "wilderness" might be presumed to be straightforward and intuitive, but all too often this has not been the case. In the past three decades the concept of wilderness, and by extension the designation and management of areas as wilderness, has come under heavy scrutiny by environmental scholars as being conceptually incoherent and an inadequate foundation for land protection (Callicott, 1991a; Cronon 1995; Kareiva et. al, 2007). At a bare minimum those debating over foundational issues of wilderness management policy need to have a well-established

concept of wilderness and a shared understanding of what it basically entails to preserve wilderness. It is imperative that we work out a cogent concept of wilderness preservation 1) in response to the skeptical critique of wilderness and wilderness preservation, and 2) to function as the building block to well-structured discourse on wilderness management issues, both philosophical and practical in scope.

2.1 Two Levels of Description

It will be helpful to note that there are two basic levels of explanation when describing wilderness preservation, which I will refer to as the ontological description and the stewardship paradigm description. The *ontological* description refers to the more abstract, thinly descriptive concept of wilderness. For instance, we may conceive wilderness as pure, pristine natural space that is fortified from human interaction, or instead as a hybridized social/natural space in which human interaction is present yet circumscribed. This accounts for the *idea of wilderness*, in the most basic sense. The *stewardship paradigm* description refers to the more concrete, thickly descriptive and prescriptive account of wilderness preservation, and already presupposes a particular ontology of wilderness. The stewardship paradigm description deals with such issues like the regulative ideal for how wilderness should be managed, a background understanding of the socio-environmental context, an assessment of the limitations and capabilities of human agency, and the particular ethical sensibilities that drives these efforts. The controversy between the Naturalness-paradigm and Untrammeledness-

paradigm of wilderness stewardship is a question involving competing stewardship paradigm descriptions of wilderness preservation.

A necessary condition for meaningful wilderness management policy debate is a shared and well-supported ontology of wilderness. If the ontological account of wilderness is vague and not well founded among the participants of academic and management discourse, it will be exceedingly difficult to have meaningful and cohesive debate about wilderness management policy. It is important to note that the ontological-level description of wilderness preservation generally underdetermines the specific policy framework or management prescriptions to be carried out. For example, conceptualizing wilderness as a type of hybridized social/natural space does not tell us whether bicycles should be allowed in wilderness areas, or whether helicopters ought to be brought in to deposit limestone into acidic streams. Nevertheless, it clearly influences how the discourse and decision-making surrounding wilderness management get framed. For example, if wilderness areas are conceptualized as an "exo-cultural space," this will clearly shape policy decisions on issues such as what types of outdoor recreation or subsistence activities are allowed in designated wilderness (presumably these activities would be largely proscribed). This chapter focuses on developing an adequate ontological-level account of wilderness preservation, while the following two chapters will take up the issue of which wilderness stewardship paradigm is more compelling in the 21st century American context.

2.2. Wilderness qua pristine, exo-cultural space

The work of expounding a sufficient ontology of wilderness preservation involves discrediting a popular yet incoherent conception of wilderness, and afterwards replacing it with a more sophisticated ontology of wilderness that accounts for its cultural aspects without collapsing into a reductive social constructivist position.[13] Much of the existing criticism directed towards wilderness preservation, as such, has been enthralled with discrediting a certain mythopoetic idea of wilderness, depicted in rigidly dualistic terms as a pure, pristine natural space wholly outside the realm of human culture.[14] The prevalence of this image has fuelled criticisms of real world wilderness preservation efforts under the mistaken assumption that these are conceptually grounded on this foil understanding of wilderness.

We might characterize this foil model of wilderness preservation as the policing exercise of "natural nature" against inherently ruinous human presence (Ryan, 2015, p.15). This foil ontology recycles the colloquial depiction of wilderness as a purely pristine space wholly outside the sphere of human culture, thus it is an "exo-cultural space." This reflects a rigidly dualistic tendency to conceive of places as either pure pristine wilderness, or else wholly absorbed into the realm of civilization—a product of cultural construction. Drawing from valuations based on purity standards, the intrinsic value of a wilderness area is assessed in proportion to its level of pristineness. Retaining

[13] Steven Vogel commits to this view of wilderness in his essay "The Nature of Artifacts," describing wilderness preserves as an example of "a variety of objects human beings produce through their (intentional!) actions…" In this regard he explicitly lists wilderness preserves in the same category as "artworks, babies, religious icons, animal rescue leagues and jokes" (Vogel, 2003, p.156).

[14] J. Baird Callicott terms this the "received notion of wilderness" (Callicott, 1991a).

the value of pristine wilderness involves safeguarding it from any traces of human activity or influence. In this model wilderness management is conceived as a policing exercise to enforce a prohibition of human presence from disrupting actual and apparent natural conditions.[15] Human traffic is, for the most part, *locked-out* of wilderness areas. Provided that wilderness management is effective at this task, it is assumed that non-intervention is sufficient to secure the natural integrity of the designated wilderness from human influences, remaining faithful to the goal of untrammeledness.

This foil model of wilderness preservation admittedly carries a great deal of rhetorical power. As an exceedingly rare vestige of our planet's evolutionary heritage, purely pristine natural areas bear a significant value in a heavily humanized world. The image of delicate, pristine areas lying before the aggressive machinery of civilization conveys how vulnerable these places are to anthropogenic disruption. It also has not gone unrecognized how this evokes a Christian imagery of protecting original divine creation from the sinful hands and intentions of a fallen human nature, potentially resonating with a certain religious segment of the general public (Callicott, 1991b).

However, despite its strong rhetorical power, this ontological model drastically fails as a sufficient description of what wilderness preservation literally entails. First, the notion of pure exo-cultural space—in the strict sense of the term—no longer corresponds to the contemporary reality of the planet's biosphere. Ecologists and biologists increasingly recognize the prevalence of human influences in the far reaches

[15] This is associated with the so-called fortress model of land management.

of the Earth, from melting polar ice caps to massive assemblages of plastic in the oceans, just to name a couple instances. To find places that could be classified under strict qualifications as “exo-cultural space” in this day and age, one must increasingly point beyond this Earth towards the un-navigated reaches of outer space. Second, the notion that preserving wilderness amounts to a “policing of prohibited human presence” does not literally mesh with what wilderness managers are actually doing. Even though wilderness protection prohibits certain forms of use (ex. logging and motorized access), it nevertheless facilitates other types of human interaction, like hiking and horseback riding. In fact, some of the defining characteristics of wilderness in the NWPS are set in relation to human interactions, such as the opportunity for solitude and primitive, unconfined recreation. Wilderness management actively works to facilitate these forms of human traffic via trail maintenance and displaying signage. This is not to mention the “non-conforming,” yet conditionally legalized wilderness uses in the American system such as cattle grazing and mineral extraction. To this effect designated wilderness areas in the United States are to some extent a peopled landscape. Third, as a regulative ideal not only is the task of strictly preventing human presence or influence highly difficult to attain, it would be implausible to wholly erase human effects from wilderness areas anytime in the near future. Even hypothetically, in a post-apocalyptical world without human beings, there would still be a lingering presence of our past impact, like the lingering influence that continental glaciers have had on the geology and species composition of the Northern Hemisphere. Undoubtedly there is an expressive power with the imagery of pure, pristine nature and the urgency

to safeguard it in its delicacy from human influence. Yet this cannot be taken as a literal model describing what wilderness preservation is about. Ultimately, the prevalence of this ontological model is the source of much confusion and skepticism over whether wilderness preservation is even an intelligible or, not to mention, desirable conservation strategy. If wilderness is forever lost, and nothing we do can bring it back, then why not abandon the dream of wilderness preservation and release these public lands to some other form of land use—skeptics ask (Kareiva et. al, 2007)?

The major flaw with the received ontology of wilderness is that it shies away from recognizing the social aspects of wilderness areas and wilderness preservation. This hesitancy is rooted in a continuum fallacy which assumes that any admission of the human aspects of wilderness would undermine the conceptual foundations of wilderness preservation by conceding that it is merely social construction, not unlike artificial environments that are more recognizably the product of human culture (ex. gardens and nature-themed amusement parks). Instead of purging the roles of society and culture from our conception of wilderness, a more sophisticated view of wilderness is one that could incorporate these human aspects without collapsing the qualitative difference between wilderness areas and artificial environments.

2.3 Wilderness areas as hybrid, social/natural spaces

In place of this foil version of wilderness, I present an ontology that conceives of wilderness areas as a hybrid, social/natural space, a view that resists either/or classifications as being entirely natural or social, as if these features must be spatially

exclusive from one another. In his 2006 article "Reconsidering Wilderness: Prospective Ethics for Nature, Technology, and Society," geographer David Havlick specifically identifies the lands within the NWPS as hybrid spaces, at once exhibiting human influences while nevertheless being genuinely "natural" spaces that exist beyond the purview of human beings (pp. 52-3,60). Havlick advances this view of wilderness in response to those environmental scholars who critique the literary conception of wilderness as pure, pristine natural space, and subsequently levy doubt about the value and plausibility of the actually existing wilderness preservation efforts based on the misplaced assumption that the former is the conceptual foundation for the latter. This rearticulated concept of wilderness is meant to serve as a more faithful account of what wilderness preservation literally entails, shedding the "straw dog" version of wilderness so as to establish a better position to justify land management efforts under the existing federal wilderness system.

Havlick dedicates much of his article documenting the social aspects of designated wilderness. He argues that wilderness areas are social spaces insofar as they are blanketed with the cultural norms of the society that engages with them. Wilderness designations are the product of political processes, defined by the legally mandated and culturally ingrained prescriptions for how people should interact with these places. Here we are talking about wilderness in the *de jure* sense as a legal designation and cultural concept superimposed onto *de facto* wildland areas. Havlick points out that this legal designation of wilderness does not prohibit the use of wilderness *per se*, but regulates the way in which people are allowed to use wilderness. For those still beholden to the

received view of wilderness, the fact that wilderness areas are still used for various sorts of purposes (ex. non-mechanized outdoor recreation, hunting, and grazing) dispels the misconception that it is an exo-cultural space where humans are altogether locked-out. Thus, wilderness is not defined by the absence of people, but by the way that people interact with it, subject to norms that markedly differ from those that apply to non-wilderness areas. It is with this in mind that Havlick says that "the *idea* of wilderness is fundamentally human and that Wilderness places are socially constructed—even as much that inhabits or affects wilderness extends well beyond human design" (2006, p.52).

So, in what way can we make sense of that which is natural and "well beyond human design" in a place that imbibes human culture? Ironically, in our current intellectual climate where many scholars relish in discerning the subtle social origins behind the supposedly natural and transcendent, it may be more revelatory to explain the ways in which wilderness areas are not merely the product of cultural construction, but can be said to be genuinely "natural" spaces.[16] Assigning a definition to the term "natural space" proves to be tricky, especially upon acknowledging the presence of human influences. I approach this task by way of negative definition. To say that a wilderness area is a natural space is to stop short in categorically characterizing it by its binary opposite concept: a "social space" that is a physical product of human culture–

[16] Although it is clear that Havlick does commit himself to a reductionist view of wilderness as social construction, he does not sufficiently elaborate on the manner in which wilderness areas should be conceived as natural space. He seemingly takes it for granted that his readers would accept this point as self-evident, and would not challenge the conceptual validity of "natural space."

an artificial environment. An artificial environment is one where the layout and composition is transformed and conditioned through intentional human activity: propagating desirable features, suppressing undesirables, and redirecting preexisting physical processes and flows—an undertaking which requires continual maintenance in the face of entropy. The notion of wilderness areas as natural space makes sense insofar as these activities are absent.

As a species, human beings do more than just adapt ourselves to better comport with our pre-existing environment; we have a deep-seated willingness and capacity to actively modify our environment to better suit our survival and flourishing. Artificial environments are the product of this process of transforming the world to better suit our interests and values-- the project of making a home in this world, a project that can be carried out in a more or less benign way towards other forms of life. Wendell Berry explains how this activity of altering our environment to better suit our needs is not exclusive just to human beings, but one that other living species carry out as well. Flipping the customary notions of nature and culture qua artifact, Berry holds that "what we call nature is, in a sense, the sum of the changes made by all the various creatures and natural forces in their intricate actions and influences upon each other and upon their places" (1982, p.7). In other words "natural spaces" are those in which many different species produce their own respective "artificial environments" in relation with one another. While it would be fanciful to describe this inter-species relationship as egalitarian, this notion does convey the limitations that generally preclude a single species population from dominating entire biological communities; a

fact that opens up the evolutionary possibility of biodiversity and species richness.

What makes modern techno-industrial society exceptional from Berry's image of "nature" is the magnitude and intensity in which our artificial environments dominate those of other life forms throughout the more-than-human world. The technological advances of the past two centuries have enabled us to transgress previous material limitations, radically increasing our capacity to transform the physical landscape to suit the purposes of our economic order. This is apparent through such phenomena like massive irrigation and dam building projects, the conversion of native forests to low-density developments and agrarian monocultures, and mountaintop removal surface mining. Even "nature parks" are subjected to this process through infrastructure development and road construction to lure more tourists, along with modifying the preexisting wildlands via landscape architecture so as to better appeal to the aesthetic sensibilities of these visitors. This project of totally humanizing the existing environment (i.e. the optimal appropriation of exploitable life forms and the elimination of those that frustrate our projects) is never fully realized. Nevertheless, the outsized impact of modern Western civilization lends credence to conceptualizing landscapes on a polar continuum between intensively domesticated (human) environments and undomesticated natural environments. Most places, of course, fall somewhere on the continuum between these two extremes. However, as the magnitude and intensity of domestication increases, the qualitative difference between modern artificial environments and *de facto* natural wildlands becomes more conspicuous.

Arriving back at full circle, designated wilderness areas are simultaneously cultural and natural, without having to be reduced to one category. They are social insofar as wilderness reflects the ethos of a society that recognizes certain prescriptive norms for how people should interact and influence these areas; wilderness in its *de jure* sense is the product of human culture. Yet, as a place that has been left outside the expanse of the modern techno-industrial landscaping, wilderness areas are genuinely natural spaces that cannot be reduced to the domesticated, artificial environment; wilderness in its *de facto* sense is largely a natural space. In short, wilderness areas are those special sorts of liminal spaces that are released from the ongoing social project of domestication.

3.0 The Critique of the Naturalness-paradigm

In the previous chapter I put forth an ontology of wilderness preservation as a hybrid social/natural space, where land managers and society more generally engage with designated wilderness in a way that does not domesticate or subsume them within the modern techno-industrial landscape. In these next two chapters I take up this issue of evaluating the two competing wilderness stewardship paradigms: the Naturalness-paradigm and the Untrammeledness-paradigm. Here I will address the Naturalness-paradigm, and sketch out some of its major failings as a viable expression of American wilderness preservation in the 21st century.

To briefly recap, the Naturalness-paradigm refers to the environmental philosophy that underpins the view that wilderness management policy should privilege the goal of maintaining "natural conditions" (i.e. maintaining the integrity of wilderness

areas from disruptive human influences [17)] over the goal of leaving wilderness untrammeled from intentional manipulation and control. This position grows from a heightened awareness of the magnitude of anthropogenic influences on wilderness ecosystems, and the potential that these influences could irreversibly diminish biodiversity and the general capacity to support life. In response to this danger, the Naturalness-paradigm calls upon land managers to boldly take up the task of deliberately manipulating wilderness areas in order to redirect ecological trajectories altered by modern techno-industrial society. But in order to heed this call of duty, protected area managers need to be unbounded from what it perceives as the quaint, yet outmoded taboo against trammeling wilderness.

In this chapter I address four major shortcomings of the Naturalness-paradigm, which individually and taken together undermine its standing as a viable conceptual foundation for wilderness preservation. First, it facilitates the domestication of wilderness areas and thereby contradicts the basic tenet of wilderness preservation. Second, it overlooks how uncertainty and the limitations of our ecological knowledge undermine justifications for heavy-handed management interventions. Third, by hastily equating human influence with human control, it negates the agential power of non-humans and gives rise to a feedback loop where any human influence in wilderness areas licenses even greater human control and domination. And finally, it misconstrues

[17] This is usually defined in reference to such management goals like ecological integrity, stability, biological diversity, or resilience. These more precise goals are often used instead of the more ambiguous "natural conditions." However, they mirror the latter insofar as they are desired states—reference points from which managers should seek to maintain or restore—that presumably would exist if had not been for the disruptive effects of human actions.

our stewardship responsibility in terms of the techno-centric worldview that has contributed to anthropogenic disturbances in wilderness areas.

3.1 The Naturalness-paradigm facilitates domestication

Right out of the gate the Naturalness-paradigm, with its impetus towards intentionally manipulating wilderness areas to mitigate disruptive human influences, runs into a fairly straightforward quandary. Namely, is it a conceptual contradiction to try to preserve wilderness areas—places that are not supposed to be subject to human controls and effects—by way of deliberate modification? I argue that it is not necessarily a conceptual contradiction for managers to intervene in wilderness. However, given the magnitude of the task of reversing human influences in our present ecological context, wilderness management efforts guided by the Naturalness-paradigm will likely domesticate and further humanize wilderness areas in ways that fundamentally contradicts the basic premise of wilderness stewardship. To make this point requires working through some nuances.

I established in the previous chapter that a basic tenet of wilderness preservation is that it is possible to interact with land areas in a way that does not essentially humanize or domesticate them. In dualistic terms, wilderness areas are places defined in binary contrast with contemporary artificial environments where humans and their works dominate. Ecological processes and the arrangement of living organisms are allowed to operate without being predominately determined by humans. Given this definition, would it not be the case that “active management” effectively

transforms wilderness areas into artificial environments under the oxymoronic pretext of preserving them from the transformative effects of humanity?[18] Certainly the act of ecological manipulation is, in itself, a deliberate human action, and is therefore artificial. However, the more precise question is whether or not management interventions can be said to help relinquish human dominance over an environment, or does it in effect help further it? If the answer is the latter, the management actions called forth by the Naturalness-paradigm could not in good faith be considered wilderness preservation, and would constitute a completely distinct form of land management operating under a separate conceptual framework.

From the outset it would be a mistake to dismiss the possibility that human interventions can be carried out in a way that remove artificial structures or anthropogenic influences, allowing restored natural processes to function without these impediments.[19] These types of human interventions and their outcomes would not so much be the production of an artificial environment superimposed onto a landscape, but rather the unfastening of human implements that confine the movement and regeneration of existing natural processes. In this sense it would be legitimate to consider human intervention as restoring natural conditions. These sorts of *removal actions* are consistent with wilderness preservation. Management interventions proposed by the federal wilderness administering agencies are commonly expressed in

[18] David Western facetiously describes this as "the unmanaged becomes more managed than the managed" (Landres, 2010, p.88).

[19] This applies to such efforts like removing buildings and roads, or in some circumstances pulling egregiously invasive species blanketing over an area, thereby allowing native plant communities to reemerge.

these terms as removal actions, where they try to reverse human influences that have suppressed the natural way of things.[20] Yet this way of describing ecological interventions becomes less plausible as these projects take on greater complexity, and operate over longer periods of time to ensure a narrow range of acceptable outcomes. As wilderness managers wander further down this path they would no longer be simply removing human influences, but instead would assume a more central role in shaping these ecosystems. These sorts of heavy-handed interventions qua *shaping actions* are fundamentally at odds with the basic premise of wilderness preservation, because to commandeer the ecological dynamics of wildlands entails their conversion into an artificial environment.

"But what is the real difference between intentional 'removal actions' and intentional 'shaping actions'?" the incredulous reader asks. "Since both take the form of deliberate interventions seeking to produce particular outcomes, are they not logically equivalent?" Admittedly there is a certain gray area between interventions that merely seek to remove the lingering effects of past human actions and those that effectively commandeer ecosystems. Yet, as is often the case, we run amiss if we let the existence of gray areas obscure our understanding of the qualitative difference between these

[20] The US Forest Service field manual on wilderness management is a good example of this sort of description of management intervention qua *removal action*.

> "Each designated wilderness is affected by a variety of human influences that vary in intensity. In one area, human influence may be very limited; in another area, major disturbances occur. The number and intensity of these influences cause a gap between the attainable legislative wilderness and the conditions that exist on a wilderness ("X"). The goal of wilderness management is to identify these influences, define their causes, remedy them, and close the gap ("A") between the attainable level of purity and the level that exists on each wilderness ("X")." (USDA, 2007)

two sorts of activities, a difference which will help us better understand the motivations, goals and outcomes of diverse conservation and restoration projects. In drawing this distinction between intervention qua *removal activity* and intervention qua *shaping activity*, I single out three interrelated factors: complexity,[21] temporal duration,[22] and narrowness of the range of acceptable outcome.[23] Removal actions are defined as less complex interventions that are limited in duration. Upon "releasing" an area, it allows resident life forms and processes to freely emerge without trying to determine their precise conditions. Shaping actions, on the other hand, seek to govern primary ecosystems functions through reoccurring interventions in order to maintain certain

[21] *Complexity*. Management interventions become more complex as they target certain parts of the ecosystem whose effects strongly reverberate across the system. Small-scale interventions concentrated in one area (ex. campsite re-vegetation) may not have a pervasive influence on the wholesale dynamics of an ecosystem. More complex interventions will alter multiple variables that are intricately connected with a wide-range of different species, greatly influencing the parameters of their habitat and how they interact with one another. This increases the power that management actions have in shaping the broader biological web.

[22] *Longevity:* As mentioned in the previous chapter, domesticated environments require maintenance in the face of entropy in order to sustain their capacity to fit our purposes. Short-term intervention initially alters a place (perhaps removing something persistently harmful), and then "releases" it upon completion, allowing a place to reemerge without forcing it to conform to a precise set of conditions. On the other hand, if interventions are reapplied indefinitely over regular interventions, this implies a motivation to determine and maintain a more precise set of conditions.

[23] *Narrowness of Acceptable Range of Outcomes:* The prototypical artificial environment is one in which humans conceive of an idealized layout, and subsequently labor to superimpose this predetermined design onto the world. The greater intensity which humans domesticate a place, the more parts that we are forced to take into account and manipulate, bringing about a narrow range of acceptable conditions. Interventions that are limited to "removal actions" have a wider range of acceptable conditions, or rather—as some protected area managers have inverted this term—a narrower range of unacceptable conditions that require correction, after which managers yield to Nature. The more narrowly wilderness managers define the limits of acceptable change within a world experiencing profound anthropogenic change, the more they will have to subject wilderness areas to human control in order to secure these conditions.

predetermined outcomes. Regardless of its rhetorical presentation, this amounts to the forging of a domesticated environment.

As global warming and other byproducts of modern civilization (landscape fragmentation, fire suppression, pollution, etc.) factor into the ecological workings of wilderness areas to a greater extent, the sorts of management interventions needed to arrest and reverse these disturbances will require a level of involvement and complexity that goes well beyond those efforts that are uncontroversially accepted as part of good wilderness stewardship, such as road removal and campsite closures. One example is found in the Saint Mary's Wilderness in Virginia. The U.S. Forest Service is trying to mitigate the effects from acid rain pollution. By dropping limestone deposits via helicopter into its mountain streams with the intention of maintaining the pH content suitable for trout and other native or desirable aquatic species. This treatment is expected to require indefinite reapplications every few years until regional air pollution levels have subsided (Estill, 1998). Although this project is ostensibly being carried out in order to preserve the wilderness characteristics of the St. Mary's streams, it cannot be considered "wilderness preservation" in any genuine sense of the term because managers have commandeered the ecological functioning of these streams through indefinite maintenance actions that seek to maintain specific populations of trout. While this ecological modification is meant to reverse the disturbances caused by industrial pollution, Forest Service officials have responded by integrating the St. Mary's more fully within the operating reaches of where humans and their works dominate.

There are further complications that cast doubt over whether the heavy-handed interventions called forth by the Naturalness-paradigm are consistent with wilderness preservation. For management interventions to avoid domesticating or humanizing wilderness areas, it must adopt a neutral stance about what conditions emerge following the removal of the disruptive anthropogenic influence, otherwise the environmental outcome of management intervention would reflect human-specific preferences. Despite familiar Manichean-styled rhetoric that depicts actions as either "good for the environment" or "bad for the environment," complex wilderness modifications effectively pick winners and losers between the rival interests of different species and community types. For example, in the Bandelier Wilderness, National Park Service administrators have decided to selectively thin stands of piñon and juniper trees. This would create canopy openings that promote herbaceous ground cover, which researchers hope will promote resiliency against soil erosion and catastrophic wildfire, thereby reversing an ecological trajectory caused by years of fire suppression and cattle grazing (Cole and Young, 2010, p. 3). This selective tree thinning is expected to benefit certain "habitat generalist" species who are able to thrive among a wide array of habitat conditions, such as cottontails, deer, squirrels and coyotes. However, Park Service officials admit that it may have a detrimental effect on certain "habitat particularist" species who depend on the specific habitat arrangement afforded by piñon and juniper woodlands, such as piñon mice and black throated gray-warbler (NPS, 2007, p. xiv). Officials even admit that these interventions may negatively affect certain federally protected species, like Mexican spotted owls and the bald eagles.

Another example occurs in the Grand Canyon National Park, where managers must consider whether to try to eradicate the exotic tamarisk shrub thickets that have invaded riverbank areas to the detriment of native vegetation. This decision is complicated by the fact that invasive tamarisk provides vital habitat for vulnerable bird species like the Bell's vireo and the southwestern willow flycatcher (Cole and Young, 2010,pp. 6-7). It would be one thing if managers could simply remove past human harms in a way that would have an omnibenevolent effect towards the ecological whole, but with most heavy-handed interventions this would not be the case. The very fact that wilderness managers have to wade into "inter-species politics" and make these decisions between rival interests entails that they have taken up the role of judge, jury and executioner—a role that is strictly at odds with wilderness being a place where humans resign to let Nature roll the dice. By replacing natural selection with artificial selection, managers are effectively transforming wildlands into domesticated environments.

Unencumbered by the taboo against intentionally manipulating wilderness, some of these decisions between rival species interests will likely be made on more or less explicitly anthropocentric grounds (Wolke, 1991), as would be the case if managers sought to promote desirable game species while culling predator populations like wolves or coyote that would eat into our hunt. [24] Other interventions will be genuinely

[24] Here I am referring to the plausibility that-- in real-world situations-- some administrative decision-makers will rationalize anthropocentrically motivated wilderness interventions on bio-centric grounds. I am not at all suggesting that the scholars who advocate the Naturalness-paradigm as a theoretical basis for wilderness management are disingenuous in their concern for wilderness.

based on bio-centric considerations, perhaps trying to buoy the population of endangered species, or protecting keystone species that we know play an important role in maintaining broader linkages in the web of life. Yet it is far from clear whether even ostensibly non-anthropocentrically motivated interventions can be carried out in a way that does not tilt ecosystems in directions that reflect human-specific preferences or values. This comes about due to the incongruity between our scientific understanding that informs management interventions and the actual workings of real-life ecosystems. First of all, it has been noted how most research and conservation efforts are directed towards those species and biological arrangements that are more conspicuous from a human vantage point (Martin-Lopez, et. al, 2009). The effect of this is that less-conspicuous organisms and their function in maintaining biological linkages (especially on the microscopic level) generally get overlooked. [25] This fact gives rise to the possibility that our altruistic efforts to propagate more charismatic species may effect other, non-focal organisms in ways that we could not foresee– ways that could be beneficial, insignificant or potentially negative (Landres, 2010).

Second, we may impart human bias into natural ecosystems by managing them in reference to more compressed time frames surrounding the present, distorting the cycles and processes operating over time scales that are incommensurable with our human experience of time (Maser, 1988, pp. 49-55). Landres suggests that managers may be inclined to intervene following disturbances in order to restore favorable conditions in the near-term, while unwittingly impeding the natural selection

[25] To play on a quote from Aldo Leopold, the conspicuous parts of the biological clock will not function without the inconspicuous parts.

mechanisms through which populations and communities adapt over the long run (Landres, 2010, p. 95). By telescoping our perception of environmental changes into relatively brief, human-scaled time frames, we may be more prone to the belief that any deviation from historically persistent conditions is necessarily a decline or degradation. Uncertainty about long-term adaptations and future conditions makes it difficult for us to know whether these changes in wilderness are variable or catastrophic. In general, these changes occur with or without human contribution, though the prevalence of anthropogenic disturbances certainly factor into their form and frequency. It is certainly understandable to want to reverse those human influences that could potentially diminish biodiversity and life-supporting capacity. However, it would be a problem if the task of hedging anthropogenic influence amounts in trying to keep wilderness areas in a condition that mirrors present or historically persistent states. Not only would managers be trying to prevent anthropogenic change, but they would also be arresting the naturally occurring fluctuations that have long factored into wilderness areas. A wilderness management approach that sought to hold back the floodgate of ecological and evolutionary change would be an unprecedented superimposition of human agency into these areas, the consequences of which are not readily predictable.

In summary, the types of management intervention called forth by the Naturalness-paradigm cannot really be considered a temporary removal activity where managers disentangle and dilute human influences in wilderness ecosystems in a neutral way. Rather, this stewardship paradigm legitimizes human efforts to assume greater control over the ecological workings and evolutionary destiny of designated

wilderness areas. This invariably would result in landscapes whose features reflect human-specific preferences of what is appropriate and good, trivial and harmful. Wilderness management efforts of this sort amount to an exercise in (self) deception, hiding in plain sight the ghostly presence of human operatives laboring to maintain the apparent purity and intactness of a "natural nature" in its Other-than-human form (Ryan, 2015, p.96). This approach to land management would utterly contradict the widely recognized, fundamental tenet of wilderness preservation—the possibility of interacting with a place in a way that does not subject it to human domestication. For all intents and purposes, proponents of the Naturalness-paradigm, with their calls for heavy-handed ecological manipulation, have abandoned the practice of wilderness preservation while clinging onto its imagery and lexicon.

3.2. Epistemic uncertainty and the justification for ecological manipulation

Proponents of the Naturalness-paradigm are cavalier in that they downplay how uncertainty in the face of highly complex ecosystems ought to factor into decisions whether or not heavy-handed management intervention is a viable response to anthropogenic disturbances in wilderness. I previously raised the point how management interventions informed by a patchy understanding of the real world ecological dynamics would likely result in wilderness areas whose conditions reflect human-specific preferences and values. Here, I argue how this acknowledgement of epistemic limitations should factor strongly into deliberations whether it is even appropriate to intentionally manipulate wilderness areas in the first place. Jack Turner

raises this very point in his essay "Wildness and the Defense of Nature." He thinks that proponents of "active management" have deceived themselves and others by exaggerating their ability to predict and control nature—the basis underwriting their management authority (Turner, 1996, p. 120). The rationale for carrying out management interventions in wilderness areas takes the following form: 1) Managers understand the causal mechanisms at play, along with the conditions in which these mechanisms apply. 2) They have the ability to effectively manipulate certain variables. 3) The effects of these manipulations are reliably predictable. This predictive power combined with technical know-how enables managers to masterfully exert their will onto the environment. Confidence in their ability to control Nature helps legitimate their decision-making authority, and lends validity to calls for heavy-handed interventions in wilderness. But if these premises are brought into doubt, it undermines the justification for carrying out ecological manipulations in wilderness areas.

Upon closer reading, it is not uncommon to find a stark disparity between the confidence displayed by advocates of ecological manipulation and their acknowledgement of the are serious gaps in our understanding of how ecosystems work, including the effects that various management approaches have on these systems. Take, for instance, Jay O'Laughlin's policy paper on wildland fire management. In no ambiguous terms he espouses the value of "active management" compared to "passive management"[26] in bolstering the resiliency of Western pine forests to severe wildfire disturbances. Yet in the very same position paper, he admits that he knows of

[26] O'Laughlin underhandedly refers to this as "benign neglect."

no field study that shows whether actively or passively managed forests tend to have greater resiliency (O'Laughlin, 2013, p. 4). Similarly, Mark Brunson writes how wilderness management efforts could benefit from adopting an ecosystem management perspective, one that considers how humans can carefully manipulate ecosystems in order to mitigate anthropogenic disturbances and maintain wilderness conditions within a defined range of acceptable change. Brunson nevertheless concedes that there is much we do not understand about how human actions influence wilderness ecosystems. He betrays the profoundness of these epistemic limitations when he says, "there are ecologically important questions we may not be able to begin to answer" (Brunson, 1995, p. 15).

One might well find it uncanny that these earnest admissions do not factor more into their calculation that enhanced ecological manipulation is the solution for what ails wildlands. This gap in our ecological understanding clouds our ability to predict the fuller effects of management intervention. If scientists and managers do not sufficiently understand the terrain before them, and are cognizant that there are likely "unknown unknowns"[27] present in complex systems which have not been accounted for, this should lead us to question whether those touting the effectiveness of intervention are making promises even they are uncertain can be fulfilled. Proponents of ecological manipulation in wilderness overlook the fact that being uncertain about the effects an action would have is a valid reason to exercise restraint, especially when said action

[27] This term is borrowed from space exploration, referring to those unknown variables that we are completely oblivious to the fact that we have not taken it into account. This is differentiated from "known unknowns," which are those variables that we have taken into account, but do not know its exact significance or magnitude.

could have potentially damaging consequences that are irreversible and long-lasting. The hesitancy that follows from uncertainty is a form of the precautionary principle, which is often used in environmental management as a rationale for non-action in situations where there is a possibility that our actions could accidentally bring about irreversible harm. If managers are uncertain whether their interventions will effectively bring about the desired outcome, and there is a chance that it will cause unanticipated harms, then should this not dampen calls for bold, heavy-handed ecological modifications? Should it at least afford reason for holding back until further research mollifies these concerns?

Proponents of the Naturalness-paradigm might be tempted to reformulate this calculation in a way that that affords management intervention more leeway by broadening the targeted range of conditions, thereby giving themselves more room for benign error. They could do this by drawing upon the insights of non-equilibrium ecology to argue that there is not one normatively coveted set of conditions for managers to bring about in natural areas, but multiple ecological states that would constitute an acceptable outcome of management intervention (Hobbes et. al, 2010, p. 45). This might seem to bolster the case for ecological manipulation in wilderness by buffering it from attacks against its effectiveness— assuming it produced an outcome within this expanded range of acceptability.

But rather than strengthening the justification for manipulating wilderness areas, this reformulation would seemingly reduce the need for it in the first place. One of the major reasons why proponents of the Naturalness-paradigm want to forgo

untrammeledness in favor of ecological manipulation is because it promises to effectively maintain natural conditions where more passive approaches fail. But as the range of acceptable conditions gets defined more broadly, this increases the likelihood that "passive management" can maintain these conditions, thereby lessening the need for going in and deliberately manipulating wilderness areas. We should not forget that even for the Naturalness-paradigm, non-intervention is—all-things-equal—preferable to deliberate intervention if both approaches can sufficiently maintain wilderness areas within the acceptable range of conditions. Ecological manipulation, being a human influence, is a necessary evil to be avoided when the situation does not call for it.

The desire to try to mitigate disruptive human influences through heavy-handed measures is certainly understandable. But upon taking into account epistemic uncertainty and the limitations of our ability to precisely predict and control ecosystems, these calls for ecological manipulation in wilderness are seriously undermined due to doubts about its effectiveness and concerns about unanticipated consequences. Lacking confidence in its ability to bring about better outcomes, deliberate intervention loses its appeal as a "necessary evil"; it would simply remain in the same category as the other anthropogenic disturbances that ought to be avoided.

3.3. The sinister feedback loop

One under-recognized problem with the Naturalness-paradigm involves how it hastily equates unintentional human influence as constituting human control or dominance over wilderness. It perceives unintentional human influences as having

become so catastrophic that many non-human species populations will not be able persist on their own without receiving life-support from benevolent and technologically savvy conservation managers. This sets the stage for a rather sinister feedback loop, where further human control is justified by the damaging consequences incurred by past efforts to control Nature. [28]

In the first chapter, I explained how the goal of managing for "naturalness" is directed against human influences, while "untrammeledness" is directed against human control. The Untrammeledness-paradigm is accepting of human influences in wilderness areas, but draws the line at when these influences take the form of control: for untrammeledness, control equals trammeling. The Naturalness-paradigm, on the other hand, hedges against both disruptive human influences and human control, though it perceives these two things as being practically one in the same. This is based on the notion that humans have taken on a position of dominance due to the fact that we have unintentionally altered ecosystems in ways that constrain the ability of innumerable organisms to subsist, reproduce and adapt (Stephenson and Millar, 2011-2012). They argue that since we are already effectively controlling wilderness areas through our unintentional human influences, managers should be encouraged to try to intentionally modify wilderness areas in more benevolent ways so as to restore the proper conditions that allow non-human life to persist and flourish. This not only assumes that wilderness

[28] I must qualify that I am not making any personal accusation that those who advocate for the Naturalness-paradigm are sinister or have ill-motives, only that the conceptual framework they propose inadvertently leads to a disquieting cycle.

managers have the ability to effectively enact these interventions, but also that these species populations and life-communities would be imperiled without them.

This gives rise to a crucial issue in the science of ecology, with major implications for applied environmental ethics. At what point do the unintentional influences of modern human societies have such a powerful and pervasively constraining effect on the biological community that it constitutes a form of control? This goes beyond humans merely being a strong influence or agent of change in the biosphere, where we alter environments but not to such an extent that it completely suppresses the adaptive and regenerative capacity of non-humans to respond to these changes. In a stronger sense these influences smother the vital force of non-human beings, leading them on a trajectory towards death and extinction. This question is important for wilderness managers because once that line is crossed it would seem to lend support for ethical calls for management intervention, even when managers are limited in their ecological understanding and technical know-how, because without intervention much of the biological community and a landscape's general capacity to support life would become greatly compromised.[29] The direness of this prospect would allow managers wider-latitude to try to make improvements, given some reasonable expectation that these actions would lead to better outcomes than would otherwise be the case.

We must approach this issue carefully because there are major ethical consequences that would follow from a scenario where the livelihood of non-humans beings are dependent upon the sustained provisioning from human caretakers. We

[29] Archetypical examples include surface mines, post-industrial "brownfields," and decommissioned nuclear reactor sites.

should be extremely wary of any view that holds that if an animal, plant or place has been exposed or affected by human influences, it thereby loses its wildness and becomes a "domesticated" possession of human owners. Even organisms that have been affected by humans are wild in the sense that they are self-directing and have varying abilities to adapt in response to changing environmental conditions. Hastily equating unintentional human influence with human control negates the agential power of non-humans by assuming that their persistent wellbeing is dependent upon humans taking on a more domineering role over their livelihoods. Whether or not this dependency upon human provisioning is genuine would, of course, need to be considered on a case-by-case basis. Still yet, this is a radical departure from the well-established view that most wild species would benefit from a less intensified exposure to modern techno-industrial civilization.

Although the spatial extent of the domesticated landscape is still very much limited on this planet, the presence of human influence is ubiquitous. A wilderness stewardship approach directed towards reversing those ecological changes that bear any trace of human input sets the bar quite low for when intervention is appropriate. In this way, it is easy to surmise how a (positive) feedback loop emerges from this formulation, where heavy-handed wilderness management is justified for the purpose of remedying the ecological consequences of previous industrial-scale efforts to control and exploit the environment. It is a truly sinister circle where present calls for greater human control are justified on the basis of the disastrous consequences of past efforts

to do the same, closing off any space from which to challenge this logic of domination through calls for restraint.

3.4 The techno-centric view of wilderness stewardship

Both wilderness stewardship paradigms incorporate some view of what it entails for managers (and society more generally) to make good on our responsibility towards wildlands in this unprecedented time of anthropogenic change. This involves an assessment of the focal problem needing to be addressed, along with our capacity to address it. These assessments are not merely value-neutral descriptions, but presuppose certain deep-seated worldviews. To throw into question how a stewardship paradigm conceives of its wilderness management responsibilities is to question the broader worldview tethered to it. The Naturalness-paradigm is flawed in that it defines stewardship responsibility too narrowly by focusing on the effects of anthropogenic influences while passing over the underlying causes found in our broader culture and economic system. In doing so, it unwittingly instantiates and reinforces the techno-centric attitudes that have contributed to the wide-scale anthropogenic disturbances in wilderness areas in the first place.

The Naturalness-paradigm presupposes a heroic view of human agency, holding the belief that professional land managers have the knowledge and ability to meet the challenge of arresting if not reversing anthropogenic disturbances in designated wilderness areas, if only they were provided the policy mandate and necessary resources in order to do so. From this perspective, leaving wilderness areas

untrammeled would be a failure to assume responsibility for the problems our society has brought about—a negligent form of fatalism that denies the power of human ingenuity to solve problems and bring about good in the world. As Landres puts it, proponents of management intervention incline towards the sentiment that it is better to be proactive and "do something" rather than being passively resigned and "doing nothing" while wilderness areas are being subjected to irreversible anthropogenic change (2010, p.98).

This heroic approach put forward by the Naturalness-paradigm takes the recognizable form of a "technological fix," in which managers focus their efforts towards alleviating the effects of anthropogenic disturbance, placing less emphasis on addressing the deeper sources of these disturbances found in our contemporary market-oriented political and economic systems, fueled by a consumptive and all-too-often indifferent culture (Katz, 1992). It would be wrong to suggest that the proponents of the Naturalness-paradigm fail to recognize the deeper sources giving rise to these problems, or lack any general notion of addressing them. Nevertheless, they want to steer a course of action where they can be most effective. Realizing how daunting it is to spur deep-seated social changes, they place greater emphasis on alleviating the symptoms found inside the boundaries of designated wilderness areas they are empowered to oversee. Admittedly, there is certain appeal to this techno-centric approach to addressing anthropogenic disturbances in wilderness: its optimistic, can-do attitude lends to a sense of empowerment and hopefulness in serious times. Its appeal

derives from nothing short of the prospect of human redemption through delivering wilderness areas and its resident life forms from the harms that we have brought about.

However, there is an important rejoinder to this techno-centric view of stewardship. The first involves the well-established limitations in our ability to control Nature for precise outcomes, especially over large spatial and temporal scales. Second, this techno-optimism runs up against the unpleasant realization that the cumulative effects of some human actions are so pervasive that they cannot be readily reversed. Taken together, this suggests that the post-hoc ecological manipulations espoused by the Naturalness-paradigm are generally insufficient solutions to the anthropogenic disturbances they seek to remedy. This insight should inform our environmental practices by encouraging wilderness stewards to boldly address the deep-seated sources of the ecological crisis whose outcomes—once incurred— often do not lead to straightforward remediation. In combination with addressing these myriad sources of the ecological crisis, there is nothing wrong with encouraging land managers to develop techniques for interacting with wilderness and non-wilderness areas in ways that are less damaging and more generous to other humans and non-humans. But the notion that we can fix the negative environmental consequences without addressing the core sources of the problem is not only a futile endeavor, it further reinforces the patterns that give rise to it by concealing their pervasive and irreversible consequences. This distorts our sense of judgment by leading us to believe that these practices, along with the belief systems that underwrite them, are not as harmful as they truly are.

By placing the onus of stewardship towards remediating the localized effects of modern civilization in wilderness, this reinforces a misplaced trust in the ability of technological solutions to fulfill our responsibilities without the burden or inconvenience of having to change the way we live. This makes the Naturalness-paradigm's calls for ecological manipulation more amiable to existing attitudes and lifestyles, and less threatening to the political and economic status quo. In deeming it impractical or unrealistic to reform the deeper sources of the ecological crisis, proponents of the Naturalness-paradigm unwittingly lend credence to the notion that these political, economic and cultural systems are immutable, thereby further solidifying their hegemony. Seen in this light, it is apparent how the Naturalness-paradigm resonates with the same techno-centric pattern of thinking that helped bring about the ecological crisis in the first place. All in all, despite the undoubtedly good intentions of those who propose more heavy-handed interventions in order to preserve wilderness, this applied environmental philosophy makes for a poor interpretation of the sensibilities and ethos that have grounded the American wilderness preservation tradition for the past century.

4.0 An argument for the Untrammeledness-paradigm

Now that I have addressed the significant problems accompanying the Naturalness-paradigm, I throw my cards on the table on behalf of the Untrammeledness-paradigm by arguing why it is the more viable conceptual foundation for wilderness stewardship in this era of anthropogenic change. Just to briefly rehash, the Untrammeledness-

paradigm refers to the environmental philosophy that underwrites the view that leaving wilderness areas untrammeled by management control is fundamental and should override the goal of maintaining putative "natural conditions" through heavy-handed ecological manipulation. This position emerges in response to the historical tendency of protected area managers to actively transform (and effectively domesticate) wildland areas under the pretext of nature preservation—a tendency that mirrors the broader efforts to control and colonize the natural environment for exploitative purposes. The Untrammeledness-paradigm calls on managers to practice humility and critical self-examination about the means and ends of wilderness preservation.

I will proceed to make the case for why the Untrammeledness-paradigm is the more compelling expression of wilderness stewardship. First, as opposed to its rival stewardship paradigm, the Untrammeledness-paradigm retains an important sense of what it means to manage wilderness as a "natural" area, despite the fact that it bears traces of human influence. Second, I explain how its emphasis on deliberate restraint is both a practical and scientifically informed land management practice, which is effective in precluding inadvertent actions that would domesticate wilderness areas. And finally, I argue that the Untrammeledness-paradigm offers a compelling view of our stewardship responsibility, along with the limitations and possibilities of creative human agency in dealing with the symptoms and causes of the global ecological crisis. Notwithstanding claims to the contrary from those who call it "benign neglect," the Untrammeledness-paradigm entails a proactive approach to addressing the effects of anthropogenic

influences in wilderness, one that is actually compatible with a wide range of conservation strategies.

More so, it brings into focus and serves as a counter-force to certain pathological cultural tendencies lying at the root of myriad social and ecological problems, such as our collective lack of limitations, lack of awareness, and lack of self-control.

4.1 Conceptual Coherence

In an intellectual climate where some scholars and writers have expressed skepticism towards the idea of something or someplace still being "natural" in this age where humans are a primary driver of global change (Kareiva et. al, 2007), the Untrammeledness-paradigm retains a meaningful notion of natural places as those wildlands whose features are undetermined by the deliberate, reoccurring manipulations of human beings. As opposed to the Naturalness-paradigm, the Untrammeledness-paradigm sidesteps the irony of having managers presuppose and then labor to implement what is considered to be "natural conditions." This is important because the conceptual coherency of wilderness preservation as a land management practice hinges on the possibility that places can be genuinely natural and non-humanized.

A major issue that has fueled philosophical wilderness management debates is this question of what it means for a place to be natural given how far and wide anthropogenic influences have seeped through the biosphere. Since there is no place unaffected either directly or indirectly by human activities, this raises the question of

what meaningful difference can be drawn between those places that we pre-critically refer to as “natural areas” and those more recognizably artificial environments. This poses a problem because the idea of wilderness preservation requires a binary distinction between natural and artificial areas, without which the intelligibility and normative force of this type of land management practice is weakened. It would no longer be clear why wilderness areas should be managed differently than any other artificial environment where we feel more entitled to transform it along the line of our desires. In the second chapter I established this distinction between artificial and natural environments as the difference between (human) domesticated and non-domesticated environments. Furthermore, I stated that a basic tenet of wilderness preservation is that it is possible to engage with places in a way that does not essentially domesticate or humanize them. The problem faced by the Naturalness-paradigm is that—in reversing or mitigating the sorts of anthropogenic influences present in wilderness areas nowadays—the heavy-handed management interventions it requires would lead to places that were neither free from human control nor human influence, resulting in artificial environments that could not be considered “natural” in either of the two main senses of the term. As a result, the Naturalness-paradigm is wilderness preservation more so in name rather than in substance.

On the other hand the Untrammeledness-paradigm hangs onto the important sense of a natural environment as one that is not created nor subjected to continual domestication. In untrammeled wilderness areas, governmental administrators and the general public are not trying to decide what species are allowed and which are not. They

do not try to govern the biogeochemical functioning or evolutionary mechanisms operating therein. This stewardship approach involves the challenging discipline of being able to "let Nature be," checking our tendency to overcorrect when it does not emerge in the form that *we* think that it should. In an age where humans have increasingly became the dominant force of change on Earth, the stewardship approach espoused by the Untrammeledness-paradigm can manage designated wilderness areas in a way that meaningfully retains its natural state, free from human control.[30] It maintains wilderness in a manner compatible with this primary sense of "natural area" qua undomesticated, while forgoing any pretense of maintaining it in some purely pristine state — which, to be candid, is a concept that is more a reflection of the Euroamerican cultural imagination than an empirical description of the natural world. For those still beholden to the vision of managing wilderness in its uncontrolled, non-humanized form, the Untrammeledness-paradigm offers a pathway to pursue this vision, while the naturalness-paradigm loses sight of any clear sense of what it means to manage natural environments free from human control or influence.

4.2 Deliberate restraint as a means and end of wilderness stewardship

Much of the philosophical and practical debate surrounding this dilemma of wilderness management boils down to this question concerning the value of deliberate restraint as a management precept. In brief, the Naturalness-paradigm views it as nonessential and seeks to lessen its normative weight, while the Untrammeledness-

[30] This is not to say that we should overlook or conceal the various ways, past or present, in which humans have affected these non-domesticated natural areas.

paradigm continues to cling onto it as a foundational feature of wilderness stewardship. I ague that this special emphasis on principled restraint from ecological control and manipulation is a major part of what makes wilderness preservation such a profoundly compelling and unique approach to land management. To begin illustrating this, let us look at the common line of criticism directed against it and how it holds up in the face of it.

Critics have suggested that untrammeledness is based on outmoded "balance of nature" assumptions where climax-succession mechanisms— left free from interference—will eventually "wash-out" the effects of past human influences and restore pre-disturbance natural conditions (Cole, 2008; Stephenson and Millar, 2011-2012). Upon recognizing the limited applicability of this ecological generalization, non-intervention is no longer thought to be sufficient in preventing wilderness areas from being transformed into historically novel conditions that reflect the workings of humanity. As a result, it is not an effective management approach to ensure pristine conditions. Rather than abandoning the idea of wilderness preservation, the proponents of the Naturalness-paradigm often argue that non-intervention—as an end-in-itself—was never considered an essential or indispensible part of wilderness management, but rather was contingent upon its ability to maintain wilderness areas free from human disturbances. Since it is no longer believed to be a successful means to achieve this end, it should accordingly be superseded by a more promising management approach, namely one that pursues intentional modifications.

However, this reading misses the marks on several fronts. First off, the history of the federal wilderness system suggests that management restraint was not merely an incidental feature of early wilderness management, but rather was intended by legislative design as a foundational part of what it meant to carry out the practice of wilderness preservation. In the opening passages of the landmark Wilderness Act of 1964, there is a reoccurring emphasis on designated wilderness as a place defined by the absence of human control. The law states how the federal wilderness system is established in response to the growing development and mechanization of the landscape. It defines wilderness areas as places of contrast with these domesticated environments, proscribing their development or settlement, as well as any management "improvements." This notion that legal wilderness should be defined by the absence of human domination, rather than pristine nature absent of a human presence, is further evidenced by Howard Zahniser's (recognized as the principal author) strategic use of the archaic term "untrammeled" to describe how wilderness areas should ideally be managed (Scott, n.d.).[31] The guiding purpose of wilderness management was to maintain these public wildlands in an unconstrained state free from the impediments, improvements, and transgressions of heavy-handed "active management." It is imperative to note the self-referential connection between the means and ends of wilderness management. To maintain wilderness in this untrammeled state, managers have to exercise restraint from taking any actions that would impede, improve, or

[31] This term was so unfamiliar in the vernacular of the time that even sympathizers of the wilderness legislation suggested that it be changed to "undeveloped" or some more common term (Harvey, 2007). It is often misconstrued as "untrampled."

transfigure the free-flowing, self-directed ecological processes and life forms inhabiting wilderness. The ends of wilderness management are explicitly defined in reference to the means that are deemed appropriate. This feature of the proposed national wilderness system did not go unnoticed by those vested in public lands management. The officials at the U.S. National Parks Service and Forest Service were well aware of how this statutory design in the Wilderness Act would restrict their administrative discretion for how to manage public lands under their jurisdiction, which was a large reason why they were lukewarm if not hostile towards this new legal classification of wilderness areas. It limited the tools at their disposal and posed a challenge to the prevailing command and control approach to natural resource and protected area management (Wolke, 1991).

Far from being an outdated relic of the past, this historical emphasis on deliberate restraint should persist as an essential facet of wilderness stewardship, especially given the ecological and cultural characteristics of our contemporary age. By placing a high burden of proof on those advocating the need for intervention, it serves as a regulatory hurdle that effectively circumscribes management practices that would further humanize wildland areas. It not only serves as a regulatory preventative against the overt colonization of wilderness, but also against those management actions that effectively forge artificial environments under the (self) deceptive pretext of "nature preservation." Although management interventions do not necessarily equate with domestication, they are a necessary step, and once managers go down this road it

can be hard to discern between those that work towards domestication and those that do not.

The goal of untrammeled wilderness forces administrators to have to self-scrutinize the motivations and outcomes of their management actions to a greater degree than would be required if they were not bound to this taboo against manipulation. They have to reflect whether their motivations are based primarily out of care for wilderness and its resident life communities, or whether it is out of more anthropocentric concerns, such as optimizing harvest yields or tourism revenue. They would have to show that their proposed interventions would not just be some effort to superimpose a crystallized, steady-state ideal of what wilderness should be—an ideal that primarily reflects human desires (i.e. pre-1492 vignette of primitive America). In order to justify management interventions they would have to give convincing evidence for the potent destructiveness of some human influence which, left without remediation, would result in a greatly reduced capacity to support manifold forms of life.

Just as it is mistaken to view non-intervention as merely a contingent feature of wilderness preservation, it is a mistake to view it as scientifically ungrounded, or dependent upon simplistic succession-equilibrium models of natural change. Non-intervention would be an insufficient conservation approach if the purpose was to maintain the static, unchanging conditions that mirror certain cultural specific ideals of what pure, exo-cultural nature should be. However, the purpose of wilderness preservation is not really to maintain any particular sets of conditions, as if the natural

world unaffected by humans would exist in this unchanging state of equilibrium. Wilderness stewardship is a form of self-discipline where we withdraw our efforts to produce anthropogenic stability, where natural fluctuation and transformation are allowed to occur without being directed nor arrested through human engineering. It generally tolerates an extremely broad range of acceptable environmental conditions.

Non-intervention, or deliberate restraint, is consistent and complimentary with recent developments in the science of ecology that characterize natural phenomena in terms fluctuation and instability. The constancy found in ecological phenomena is viewed as a transitory rather than an innate condition of undisturbed nature. Upon experiencing perturbation, ecosystems may not revert back to a single equilibrium state, but unfold in one of many possible states. The Untrammeledness-paradigm of wilderness preservation is congenial to this dynamic, because it does not mandate any particular set of conditions, only that these conditions have not been determined through human artifice. This so-called New Ecology also tends to highlight the unimaginable complexity of ecosystems and evolutionary processes, often leaving the most knowledgeable researchers befuddled. There is humility in admitting how our models of reality—as indispensible and insightful as they are—do not reflect the richness and complexity of real-life ecosystems as they exist out there in the world. This recognition is not any sort of dismissal of the empirical sciences and their advancement, but rather is often an outcome of scientific inquiry upon reaching that point where one vaguely senses that realm on the other side of knowledge, which remains uncomprehended and sublime.

This insight is complimented by another from evolutionary biology, where we marvel at the ways in which order, adaptation, and stability emerge from chaotic interactions that are not engineered by humans. Taken together in the context of wilderness management, this has a moderating effect on the hubris attached to our ability to intentionally direct and suppress ecological changes. It casts doubt on the assumption that management interventions can generate more sustainable forms of diversity and resilience than would result from natural selection. Instead of trying to artificially direct these processes ourselves, the Untrammeledness-paradigm encourages us to let them operate unimpeded in wilderness areas. Modern civilization is certainly a powerful agent of change in the biosphere. Yet our limited ability to fully understand and control Nature points back towards the wisdom of non-intervention.

4.3 Stewardship Responsibility and the Untrammeledness-paradigm

The Untrammeledness-paradigm's conception of stewardship responsibility and human agency is quite different than that presented by its rival. Like the Naturalness-paradigm, it acknowledges the disruptive effects of human influences in wilderness areas and seeks to take proactive measures to address this problem. The differences lie in the way that the problem is formulated, and its assessment of our capacity to address it. The Untrammeledness-paradigm is oriented towards the deep-seated social, cultural and economic structures that perpetuate anthropogenic disturbances in wilderness areas and contribute to the ecological crisis more generally. It is not optimistic about the prospect that a technological fix can adequately address the symptoms exhibited in

wilderness areas while shying away from these broader causes. Yet it is not as pessimistic as the Naturalness-paradigm about the prospects of affecting positive social and cultural changes. There are specific ways in which wilderness preservation, as a form of individual and collective engagement with certain wildland places, brings into definite focus certain patterns that give rise to the ecological crisis. In this sense wilderness stewardship constitutes a creative and provocative step towards addressing these deeper problems.

First of all, it must be said that the non-manipulative approach to wilderness management—despite claims to the contrary—is not an abdication of responsibility for the widespread, cumulative environmental impacts of modern industrial civilization. Nor is it a misanthropic rejection of the possibility of benevolent human agency. Although the Untrammeledness-paradigm takes the form of what is often referred to as "passive management," it is somewhat of a misnomer to describe a program based on deliberate restraint as "passive" or "benign neglect." It takes a good deal of pro-activeness in order to carry out "passive management," where stewards must develop ways to care for wilderness areas and take responsibility for any negative human influences, without doing so in a way that commandeers wilderness ecosystems or subsumes them within the reaches of our everyday domesticated environment. This requires a substantial amount of participation, resource investment and support from the general public.

For one, wilderness stewards need to carry out measures within the boundaries of designated wilderness to try to prevent any outsized or harmful human impact before it occurs. This involves such things like conducting field observations, surveying user

trends, and engaging with outdoor recreationists and other users to encourage conscientiousness in how we interact with the wilderness. Other, more "cutting-edge" conservation strategies or tools are often consistent with the Untrammeledness-paradigm. One example would be managers taking part in landscape-scale conservation planning, in which they collaborate with adjacent land owners and citizen stakeholders to establish protected migration corridors and buffer zones that coincide with untrammeled wilderness as core biological areas. Another example would include adopting or advocating a shift in wildfire management away from aggressive suppression approaches, thereby "allowing" wildfires to run their course when they do not pose an immediate threat to human safety. This would need to be complimented by trying to find ways of discouraging housing developments near wilderness areas in order to minimize the Wildland-Urban Interface. In addition to these land management strategies, wilderness stewards should look beyond the boundaries of wilderness by trying to address and potentially curtail anthropogenic disturbances at their upstream source. This may involve openly advocating on such issues like greenhouse gas emission, air and water pollution, landscape fragmentation, and other human actions that directly or indirectly affect wilderness areas. None of these aforementioned management actions involve trying to manipulate and commandeer wilderness areas; they do not take the form of shaping actions that are fundamentally incompatible with wilderness preservation. They are merely trying to prevent or mitigate anthropogenic influences upstream before they effect wilderness areas.

There is an even deeper plane from which the Untrammeledness-paradigm addresses the sources of anthropogenic disturbance. As an approach to land management, wilderness preservation sprung forth in reaction to certain worrisome patterns in the social and cultural fabric of modern American civilization; these can be identified as a perceived lack of limitations, a lack of awareness of the effects of our actions, and the sense that, as a social collective, we lack control of the macro-level force that is our modern techno-industrial civilization. Wilderness preservation should not be understood as a solution or "technological fix" to these problems, but rather is style of engagement that tries to counter these trends by encouraging alternative dispositions, as well as providing a perspectival standpoint from which these broader trends can be brought into our focus.

The first issue involves the sort of pathology that comes from a perceived lack of limitations. In a capitalist political economy driven towards maximizing exchange value, both the natural and social parts of the more-than-human life-world appear vulnerable to being requisitioned to serve its highest instrumental function in the market economy—for many, this function is one of exploitation. In the context of the American landscape, we see the totalizing forces of commodification occur in the form of land conversion from open spaces to suburbanized development, from native forests to monoculture timber plantations, from wildland natural areas to automobile accessible outdoor recreation playgrounds, and so on. As Wendell Berry pithily puts it, "…ignorance of when to stop is a modern epidemic; it is the basis of 'industrial progress' and economic growth'"(Berry, 1982, p.15). In a time where much of the mainstream

cultural mindset is deadest on finding ways to transgress limitations, to improve upon what is present, wilderness preservation emphasizes our various limitations: physical, technological, intellectual, and moral.

These limitations can be experienced on an individual level, i.e. the proverbial solo backpacker who slogs across un-attenuated topography, bearing her pack on her shoulders, uncertain of what lies across the next ridge, mindful towards those communities of life she encounters all along her way. These limitations can also be experienced on a more collective level, with land administers, surrounding communities, and the broader society all exercising restraint and self-examination when considering how these wilderness areas ought to be managed. It leads us to also think about those other limitations that are implied in the rationale for circumscribing management discretion, such as the limitations of our scientific knowledge and technological know-how. This ongoing assessment of our capacity to know and act is an important disposition to bring into our everyday moral practice. Also, the process of abiding by self-restraint presents a standpoint from which to potentially recognize that already-present value in the more-than-human world, value that is independent of our projects, value that would not diminish if we did not try to enhance it.

The second issue involves our diminished perceptiveness towards the natural world and the profound ways that our society is impacting it. In this technologically mediated built environment, it is easy for us moderns to be disconnected from that which lies outside our usual operating researches. Turner raises the point how this lack of awareness feeds into our indifference and acquiescence towards the systemic causes

of harm and violence directed at other humans and non-humans (1996, pp. 32-37). It is well recognized how wilderness areas provide a setting where people can have close, unprogrammed experiences with the natural world. The pace of human-powered travel across a physical landscape, unaided by infrastructure or improvements, lends to our ability to be perceptive of our environmental surroundings. Furthermore, as a setting of radical contrast with the technologically mediated environment, wilderness areas help bring into sharper focus some of the more ubiquitous, albeit inconspicuous features of the everyday built environment (Havlick, 2006). Not only is untrammeled wilderness as a setting conducive for allowing us to be more aware of our surroundings, but as a stewardship program it compels us to have to pay attention to the unexpected and unintended ways that we influence the environment. Even outside of designated wilderness, this virtue of being perceptive towards Others, along with the contexts within which our lives are embedded, is an indispensible skill in our everyday moral lives.

The third issue involves our collective lack of control over the macro-level movements of our civilization. Arising from the multitude of individual actors positioning themselves in certain relation to one another, this emergent social order, like an *invisible hand* or an *alien force*, shapes the course of possibilities in our collective lives. Referred to by Benton MacKaye as the "wilderness of civilization," it responds to a logic that cannot be reigned in by the fiat of government bodies, but moves with "creative destruction" that can occasionally be disastrous to human wellbeing and that of the broader life-world (MacKaye, 1928). In the face of this, it might seem inevitable that

wilderness areas will face the bulldozer or some other means towards domestication as soon as our political economy demands it. What could we do otherwise?

Ironically, the principled restraint from trying to control wilderness requires a great deal of discipline and self-control. Untrammeled wilderness is not an outcome of resignation and inattention, but results from a sustained effort to lessen the intensity of disruptive human influences, an effort that requires creativity, innovation, and self-examination. The National Wilderness Preservation System (NWPS) was a legal invention that was designed to try to reign in the forces of commodification that were prevalent in the National Parks and Forests at the time. To exercise the discipline of managing untrammeled wilderness in the face of pressure towards domestication requires a collaborative effort to assert collective agency on behalf of common values, values that may run at odds with the impersonal market-based valuations that hold so much power over the fate of human society and the greater biosphere. It is far from guaranteed that the practice of untrammeled wilderness stewardship and the community that pushes for it will not one day get outflanked or outranked in the face of market forces. Yet the fact that this practice still endures and strongly resonates among so many people, along with its legal codification in federal statutes, gives hope not only for the future of undomesticated wilderness areas, but also in the possibility that collective social action can rise up and exercise rational agency on behalf of causes that advance the genuine wellbeing of human beings and the larger biological web from which our habitat is nestled out alongside others.

These three issues are all substantial problems whose implications are felt within, upon, and far beyond the boundaries of designated wilderness areas. Each one factors into why wilderness preservation arose as a distinct land management practice in the mid-20th century United States, with its special emphasis on principled restraint from human control. By no means does wilderness preservation serve as the antidote for these broader social problems. Yet as a novel form of land use it continues to challenge us to interact with wildland natural areas without domesticating them, to question our pretensions to knowledge and control, and to sense the value that resides in the world independent of our improvements. Wilderness managed under the Untrammeledness-paradigm, I believe, expresses what Thomas Birch describes as the "subversive potential" of legally designated wilderness against the "totalizing imperial power" of techno-industrial civilization (Birch, 1990, p.465-6). Even in the face of anthropogenic changes, untrammeled wilderness represents the most compelling expression of wilderness preservation. It is wilderness protection done for the right reasons.

Works Cited

Berry, Wendell. (1983) Getting Along with Nature. In *Home Economics: Fourteen Essays*. (pp. 6-20). Berkeley, CA: Counterpoint Press.

Birch, Thomas. (1990) The Incarceration of Wildness: Wilderness Areas as Prisons. In Callicott, J. Baird and Nelson, Michael P. (Ed.) *The Great New Wilderness Debate*. (pp. 443-467). Athens and London: University of Georgia Press.

Brunson, Mark. (1995) The Changing Role of Wilderness in Ecosystem Management. *International Journal of Wilderness. 1* (1), 12-16

Callicott, J. Baird. (1991a) The Wilderness Idea Revisited: The Sustainable Development Alternative. In Callicott, J. Baird and Nelson, Michael P. (Ed.) *The Great New Wilderness Debate*. (pp. 337-366). Athens and London: University of Georgia Press.

Callicott, J. Baird. (1991b) That Good Old-Time Wilderness Religion. In Callicott, J. Baird and Nelson, Michael P. (Ed.) *The Great New Wilderness Debate*. (pp. 387-394). Athens and London: University of Georgia Press.

Cole, David N. (1996) Ecological manipulation in wilderness—an emerging management dilemma. International Journal of Wilderness. *2*(1): 15-19.

Cole, David N. (2000). Natural, Wild, Uncrowded, or Free: Which of These Should Wilderness Be? *International Journal of Wilderness. 6*(2), 5-8.

Cole, David N. (2001). Management Dilemmas That Will Shape Wilderness in the 21st Century. *Journal of Forestry. 99*(1), 4-8.

Cole, David N. (2003) Agency Policy and the resolution of Wilderness Stewardship Dilemmas. *The George Wright Forum*. *20* (3), 26-33.

Cole, David N. (2008). Wilderness restoration: From philosophical questions about naturalness to tests of practical techniques. *International Journal of Wilderness*. *14*(1), 32, 42.

Cole, David N. (2012). Beyond Naturalness: Adapting Wilderness Stewardship to an Era of Rapid Global Change. *International Journal of Wilderness*. *18* (2), 9-14.

Cole, David N. and Yung, Laurie (2010) Park and Wilderness Stewardship: The Dilemma of Management Intervention. In Cole, David N. and Yung, Laurie (Ed.) *Beyond Naturalness: Rethinking Park and Wilderness Stewardship in an Era of Rapid Change*. (pp.1-11) Washington, DC: Island Press.

Cronon, William.(1995) The Trouble with Wilderness, or, Getting Back to the Wrong Nature. In Callicott, J. Baird and Nelson, Michael P. (Ed) *The Great New Wilderness Debate* (pp.471-499). Athens and London: University of Georgia Press.

Estill, Elizabeth. (1998) "Decision Notice: Proposed St. Mary's Aquatic Restoration Project." USDA Forest Service, Region 8, George Washington and Jefferson National Forests.

Harvey, Mark W. T. (2005) *Wilderness Forever: Howard Zahniser and the Path to the Wilderness Act*. Seattle: U of Washington.

Havlick, David. (2006). Reconsidering Wilderness: Prospective Ethics for Nature, Technology, and Society. *Ethics, Place & Environment 9*(1), 47-62.

Hobbs, Richard J. et. al. (2010) Evolving Ecological Understandings: The Implications of Ecosystem Dynamics. In Cole, David N. and Yung, Laurie (Ed.) *Beyond Naturalness: Rethinking Park and Wilderness Stewardship in an Era of Rapid Change*. (pp.34-49) Washington, DC: Island Press.

Kareiva, P., S. Watts, R. Mcdonald, and T. Boucher. (2007). Domesticated Nature: Shaping Landscapes and Ecosystems for Human Welfare. *Science. 316*(6833) pp. 1866-1869. 29 Jun 2007.

Katz, Eric. (1992) "The Call of the Wild: The Struggle against Domination and the Technological Fix of Nature," *Environmental Ethics* 14: pp. 265–73.

Landres, Peter, et. al. (2000) Naturalness and Wildness: The Dilemma and Irony of Managing Wilderness. In *Wilderness Science in a time of change conference*. Vol. 5: Wilderness ecosystems, threats, and management. USDA, Forest Service, Rocky Mountain Research Station. (pp. 377-381).

Landres, Peter. (2004) Managing the wild: should stewards be pilots? *Frontiers in Ecology and the Environment*. 2 (9) pp. 498-9).

Landres, Peter. (2010) Let It Be: A Hands-Off Approach to Preserving Wildness in Protected Areas. In Cole, David N. and Yung, Laurie (Ed.) *Beyond Naturalness: Rethinking Park and Wilderness Stewardship in an Era of Rapid Change*. (pp.88-105) Washington, DC: Island Press.

MacKaye, Benton. (1928) *The New Exploration: A Philosophy of Regional Planning*. Appalachian Trail Conference.

Martin-Lopez, et. al. (2009). What drives policy decision-making related to species conservation? *Biological Conservation 142*, pp. 1370-1380. [online] https://www.researchgate.net/profile/Javier_Benayas/publication/223554010_What_drives_policy_decision-making_related_to_species_conservation/links/00463522ee9cfb485b000000.pdf

Maser, Chris. (1988). *The Redesigned Forest*. San Pedro, CA: R. & E. Miles.

National Park Service, U.S. Dept. of the Interior. Bandelier National Monument. (2007) *Bandelier National Monument Final Ecological Restoration Plan and Environmental Impact Statement*.
[online] http://parkplanning.nps.gov/documentsList.cfm?parkID=27&projectID=10977

Nickas, George. (2004) Managing the wild: should stewards be pilots? *Frontiers in Ecology and the Environment*. 2 (9) p. 499).

Noon, Barry R. and Dickson, Brett G. (2004) Managing the wild: should stewards be pilots? *Frontiers in Ecology and the Environment*. 2 (9) pp. 496-7.

O'Laughlin, Jay. (2013) Wildland Fire Management: Are actively managed forests more resilient than passively managed forests? College of Natural Resources Policy Analysis Group, University of Idaho. [online] http://www.idahoforests.org/img/pdf/fire/PAG-IB15-wildfire-resiliency-active-passive-management.pdf

Ryan, Sean. (2015) *Theorizing Outdoor Recreation and Ecology*: *Managing to Enjoy "Nature"?* Basingstoke: Palgrave Macmillan.

Scott, Doug. (n.d.) The Wilderness Act and Related Statutory Provisions: With Statutory Interpretation and Notes on Legislative Intent of Key Provisions. (n.p.) {online} http://dougscottwildernessconsulting.com/images/articles/wilderness-act-annotated.pdf

Stephenson, Nathan L. and Millar, Constance I. (2011-2012). Climate change: Wilderness's greatest challenge. *Park Science*. *28* (3), 34-38.

Turner, Jack. (1996) *The Abstract Wild*. Tucson, AZ: The University of Arizona Press.

USDA Forest Service. (2007). Chapter 2320—Wilderness Management. *Forest Service Manuel.* Washington, DC: USDA Forest Service. [Online] https://www.wilderness.net/NWPS/documents/FS/FS_wilderness_policy.pdf

Vogel, Steven. (2003). The Nature of Artifacts. *Environmental Ethics*. *25* (pp.149-168).

Watt, Laura A. (2002). The Trouble with Preservation, or, Getting Back to the Wrong Term for Wilderness Protection: A Case Study at Point Reyes National Seashore. *Yearbook of the Association of Pacific Coast Geographers. 64* (1). 55-72.

Wolke, Howie. (1991) *Wilderness on the Rocks.* Tucson, AZ: Ned Ludd Books.

Woodley, Stephen. (2010) Ecological Integrity: A Framework for Ecosystem-Based Management. In Cole, David N. and Yung, Laurie (Ed.) *Beyond Naturalness: Rethinking Park and Wilderness Stewardship in an Era of Rapid Change*. (pp.106-124) Washington, DC: Island Press.