RADICAL CO-LABORATION ACROSS THE MULTIPLE AMERICAN WESTS: IMAGINING PLACE-BASED ENVIRONMENTAL GOVERNANCE

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ABSTRACT

RADICAL CO-LABORATION ACROSS THE MULTIPLE AMERICAN WESTS: IMAGINING PLACE-BASED ENVIRONMENTAL GOVERNANCE

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The grand landscapes of the American West are iconic and critical to the history of environmental conservation, yet they are also highly conflicted. A history of destructive extraction has left many of these landscapes in a state of disrepair, worsened by an increasingly variable climate, continued mis-management, and that these lands are publically owned thereby requiring decision making processes that are accountable to the diverse values that the public holds. This dissertation focuses on the last of these, namely that collaborative decision making in the environmental governance of the American West is beneficial yet itself understudied and conflicted. Simply, if the public wishes to collaborate in the governance of Western lands, then special attention needs to be paid to the context, opportunities, and obstacles of Western collaboration in order to better navigate diverging values, knowledges, and worldviews.

This argument begins with the premise that the ideal collaborator is often conceived as rational and discursive, able to aptly articulate their positions, wrestle with other's arguments, and come to consensus over conflict. "Values" and "knowledge" are nested in a web of "beliefs" and "attitudes," all of which reflect the cognitive dimensions of our worlds. This is not wrong, as it seems a requirement of collaboration to navigate the complexities of our worlds through discussion of values, beliefs, attitudes, knowledges, etc. However, I argue that the focus on the cognitive dimensions of collaboration obscures the materiality of collaborators – their own bodies, the places they exist in, and the ways that these structure their worlds.

Building from the works of Mark Johnson and John Dewey, I develop a theory of the embodied imagination and the role of embodied and sociocultural experience in order to explore the ways in which Western landscapes condition our environmental beliefs. These diverging beliefs – or, as I term them, *environmental imaginaries* – are themselves embodied, occurring as much in our minds as in our bodily performances and experiences. I argue that the places we experience are integral to the beliefs that we hold. The reflexive place-belief process leads to the American West being a multiplicity of American and Indigenous Wests where the same landscape is experienced and perceived so differently as to provide considerable obstacles to collaboration in environmental governance.

Through discussions of environmental imaginaries, Western places, the experience of various fencing in the West, and the experience of scientific measurement and grouping – and its concomitant impact on environmental governance – I argue that collaborative scholars and practitioners should take seriously the ways that place, experience, and the imagination impact the potential of collaborative environmental governance. This dissertation ends with a discussion of collaboration itself, arguing that a renewed focus on the embodiment of collaborators is better understood as radical co-laboration, or that organizing Western environmental governance around collaborative principles that take seriously the emplaced body is a radical divergence from the governance philosophies currently employed in the West, namely those that that prefer top-down governance that relies on our cognitive expertise in lieu of our embodied experience. I end with a discussion of structural changes that are required in order to enact co-laboration that recognizes the imaginatively derived, embodied experience of place in hopes that Western landscapes can be better governed, conserved, and protected through public, co-laborative processes.

In memory of Charles D. Smart

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PREFACE

In summer of 2018, I was participating in a collaborative effort to better manage livestock on a large working ranch in northeastern Nevada. We were listening to a University of Nevada extension agent explain how the different plant communities of the area respond to both grazing and wildfire – two hot topics for land management in the Western states. Our group consisted of local ranchers, state and federal agency officers and managers, non-profit organization representatives, disparate community members, and university extension agents. The group was dominated by scientists, heralding from their respective organizations, all with some sort of expertise on rangeland management. Our group's goal is to learn from each other's experiences and expertise in order to better manage the land and better manage our own actions on the land. We were collaborating, but I couldn't help but wonder what we meant when we said we were collaborating – is it sufficient that a group of people get together or was more required in order to collaborate?

I am a westerner and descendant of those who settled in Idaho, born and raised in the deserts and mountains that sustained the Shoshone and Bannock Peoples since time immemorial, land that I now work to understand in order to better govern. I grew up surrounded by rural agriculture and rapid urban growth, seeing the outdoors as a place of repose and recreation, and, alternately, as a place to work and thrive. As a multi-generation Idahoan steeped in rural culture but also impacted by urban growth – and trying to find myself in this liminal space – I have been led to work across the ever-present divides we find in the American West, from the urban/rural and the wilderness/rancher divide, to the deeply entwined racial and economic divisions that have roots in the genesis of the American West as a settler colonial project. In the current

academic culture, I'm late to my studies. I enjoyed a comfortable career in a local lumberyard before the economic recession of the mid-2000s that prompted me to pursue an education – an education that has taken me across the nation, yet throughout has led me back to my place and thinking through the issues we face in the West. I quickly learned that the divisions that often characterize Western conflicts oversimplify the complexity of its peoples – settler, Indigenous, emigrant, migrant, and all those in between – and the connections these people feel to this land.

Throughout the years and my academic training, I've been participating in a variety of collaborative efforts in the American West and, in some sense, this dissertation was borne out of my curiosity to understand what collaboration means in the context of the American West. Of course, there are many dimensions that must be considered in order to understand these collaborations including the interpersonal preferences of the participants, the organization of the collaborative effort, the credentialed expertise of the speakers and the non-credentialed expertise of the listeners, the hierarchies existing between federal/state/and local agencies, the history of the land and the communities represented in the group, and much more. But, for all the complexity, collaboration has always been on the horizon of western governance, whether that be the collaborative governance structures of Indigenous Peoples, the neighborly collaboration that was required to eke out a living for the settlers in the arid deserts, or that which is required to manage vast tracts of federally-owned public land. Although many westerners have forgotten (or choose to forget), collaboration is as much a part of western landscapes as the vase sagebrush seas and towering granite peaks.

As I was contemplating all of this on the ranch tour, the speaker said something that piqued my interest. In characterizing the different plant communities we were looking at, the speaker described the delicate balance of restoring native and non-native plant species as a

bulwark to the spread of invasive plant species. These invasive species, they explained, were prone to wildfire and dominated the landscape to such an extent that were they proliferated, there would be no biodiversity and, in corollary, the land was in an extremely unhealthy state. This spreading of invasive species into native and non-native plant communities is characterized by ecologists as colonization. “Colonization,” I thought to myself, “now that’s an interesting description.” This project describes how I understand this description and what it means for collaborative land management in the American West.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

> The American West had always been seen as a unique region of the country and had played a central role in America's national imagination and self-conception…as the region has steadily built a stronger sense of its own identity, it has also at last begun to outgrow its political infancy by developing a genuinely western way of dealing with western issues.
>
> – Daniel Kemmis (2013, 110-116), *This Sovereign Land*

The American West (hereafter referred to as "the West"), as a region, is a dynamic entity that has shifted over time with the colonization of the North American continent, often delineated as the lands west of the 100th meridian (Stegner, 1992; Wilkinson, 1993). These lands are generally lauded for their grand landscapes and unique natural formations, cemented in the national imagination through representations in American cinema and the designation of protected lands such as Glacier and Yellowstone National Parks. The environments of the West are iconic, to be sure, and should be protected. However, what we mean by *protected* and just how much of the West must be protected is highly controversial. These considerations, among others, are at the heart of land management or, more broadly, the environmental governance of the West.

Environmental governance in the West is contested and complex, due in no small part to its unique regulatory structures, competing cultural attributions, and high levels of uncertainty regarding issues critical to its communities. The systematic interaction of these factors leads contemporary researchers to identify the West as a unique social-ecological region, citing the ecological aridity, the diverse topography, and the sociocultural and political economies of the region (Jones et al, 2019). Much of the land of the West is characterized as an arid desert, with elevations ranging from the lowest on the North American continent – Death Valley at 282 feet

below sea level – to many of the highest peaks. The arid deserts of the West, often referred to as the sagebrush sea, have evolved highly specialized ecosystems that are specific to the region, developing resilience to the low-precipitation, widely-varying temperatures, and diverse soil types that made concentrated human agri-settlement difficult to those settlers accustomed to the rich soils and plentiful waters of the east (Steinberg, 2002). The difficulty of human agri-settlement disincentivized Euro-American colonial settlement in the region, and although the United States government attempted to motivate settlement through a series of homesteading acts, the current region is predominantly unoccupied in comparison with the rest of the contiguous United States. Due to the lack of development, the vast lands of the West remain under federal management rather than the private and state management that characterizes much of the country (See Figure 1, United States Department of the Interior Bureau of Land Management). Although the region resisted large scale agri-settlement, small settler communities did proliferate around the few industries that could thrive in the arid desert – generally, livestock ranching, sub-surface mining, and timber industries.

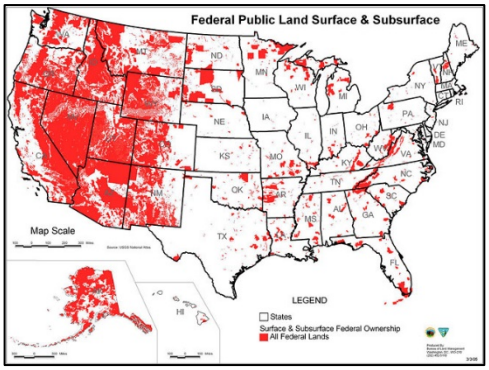

Figure 1 - Federally managed lands of the United States

Although the region was deemed inhospitable to white European agri-settlement, western lands have been home to a diversity of thriving Indigenous communities since time immemorial. The violent dispossession and removal of Indigenous Peoples from their land cannot be cleaved from the American identity and was critical to the formation of the West as a distinct region.

Indigenous Peoples have a significant presence in the West as seen in the western land that is under tribal jurisdiction due to the reservation system as well as their portrayal in western art, culture, and cinema. Despite the past and current violence toward Indigenous Peoples, their communities thrive throughout the West and must be recognized as sovereign nations with legitimate interest in the governance of western lands. These communities exercise sovereignty both as nations themselves and as diverse groups within the nations – these nations and groups are active in environmental conservation and stewardship practices tied to their cultures and economies, and have legitimate interests in collaborating with federal, local, and state governments as well as with the other settler communities in the West. Indigenous sovereignty precedes U.S. sovereignty historically prompting many Indigenous People to seek their own governance practices without U.S. interference, but the last century has seen a proliferation of co-management and collaborative conservation and stewardship.

Aside from the rural settler communities that have developed around livestock, mining, and timber industries and the Indigenous communities who have lived on western lands since time immemorial are the rapidly growing urban communities of the West. Of import is the quickly growing urban populations – a 2017 U.S. Census report lists western states holding 7 of the 10 top states in population growth (#1 – Idaho, #2 – Nevada, #3 – Utah, #4 – Washington, #6 – Arizona, #9 – Colorado, #10 – Oregon; U.S. Census Bureau 2017). This growth is fueled, in part, by western lands themselves. According to a 2017 Headwater Economics report, western counties with larger shares of federal lands have higher rates of in-migration and population growth (Rasker, 2018). These urban centers grow amid the business-friendly political landscape of the west due to conservative tax havens and free market ideologies, shifting from traditionally extractive and industrial industries to service and technological hubs (Farrell, 2020). The in-

migration from retirees and young employees enjoying the amenities and recreation of the urban west prompts geographers to delineate the Old West (typified by rurality, decreasing and aging populations, and reliance on extractive industries) and the New West (typified by urbanity, increasing and young populations, and a shift to service and technological industries) (Bryson & Wyckoff, 2010).

Amid the Indigenous, Old, and New Wests are thriving populations of migrant agricultural workers who seasonally travel to work the fields that help maintain rural economies, and immigrant communities that have been displaced from their homelands due to conflict and poverty. It is not merely those western peoples that can claim American or Indigenous citizenship that call the West home – it is both these and all those people that live, work, and connect to western lands in diverse ways with or without legal status. As I speak of Western peoples, I mean to reflect this diversity and not only those people that have some form of cultural currency (imagined to include some sort of citizenship right) in the American West. Although I often speak of ranchers and farmers, Indigenous peoples, and urban recreationists, I intend that the lessons learned here, if taken seriously, make room for the active and ethical engagement of this richer diversity.

Despite this rapid growth and cultural diversity, western landscapes are still predominantly unoccupied relative to the rest of the United States. These undeveloped lands have historically been ripe for natural resource extraction and industry which has left scars across the West including degraded rangelands from historic over-grazing, mining tailings from dredging, and degraded service roads from timber harvesting. Meanwhile, amid more environmentally aware communities and prompted in part by the burgeoning recreation industry, the preservation and conservation of western landscapes has become prominent in environmental

governance. However, the Old West, the New West, and the Indigenous West differentially value western landscapes and this, of course, can make environmental governance difficult.

Western landscapes are as conflicted as they are awe-inspiring. The centuries since Western settlement have seen pernicious extraction – mining, timber, grazing, development, etc. – that has left many lands in states of ecological disrepair, threatening local biodiversity and curating the conditions for more common, intense, and destructive wildfires. Endangered species protections, national land designations (e.g. wilderness, historic sites), and landscape restoration projects seek to redress much of this disrepair, yet they often demand the cessation of those extractive activities that precipitated the disrepair. This, of course, can be devastating to the diverse rural communities whose cultural, political, and social economies rely on these practices. Many of the communities that do not rely on these industries are increasingly demanding greater protections for western environments, sometimes under the auspices of the intrinsic value of the land itself and sometimes for the sake of recreational accessibility. In either case, there is an ideological difference between those western peoples whom work on the land and those whom recreate on the land, prompting heated litigation and a climate of winners or losers. Amidst all of this conflict, there is the fact that these lands were recently stolen from their Indigenous Peoples who still live on western lands and the just governance of them must ethically include the acknowledgment and atonement of this history of genocide. And, of course, these extract/preserve/restore conflicts occur under the auspices of climate change and the strains it puts on the desert landscapes. Taken together, the governance of western landscapes is complex and, although an understatement, conflicted.

Amidst conflict, environmental degradation from industry, and motivated by the proliferation of environmental legislation, the Federal Land Policy and Management Act

(FLPMA) was enacted in 1976. Ending the homestead era and providing the framework for contemporary western land governance, the FLPMA demands that federal lands be managed for multiple use, explicitly defined as managing

> in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values; that, where appropriate [management] will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use. (Federal Land Policy and Management Act of 1976, p. 2)

The multiple-use doctrine, as it is often called, can also be seen as a multiple-value doctrine. Each use in FLPMA is derived from and promotes a host of values that are often conflicting with other uses and it is the job of land managers to balance these. The demand that land management must respond to a multitude of (often competing) values is no small task and has inevitably given rise to considerable conflict in the environmental governance of the West. While this is due to a wide range of social, economic, cultural, and political factors, the federal control of lands that westerners live and work on provides impetus to many of the environmental conflicts in the West. Put too simply, westerners want more control over western lands in order to enact their specific environmental agendas which are often in conflict with federal management, itself representative of varying non-western environmental agendas.

The federal management of western lands is not a small matter. Tension regarding the proper balance of federal versus local control is at the heart of environmental governance conflicts in the West (Davis, 2018; Skillen, 2009). On one hand, some westerners eschew government management in general and seek to privatize all western lands under well-trod free market arguments that rely on free markets to capture and organize our individual and shared values, whether they be moral, social, or political. On the other hand, some westerners support the continuation of federal management in order that vast swaths of public land remain open and

their management is held accountable to the American public. The issue can be overly-simplified by asking at which level of government (federal, state, local, etc.) should decision-making regarding the proper use of public lands occur.

Another way to view this is to ask what the term "public" connotes in public lands – is it a broad public where western lands are managed for all Americans (although what this means for Indigenous peoples and those people without citizenship needs critical examination) or should public be understood narrowly as those who live, work, and recreate on or near the lands in question? I do not intend to answer this question, excepting that to collaborate in western land governance requires, as I argue, embodied emplacement which itself tends to prioritize the local over the federal. But, on its own, this is not meant to suggest that there is no role for federal government or that privatization is paramount.

In my experience, the "genuinely western way of dealing with western issues" alluded to in the epigraph can be summarized in one-word: collaboration. The description of the conflict over land tenure in the West is oversimplified, but it provides context to the latent collaborative environmental governance movement in the West. Facing recurring conflict over environmental management and considering the multitude of environmental values that must be considered in decision-making, environmental managers, land-users, and advocates are increasingly seeking opportunities to collaborate across ideological lines in order to better manage western lands. The West is home to some of the most lauded and protected landscapes in the country as well as some of the most controversial. These landscapes are owned and governed by the federal government under FLPMA's prescription to manage for a wide breadth of land values. Despite a history of conflict of the proper management of western lands, the communities that live on these lands – representing the diversity of values prescribed by FLPMA – are recognizing that they

must come together to overcome differences and find solutions to seemingly intractable issues. They are choosing collaboration over conflict.

These western collaborations are an exercise in democracy. Whereas democracy in the United States has been intimately and historically bound with land tenure, the lack of explicit ownership in the West prompts the public to exercise their democratic rights on a basis other than ownership. That is, someone's understanding themselves as having a democratic right in the governance of western lands is not because of their having a fee title to a particular property or bounded piece of land. In the literature on collaboration, this non-land tenure basis is often cashed out as an *interest*, meaning that those with an interest in western land management have a right, in light of their interests, to participate in the governance process (c.f. Colvin et al. 2016; Freeman, 1983; Mitchel et al., 1997)[1]. These "interests" often refer to the way a person values the land, whether those values be economic, recreational, cultural, spiritual, or something else (e.g. economic *interest*, recreational *interest*). I do not argue that interest-based participation, however construed, should be abandoned. However, these "interests" are not very helpful in practice.

Interests, on their own, are not those types of things that easily track a person's actual behavior and attitudes – they may be amalgamations of varied complementary or contradictory values, changing and shifting amid a society in flux. People's behavior often contradicts what appears to be in their interests and given the complexities of land governance, rallying behind a single interest often requires that a person choose one interest to support over other competing interests. Interests, then, may be sufficient proxies for including a diverse and potentially conflicted value-set in collaboration, but they also remain ambiguous enough to not provide

[1] Much of this literature is found under terms of "public participation," "stakeholder engagement," and other related terms. Although these are terms of art, I do take them all to be collaborative in nature.

normative guidance to collaboration. Because, of course, how do we represent the interests of the whole American public in western land governance? Should we weigh the interests of western peoples over the interests of non-western (and, plausibly, global) peoples? How do we balance the incoming populations of the New West with the smaller populations of the Old and Indigenous Wests? How do we form consensus with legitimately contradictory interests? These, among others, are questions that need to be answered and other collaboration scholars are working diligently toward that end. But, that is not my aim.

Collaboration is lauded as a normative ideal by well-intentioned people (Reed, 2008). However, collaboration is difficult in practice and it is my contention that this is due in no small part to a lack of reflection on "collaboration" as a concept, including both the interpersonal characteristics of collaboration (e.g. individual values and knowledges, social hierarchies, power differentials) and the structural contexts that collaborations must take place in. But, even more so, this difficulty stems from a lack of collaborative spirit and understanding in the public itself. Given the increasing popularity of collaboration as a practice, specifically in the environmental governance of the West, it is time for a concerted effort to understand just what we are asking when we prescribe it. In this dissertation, I aim to critically examine the underpinnings of western collaboration with the ultimate goal that this work can help to develop and guide future collaborative studies and efforts. More importantly, however, I am speaking to western peoples in this project with the goal that we (as westerners) recognize and embody the collaborative spirit that our western places need.

This argument begins with the premise that the ideal collaborator is often conceived as rational and discursive, able to aptly articulate their positions, wrestle with other's arguments, and come to consensus over conflict (Elam & Bertilsson, 2003). "Values" and "knowledge" are

nested in a web of "beliefs" and "attitudes," all of which reflect the cognitive dimensions of our worlds. This is not wrong, as it seems a requirement of collaboration to navigate the complexities of our worlds through discussion of values, beliefs, attitudes, knowledges, etc. However, I argue that the focus on the cognitive dimensions of collaboration obscures the materiality of collaborators – their own bodies, the places they exist in, and the ways that these structure their worlds (c.f., Ankeny & Leonelli's 2016 discussion of *repertoires*). This dissertation is a modest attempt to provide an exploratory path relating collaborators' bodies to their cognitive processes, specifically recognizing the ways that the experience of western environments can provide both opportunities and obstacles to collaboration. Ultimately, I aim to defend the claim that recognizing the emplaced body in collaborations allows us to see western collaboration as a radical politic, helping to understand just how the West is "outgrow[ing] its political infancy" and developing "a stronger sense of its own identity" (Kemmis, 2013). By *radical politic*, I only mean to suggest that organizing western environmental governance around collaborative principles that take seriously the emplaced body is a radical divergence from the governance philosophies currently employed in the West, namely those that that prefer top-down governance that relies on our cognitive expertise in lieu of our embodied experience.

Overly simplified, to collaborate is to work together, whether that be toward the same goal or in coalition for different goals. In order for people to work together (the presumed goal of a collaboration), they will have to navigate – sometimes explicitly and sometimes implicitly – tensions that arise over differences in kind, content, and amount of knowledge, divergent and sometimes contradictory values, beliefs, and attitudes, and varying expectations for the process and perceived success of the work. They will also have to exist together, side-by-side as bodies in place. However, our bodies do not accidentally exist in our places – we move and act with

intentionality that is, somehow, structured. I argue that understanding this "somehow" begins with understanding the role that our imaginations play in relating our bodily experiences to those structures that we move and act within. Briefly, and following from Mark Johnson's (1987) *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*, the imagination organizes our embodied and sociocultural experiences into conceptual schemas that undergird all our actions, either through embodied or cognitive interactions and reactions. These imaginatively-derived conceptual schemas set the constraints and possibilities for our knowledges, values, and expectations that we bring to bear in collaborative settings. Simply, I am arguing that in characterizing our collaborative efforts there is a rich story to be told regarding how our imaginations and embodied experiences construct the worlds we collaborate within. Put another way, collaborative efforts need imaginative efforts.

To this end, I develop an account of the imagination in chapter two that centers the embodied person in these imaginatively formed worldviews, detailing the ways that our physical and social experiences give rise to how we imagine our worlds and our places within them. The human imagination is powerful in its ability to manipulate our worlds in the sense that we can reflect on what we imagine and what we imagine does not have to correspond to how things currently are. However, the imagination resists the sort of logics that are often requested of rational thought, meaning that its ability to present a manipulated reality to us does not seem to help figure out how to act in our actual reality. Barring extreme cases, every person has an intimate relationship with their own imagination and although the constitution of that relationship may itself be puzzling, we should not assume that it is thus inconsequential. This raises the salient question of chapter two: How is the imagination consequential? Although I do not attempt to substantively answer this question, I develop a brief account of the imagination

that shows how our individual embodied and sociocultural experiences are organized, normalized, and communicated in order to develop shared, community-wide, conceptual systems that condition our shared understandings of our worlds. In the literature these shared conceptual fabrics are sometimes referred to as social imaginaries that serve to guide micro/meso/and macro level social worlds. Thus, chapter two argues that our bodily experiences play a role in determining our imaginatively derived conceptual systems which, in turn, are normalized and shared to form broad social imaginaries. These social imaginaries can diverge between communities and understanding this divergence – including its experiential and imaginative determinants – can help us to understand both obstacles and opportunities in working together: collaborating across diverse communities. To be sure, this approach is not novel. The Toolbox Dialogue Initiative, for instance, similarly approaches collaboration by seeking to focus our attention to the conceptual systems that structure our knowledge making processes and thereby allowing focused reflection on these determinants (Eigenbrode et al., 2007). The imagination's role in the creation of these conceptual systems, however, helps to understand how divergent systems come to be and can provide novel entry points into these discourses.

Chapter three focuses specifically on divergent environmental imaginaries, or those social imaginaries that are distinct based on their relative conceptualizations of the environment. These environmental imaginaries define and give meaning to our environments, including the ways that we know them, the value(s) we attribute to them, our actions regarding them, and our experiences of them. Using the experience/imagination/imaginary framework, I delineate four predominant environmental imaginaries in western environmental governance, rooting these imaginaries in the embodied and encultured experiences of the groups that hold them. I label these imaginaries as the machine, the garden, the community, and the family imaginaries, where

both machine and community generally represent rural populations, both machine and garden represent urban populations, and family represents Indigenous populations. These imaginaries (as well as others not described here) exist in a landscape of power differentials where those in positions of power are able to enact their imaginaries in ways that are at odds with others' imaginaries. Namely, those imaginaries that developed from settler colonial imaginaries are often dominant in western collaborations, and if we seek a more equitable, diverse, and inclusive collaborative landscape, then they must be contended with. More specifically, and perhaps damning, is that some imaginaries are constituted in such a way as to foreclose the experiences that are needed for robust collaboration. These foreclosing imaginaries are thus an obstacle to the collaborative spirit that must take root in the environmental governance of western lands. As environmental imaginaries vary across the knowledge/value/action characteristics described above and vary according to the relative power that they hold (or, more specifically, that those communities possessing those imaginaries hold), divergences in imaginaries prompt collaborative participants to fundamentally diverge on critical issues and hinder just and equitable collaborations. As these environmental imaginaries are derived from our embodied experiences in our respective places, the places in which we experience are critical to understanding our imaginaries – in other words, where we are is critical to who we are and, conversely, who we are is critical to where we are.

In chapter four, I contrast the concepts of *place* and *space* in order to develop an account of a community's contextual, particular, and meaning-laden sense of place. I argue that what is considered the American West can be better understood as a multiplicity of American and Indigenous Wests, with varying communities imagining the same western landscapes as differentiated places. The meaning attached to these places, the ways of knowing these places,

and the behaviors appropriate to these places are all derived from the respective communities' sense of place, itself critical to the development of a shared imaginary. Attending to the multiplicity of place-meanings in the American West is, as I argue, critical to collaborating across divergent environmental imaginaries. Not only does this attention help us to better understand conflict arising from divergent place-meanings, but it also helps us to understand the ways that our governance practices privilege certain place-meanings and structure the concomitant development of emplaced environmental imaginaries.

Threaded throughout chapter four are discussions of the ways in which our technologies are both reflective of our imaginaries and serve to construct imaginaries through their interaction with our places and imaginations. Specifically, I focus on the role of fencing in western landscapes, arguing that different fence-types have varying impacts on our experiences of our environments, thereby exemplifying and iteratively adjusting our environmental imaginaries. Technology, in general, is not a specific focus of this dissertation. However, I argue that recognizing how different communities relate to their technologies is critical to understanding their environmental imaginaries and, by corollary, the obstacles and opportunities they provide for collaboration.

As the scientific institution is heavily relied upon for environmental governance, chapter five evaluates the experience of science and the concomitant imaginaries that guide its pursuits, focusing specifically on those elements that conflict with the imaginaries of other western communities. Briefly, the experience of measuring and grouping, both experienced against the background of perceived realism, constitute a social imaginary of the scientific institution that critically diverges from social imaginaries of many western communities and poses substantial obstacles to collaboration. By tracing these elements through the scientific imaginary, I argue

that we can better understand how divergent environmental imaginaries are either aligned with and supported by science or antithetical to science. Collaboration, as a normative ideal, occurs across many imaginaries, and so it is critical that the conflicts arising from the scientific imaginary (per its dominance in environmental governance) are understood in order to better inform future collaboration.

In chapter six I turn towards a worry briefly mentioned early in this dissertation, namely that although collaboration is lauded as a normative ideal, it is practically difficult and this is perhaps due to a lack of reflection on "collaboration" as a concept. If varying communities have varying imaginaries with which they understand their world, as I have argued, then its plausible that the meaning of "collaboration" is also varied across different communities. I argue that although current governance seeks to support western collaboration, it is only collaboration of a certain ilk that is promoted and that this runs contrary to the embodied collaboration – what I term co-laboration – that I argue for throughout this dissertation. I describe co-laboration in detail in chapter six, but what I mean to suggest is that co-laboration explicitly encourages and treats non-discursive experience alongside the discursive, employing our complete and varied selves to work and experience together in place. Therefore, and harkening back to the epigraph of this dissertation, embodied, place-based co-laboration as argued for here is a radical politic that allows the West to develop "a stronger sense of its own identity…outgrow its political infancy…[and] develop a genuinely western way of dealing with western issues" (Kemmis, 2013). The chapter ends with a brief discussion on governance strategies that can help guide western co-laborers toward this radical co-laboration.

This dissertation concludes as it began, with a reflection of my experiences in both the practice and the study of collaboration/co-laboration in the West. The metaphor of invasive plant

colonization is an apt metaphor for the broad lessons I've learned and those I wish to share. As I argue in chapter two, metaphors are powerful in collaboration and need to be better considered. It is my hope that this dissertation supports in detail those lessons that this metaphor can teach us. Imagining place-based environmental governance in the American West is, as I will argue, an exercise in democracy requiring radical co-laboration and the recognition of a multiplicity of American and Indigenous Wests.

IMAGINATION

> …no two cultures live conceptually in the same kind of time and space. Space and time, like language itself, are works of art, and like language they help condition and direct practical action. – Lewis Mumford (1955, 18), *Technics and Civilization*

When we are asked *to imagine*, what are we being asked to do? Presumably, being asked "to imagine" is being asked to *do* something, which leads to the question of whether imagining is purely a conscious act and/or an act that happens outside of our conscious approval. Of course, it seems that I can consciously imagine – I might imagine a white bear at someone's request, but I might also unconsciously imagine, as in imagining a white bear when someone asks me not to imagine a white bear (Wegner, 1987).[2] Furthermore, when I fall backward into a chair do I not on some level imagine the chair behind me? Or the ground beneath me as I walk? Certainly, when asked, I can consciously imagine the chair behind me or the ground beneath me, but it also seems that many of my actions require me to unconsciously imagine those surroundings that are outside of direct perception. This sort of imagination is described as the virtual body, or the "imaginative dimension of embodied existence…the virtual body allows us to extend our habitual behavior beyond the actual situation to the limitless realm of the imaginary" (Steeves, 2001, 276-277, commenting on Merleau Ponty's initial formulation of the virtual body).

This, of course, may be a controversial statement. The imagination is as familiar as it is puzzling, resisting agreed upon definition and consequence. In the words of Leslie Stevenson (2003), "to digest all that has been written on the extremely flexible notion of imagination would be a lifetime's work" that I do not intend to concentrate on here. Just what the imagination *is* has

[2] This phenomenon – the Ironic Process Theory – has been tested and validated in psychology (Boon et al., 2002; King & Council, 1998).

not been decided. In all likeliness it is as nebulous as P. F. Strawson suggests in his oft-cited introduction to *Imagination and Perception* (1974):

> the uses, and applications, of the terms 'image', 'imagine', 'imagination', 'imaginative', and so forth make up a very diverse and scattered family. Even this image of a family seems too definite. It would be a matter of more than difficulty exactly to identify and list the family's members, let alone establish their relationships of parenthood and cousinhood. (83)

The imagination that resists agreement is an imagination that exists (in some form) at the level of the individual. To make matters even more complex, the concept of the *social imaginary* – introduced by Cornelius Castoriadis (1975) and later popularized by Charles Taylor (2004) – is now employed throughout the sociological literature to explain shared commitments across varying communities in a number of varying contexts (c.f. Jasanoff, 2015; Smith & Tidwell, 2016). It is not readily apparent nor explicitly argued in the literature how the individual imagination and the social imaginary are related, if at all, yet one might think that they are related, even if only metaphorically or as distant linguistic family members. This ambiguous relationship renders the imagination, and its family of related terms, even more complex as it may be consequential across different communities and not relegated merely to the individual psyche.

Although employing our imaginations in an analysis of environmental governance may be difficult in light of these ambiguities in both the individual and the social imagination, it does not mean that it is ineffectual. In this project, I do not intend to provide a definitive argument of just what the imagination is that would stand against others, instead I am providing a general tapestry of features that emerge from others' discussion of the imagination. The features are, briefly, that the imagination is embodied inasmuch as it is a mental faculty, that it requires experience (not merely perception) as fundamental inputs, that it metaphorically extends (i.e.

extends by use of metaphor) patterns gleaned from our experience to other facets of our experience, that the social imaginary derives from common and constructed experiences and primarily consists of sets of non-discursive conceptual schemata used for concept interpretation, and that our conceptual tapestries are rooted in this experiential/imaginative/metaphorical extension structure.

Overview

The imagination, although nebulous, has not been ignored by philosophers. Edward D. Casey (1976) outlines three major paradigms of imagination in philosophy as the subordination of imagination to other mental faculties (c.f. Plato), the superordination of imagination to other faculties (c.f. Sartre), and the role that imagination plays in mediating between perception and reasoning (c.f. Hume, Kant; Casey 1976, 15-19). The three views have in common, according to Casey (1976), that the imagination is "denied a genuinely distinctive role of its own…[being] relegated to a secondary or tertiary status in which it merely subtends some supposedly superior cognitive agency such as intellect or…some presumably more original source such as sensation" (19). Casey's own project seeks to distinguish imagination as a "unique" and "nonderivative" faculty that is not contingent on nor resides in a hierarchy of other mental faculties and sensations. Importantly, and critical to my own project, is the view that the imagination is, in any form, a *mental* faculty. Whether it is subordinated or superordinated to other faculties, mediating other processes, or a unique and nonderivative faculty of its own, it is still a faculty of the mind and must be explained in relation to its psychical characteristics.

Our imaginations certainly do have psychical characteristics. When I imagine an apple, for instance, my experience of the imagined apple seems to be in my mind – it is not something I can touch, see, smell, or taste (although I can imagine touching, seeing, smelling, and tasting the

apple). Better understanding the ways that our imaginations are able to internally represent a variety of experiences, the reality of those internal representations, and the relationship of these imaginings to both our physical realities and our other mental faculties is certainly a worthwhile project and has long dominated philosophical discourse of the imagination.

The imagination, as it is generally conceived in philosophical discourse, is perhaps best articulated by Eva T. H. Brann in her comprehensive review of imagination, *The World of the Imagination: Sum and Substance* (1993) as "a faculty for internal representations; these representations are image-like; therefore they share a certain character with external images; in particular, like material images, they represent absent objects as present; they do so by means of resemblance" (5). Although much work has been directed at each component of this definition (Gregory, 2016; Kind, 2001; Nanay, 2010; Thomas, 1999), I limit this discussion to only a few key characteristics of this conception. First, regardless of the ontology of the imagined object (e.g. the imagined apple), I assume that the imagined object can be distinguished in my imagination from other imagined objects such as an imagined banana. I do not intend to provide metaphysical support for this claim, asking only for the reader to grant that an imagined apple is, tautologically, an imagined apple (i.e. imagined-object) and not an imagined banana. Second, the imagined object shares a certain character with non-imagined objects. An imagined object that is red thus shares a certain character (red-ness) with external red objects. I do not mean to suggest that red-ness, here, is purely a physical state, only that the red-ness in the imagined object shares certain similarities to the red-ness in the non-imagined object. Third, in our imaginations we are able to mix and match these characteristics to form novel imagined objects such as mixing the characteristics of red-ness and banana-ness to form the imagined object of a red banana.

Thus, I minimally suggest that our imaginations are able to imaginatively represent our non-imaginative experiences (e.g. of red-ness or banana-ness) and mix and match these to develop novel imagined objects that present themselves to us as an imagined object. I do not mean to privilege visual modalities in suggesting that only visual experiences (such as that of seeing an apple) form imagined objects; these "imagined objects" are internalized experiences that can range from sensory experience (e.g. images, sounds, tastes, etc.) to embodied and/or sociocultural experiences (e.g. falling, flying, happiness, fear). It may be the case that an imagined object is developed from exactly one imaginative experience or it may be that the imagined object is the construction relying on an aggregation of many atomic imaginative experiences into an imaginatively organized and (relatively) cohesive whole. [3] For example, a person may imagine themselves as a tourist in an amusement park, complete with the imagined crowd, the excitement of riding the park rides, eating the park-specific food, and so on. The whole of the representation would construct an aggregated imagined object, just as imagining a solitary apple would construct a solitary imagined object.

Although I do not wish to defend his account of the imagination here, David Hume's argument for the development of complex ideas from simple ideas is helpfully analogous to what I am proposing. For Hume, novel imagined objects must be constructed from both current sensory perceptions and past imagined objects (themselves products of sensory perception), providing a constraint on the imagination ultimately limited by a person's sensory perceptions.[4]

[3] It also may be the case that a solitary imagined object is actually comprised of multiple imagined objects. For example, an imagined apple may be the aggregation of imagined-apple-color, imagined-apple-shape, imagined-apple-sound, etc. This is consistent with my conception of imagined object – it may just be that what we take to be the atomic unit can be further reduced to more fundamental units.

[4] I do not presume to ontologically conflate the use of "imagined objects" and Hume's "ideas," although they may be importantly (dis)similar or (dis)connected, Hume's properties of ideas provide plausible analogous constraints on imagined objects.

Hume argues that we cannot develop ideas (i.e. elements of imagined objects, as I've conceptualized here) without first perceiving corresponding sensory impressions such that without ever seeing red, we could not develop the idea of red-ness. For Hume, ideas correspond to impressions and these impressions are prior and necessary to the formation of ideas: "…that the simple impressions *always* take the precedence of their correspondent ideas" (Hume, 2003; my italics). Hume's account intends to motivate an empiricist attitude by virtue of impressions being narrowly understood as sensory perceptions and, indeed, our sensory perceptions do matter. However, and although our sensory perceptions do impact our experiences, I suggest that experience is something more than mere sensory perception – a point I return to later in this chapter. Thus, a landscape might be similarly perceived by two people, but this is not to say that it is also similarly experienced (Meinig, 1979).

Simply, this means that ideas (my analog to imagined objects) require impressions. Experiences, broadly construed, represent Hume's impressions. Imagined objects, as I've described them, represent Hume's ideas. This implies that imagined objects (however produced) are only comprised of previously imagined things and new experiences, never created *ex nihilo*. The iteration of experience/imagination is thus limiting as our imaginations are limited to our experiences. Casey (1976) puts it succinctly as "what we take to be in the imagined object or event is only what we already, explicitly or implicitly, know about it. Imaginative experience is inherently circular in this regard, with the consequence that in imagining we cannot claim to confront anything radically new" (pp.7-8). Hume makes this explicit in *An Enquiry Concerning Human Understanding*, stating:

> Nothing is more free than the imagination of man, and though it cannot exceed the original stock of ideas furnished by the internal and external senses, it has unlimited power of mixing, compounding, separating, and dividing these ideas in all the varieties of fiction… (EHU, p. 39)

Thus, I assert, imagination as I've described can be understood as a faculty of internal representation and organization, providing the capacity to "mix, compound, separate, and divide" the elements of imagined objects and thus providing the possibility for novel imagined objects to develop. I do not offer a strong ontology of the imagination or the imagined object[5], instead only briefly developing an understanding of the imagination and its products that can help illuminate the role of the imagination in place-based environmental governance.

It is certainly a worthy project to better understand the internal-representation function of the imagination, but I leave that for others. Importantly, however, is that the account I've given is similar to the philosophical accounts outlined and supported by Casey (1976) and Brann (1993) insofar as they are purely activities of the mind. Although my experience of my own imagination seems to validate this insofar, at least, that my imagining seems to occur in my mind, there is reason to be suspicious of its purely psychical nature since it appears to be somehow constrained by our sensory, embodied, and sociocultural experiences. In describing the role of the imagination in pragmatic philosophies, Thomas M. Alexander (1990) argues that for the pragmatists (focusing specifically on works of Peirce, James, and Dewey), imagination is "a dynamic, 'embodied' view, beginning with the idea of living organic beings acting and learning in a world...[where] the ontological modalities of actuality and potentiality are integrated into the very idea of an 'event' or 'situation'" (p. 325). In this view, the integration of the event-actuality/potentiality falls to the imagination whereby the meaning of the "actual was reinterpreted and reconstructed in light of the possible" (p. 325). This suggests that the interactions the emplaced body has with their surroundings can be meaningful, in part, by

[5] It is sufficient for the purposes of this essay that these imagined objects can be modified as described. I offer this account only as compelling evidence of the nature of the constructed imagined objects, not as a robust analysis of their constitutions.

accounting for the "[imagination] at work in our pre-conscious bodily organization of experience" (p. 346). Simply, this view argues that we are emplaced bodies whom interact with our local worlds in a variety of ways and, according to the pragmatists, our experiences of our worlds are simultaneously products of our imaginative faculties as well as serving to structure those same faculties. These experiences are meaningful in virtue of our imaginatively-structured interpretations of the experience, and the experience itself orients our imaginations towards future structuring-interpretations.

The pragmatic imagination begins with the recognition that we act and learn in our worlds – we are embodied beings and the "events" and "situations" that we experience are structured by and simultaneously products of our imagination. What does it mean, however, to have an *experience*? As we are embodied beings, are we in continuous states of experience or do we have discrete experiences that vary in quality and influence? What is the difference, if any, between an active experience such that we are consciously experiencing and a passive experience such that we are subconsciously experiencing – or is this an artificial distinction? We commonly use the term "experience," but it is not obvious as to exactly what we mean by suggesting that these experiences are a primary loci of our lives, especially as they are structured by and products of our imagination.

Experience, in its general form, can be understood as to have some sort of interaction with the world as in *I experienced the apple* or *I experienced the warm water*. In these cases, experience is a generalized sensation such that it can be replaced by a more particular term as in *I tasted the apple* or *I felt the warm water*. In this sense, experience can be passive or intentional as much of what we experience (hear, see, feel, etc.) is non-intentionally experienced. We may choose to listen to the wind through the trees, but the intentionality of listening is not required to

experience (in this broad sense) the passive hearing of the wind through the trees. The passivity/intentionality of experience is well articulated by John Dewey (1934) in *Art as Experience* as:

> Experience occurs continuously, because the interaction of live creature and environing conditions is involved in the very process of living. Under conditions of resistance and conflict, aspects and elements of the self and the world that are implicated in this interaction qualify experience with emotions and ideas so that conscious intent emerges. Oftentimes, however, the experience had is inchoate. Things are experienced but not in such a way that they are composed into *an* experience. (p. 36, author's italics)

More difficult, though, are those internal experiences of memory, imagination, and other sorts of mental acts. Following from external experience generally being understood as an interaction with the world, we may see these internal experiences as interactions with the world *by proxy*. What I mean by this is that our interactions with the world are taken up into the imagination and, a la Hume, mixed, compounded, separated, and divided in our imaginations so as to be experienced again. What is being experienced again, however, is not the original interaction with the world, but instead the remembered or imagined interaction complete with whatever characteristics have changed whether by some fallibility in our memory, some novelty in our imagination, or some difference in who we are as the experiencer. Furthermore, although many of our internal experiences are intentional as they – by their intentional nature – are those that we recognize as *an* experience, we also experience passive internal experiences. These passive internal experiences are difficult to examine as it is *prima facie* plausible that we must intentionally reflect on them and that intentional reflection is, itself, its own experience. The sorts of internal experiences that we recognize as having *an* experience (e.g. grief at the memory of a lost loved one) have a force that passive internal experiences do not have. Akin to hearing the wind instead of listening to the wind, our passive internal experiences are relegated to the background, unrecognized as experience without intentional focus. And, if mind/body dualisms

are artificial, these internal experiences are not without external impetus (nor are external without internal impetus). The landscape of human experience thus ranges across the external and internal, the passive and the intentional. As Dewey suggests, our experience occurs continuously as we interact with our environing conditions and although some experiences are more powerful (i.e. having *an* experience), our inchoate experiences remain experiences.

Philosophical treatments of experience *qua* experience are limited, generally being relegated to either phenomenological or epistemological accounts that seek to highlight the relations between body and world (an admittedly false distinction to many phenomenologists, c.f. Husserl, 1962; Landgrebe, 1973). Dewey's account of experience, however, takes seriously that experience is simultaneously a primary feature of being a cognizing human (including our educative, aesthetic, and political engagements) while also recognizing that a human experience is not fully described by the attitude of the experiencer – the experience itself is the interaction of a person with their surroundings (Dewey's *situation*) such that the experience is located as much as a quality of the person as it is a quality of their environment. Experience, here, can be seen to be a part of a person's environment and not merely a person's reaction to their environment. Experiencing, then, is a continuous phenomenon of the person's existence where one moment's experience is not isolated from prior experiences nor is it detached from their environment (as it is as much a feature of their environment as it is a feature of their humanity). Furthermore, our current experiences – influenced by our past experiences and our current environments – set the conditions for future experiences since, according to Dewey (1938), "the principle of continuity of experience means that *every* experience both takes up something from those which have gone before and modifies in some way the quality of those which come after" (35; my italics).

The range of experience described here suggests that we are in a constant state of experience that vacillates between being externally and internally stimulated, presented to us as inchoate or forceful, and is always setting the conditions for future experiences. The continuity principle does not, however, immediately suggest a way to discern those experiences that matter and those that do not. What matters, perhaps, can be understood by the goals of the project. Dewey, for instance, highlights educative experiences that allow a person to have future experiences enabling them to intellectually and ethically grow, but this is because human education was one of many issues that mattered to Dewey. However, for these purposes, it is plausible that our imaginations make no such distinctions in organizing our experiences, save the possibility that our having *an* intentional and forceful experience can prioritize certain experiences over others. But even this prioritization must be considered against the possibility that the magnitude of inchoate experiences may help to balance the scales, simply seen as a consideration between quality and quantity. Future work would do well to describe the relationship between prioritizing quality and quantity of experiences, but it is sufficient for these purposes to recognize that every experience matters in some way (perhaps to smaller or larger degrees) as the basic inputs for our imaginative capacities.

It is important to note the charges brought forth against Dewey of experiential givenism and foundationalism which Dewey – and myself – eschew. Shane J. Ralston (2013) explains the worry for pragmatists as "that by appealing to experience as the ultimate arbiter of epistemic claims, they are invoking experience as a primordial given, grounding knowledge on experiential foundations. Thus, their appeals to experience qua given are incompatible with their professed antifoundationalism" (p. 3). The worry here is that experience is being seen as a given, meaning that, according to John McDowell (2008), "one would be being given something for knowledge

without needing to have capacities that would be necessary for one to be able to get to know it" (p. 1). Non-inferential, non-propositional, and non-conceptual experience – the sort that permeates our lives – cannot itself be the foundation for our inferential, propositional, and conceptual epistemic claims without itself being somehow influenced by these same claims, or else it is just given. And it is not. As Ralston explains, a careful reading of Dewey shows that he was not making this foundational claim. Simply, experience "comes to us in full bloom as qualities initially felt or had in a 'situation' and later selected and determined as 'objects in thought' (Ralston, 2013, p. 4). Our felt or had experiences organize our reality in ways that allow us to recognize the objects of inquiry that are cognized propositionally, inferentially, and conceptually. In this project, I follow this perspective of experience – I do not intend to provide an experiential foundation for our epistemic claims, noting only that our experiences condition our epistemic claims through focusing our attention to certain phenomena (to be conceptualized) or conceptualizing certain phenomena in ways that align with our experiences and thereby iteratively validating our concepts with our experiences.

The pragmatic account of imagination briefly described above recognizes the pivotal role of experience as the imagination works in our "pre-conscious bodily organization of experience" (Alexander 1990, p. 346). In other words, the imagination acts to organize our experiences – passive, intentional, external, and internal – to form "the ontological modalities of actuality and potentiality" (ibid, p. 325) that guide our future experiences. This role of the imagination in guiding our experiences of the world is perhaps best detailed by Mark Johnson in *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason* (1987), where he offers a compelling empirical account of the imagination as dynamically embroiled in both our embodied experiences and our mental constructs – an account that is decidedly pragmatic by focusing on

the amalgamation of our embodied experiences and our reasoning capabilities thereby dispensing with the mind/body dualisms promulgated throughout the philosophical literature. Briefly, Johnson's argument is that our imagination constructs "a complex web of nonpropositional schematic structures that emerge from our bodily experiences" (p. 5) that are then metaphorically extended into other domains of our worlds. This metaphorical extension, as described in the following section, inscribes meaning into our worlds and this meaning, in turn, is the essence of our reasoning capacities. In the opening lines of the preface to *The Body in the Mind*, Johnson explicitly describes the fundamental and central role of imagination in our lives, warning that "[w]ithout imagination, nothing in the world could be meaningful. Without imagination, we could never make sense of our experience. Without imagination, we could never reason toward knowledge of reality" (p. ix).

As stated, Johnson argues that the meaning we attribute to our worlds is imaginatively derived from our embodied and sociocultural experiences and metaphorically extended through our conceptual systems. These conceptual systems, themselves, are not founded on an experiential given – they are merely conditioned by it. This metaphorical extension is essential to this account and, as I will argue in chapter three, is critical to the evaluation of environmental governance in light of our imaginations. Therefore, we need a better account of metaphorical extension than I have thus far provided.

Metaphor

When we say that we are swimming in a sea of knowledge, what do we mean? Surely we do not mean that we are literally swimming or that there is a liquid sea of knowledge. It should be obvious that whatever we mean, we intend to communicate by way of metaphor. We do not have to be literally swimming to communicate that what we are doing is hard work, without solid

grounding, or perhaps without an express goal. Similarly, there also does not need to be a liquid sea of knowledge to communicate that it is vast, deep, and beyond any single person's grasp. The metaphor is used to communicate structural similarities between our understanding of the object in question – here the depth/breadth of knowledge – and a more familiar object/action that highlights the relevant aspects of our assertion. This suggest that the metaphor is describing one concept (knowledge) in terms of our experience of another concept (the sea).

This may seem innocuous, but it is suggestive. Lakoff & Johnson (1980) argue that our conceptual architectures consist of structured metaphors grounded in the ways beings-as-we-are experience the world. For example, the statement "my knowledge keeps increasing" is founded on the structuring metaphor that "more is up," rooted in the physical fact that as more things get added to a pile, the level of the things goes up (p. 463). Our imaginations, in this case, derive the pattern that "more is up" from our experience of piles rising as more is added to them and this pattern (or, as Johnson (1987) describes it, this *schemata*) is then extended to our concept of learning – specifically, that the more I learn (knowledge), the higher it gets (increasing). Similarly, the scientific concept of "high-energy particles" is another extension of the metaphor "more is up" – a metaphor condition by our embodied experiences, yet a metaphor all the same (p. 465).

The metaphor of "more is up" is rooted, according to Lakoff and Johnson, in our embodied experience. However, our experiences are not always recognizable purely as a function of our embodiment. Take, for example, Lakoff and Johnson's example of the statement "I rose above my emotions." This statement is founded on the culturally rooted structuring metaphor that "rational is up," alluding to the view that human's rationality places them over the natural world (ibid, p. 16-17). Although it may be sufficient that the structuring metaphor is

culturally rooted, it is of course possible that the prolific experience of human bipedalism in conjunction with a presumed uniqueness of human rationality provides the foundation for the cultural metaphor (humans are up and humans are rational, therefore "up is rational") (Gregorić, 2005). Importantly, this suggests that although there may be (and should be, if the above authors are correct) embodied experiences guiding our concepts, these concepts are historically structured and enacted to produce the sociocultural conditions structuring our current experiences. As Meryl Altman (1990) reminds us, "to recognize the pervasiveness of metaphor is not, alas, to be magically placed outside its potential for doing political damage" (p. 500). This suggests two critical points: First, although "up is rational" certainly conditions many people's conceptual schemas, we should be careful that our projects view it as descriptive and not prescriptive and, second, that sociocultural experiences can construct conceptual schemas inasmuch as embodied experiences. This point should not be understated – dominant social institutions both reflect the experiences (and, by extension, conceptual schemata) of those communities that have the power to influence the institution while also conditioning the experience of those who interact with the institutions.

The claim made by Lakoff and Johnson is not that metaphor plays a passing role in structuring our conceptual architecture, but that it is an essential component. Illustrating the fundamental role of metaphor in structuring our concepts is Michael J. Reddy's (1984) *The Conduit Metaphor*. Reddy argues that the range of metaphors we use to speak about the English language structures a concept of language that impacts our behaviors in the world. Examples of this are the metaphors "I gave away all my best ideas," "insert that thought elsewhere in the sentence," and "the poem is bursting with meaning." Metaphors such as these imply that "human language functions like a conduit enabling the transfer of repertoire members from one

individual to another" (p. 311). On this view of language, words, sentences, paragraphs, and the like are viewed as holding meaning in and of themselves with communication consisting of perfectly transferring words to willing listeners/receivers. Furthermore, the metaphors we use to speak about language – namely those that view it as a conduit of meaning – structure what we conceive of as language. As Reddy notes, this view has structured communication theory from the outset, implying that communication can occur in a process of perfect encoding and decoding of symbols (e.g. Shannon & Weaver 1951; as cited by Reddy). On this concept of language, the meaning of a book is self-evident as it is contained within the words on the pages. Competing language-concepts, such as Reddy's Toolmakers Paradigm, take seriously that meaning in language must be interpreted by a receiver familiar with the symbols, culture, and context of the utterance.

Not only does this illustrate the metaphorical foundations of something as familiar to us as language, but it also – to the point of this dissertation – prompts us to reflect on our own discursive and non-discursive commitments. If a participant in a collaboration conceives of their linguistic acts as operating through a conduit (i.e., the meaning of their words being contained in the words themselves), then it will be difficult to communicate their meaning across varying conceptual schemas that have imaginatively derived divergent concepts (based off diverse participant's unique embodied and sociocultural experiences) without explicit recognition of the diverging language-concept and the non-discursive experience it is founded upon. In this case, one concept – the conduit-language – can arrest or distort the expression of a different concept. If the meaning of "language" (on a conduit interpretation) is contained within the word-concept "language" then diverging experientially derived concepts of language such as those that instead find meaning in the contextual interpretation of the word-concept may face interpretative

difficulty as they are rendered either incommensurable, untranslatable or, minimally, confused. What this specific difficulty looks like, however, is not decided and has been considered elsewhere (c.f. Holbrook, 2013).

Although it is beyond the scope of this chapter to fully defend the metaphorical structure of our concepts, it is worth recognizing that the role of metaphors has been substantially conceptualized and empirically validated since Lakoff and Johnson's seminal work (e.g. Gibbs et al., 2004; Glucksberg, 2008; Pecher et al., 2011; Richardson et al., 2003) as well as providing empirical evidence of Dewey's non-given, non-foundational experience (Ralston, 2013). Gregory A. Cajete (2004) describes "the metaphoric mind" that we employ to "describe, imagine, and create [the world] in which we constantly participate" (p. 50) as the foundation of Indigenous science and, ultimately, the foundation of the stories we tell about our worlds and the meaning we attach to these stories. In the introduction to the latest edition of *The Cambridge Handbook of Metaphor and Thought* (2008), Raymond W. Gibbs Jr. asserts that "Metaphor is not simply an ornamental aspect of language, but a fundamental scheme by which people conceptualize the world and their own activities" (Gibbs 2008, p. 3). These studies have provided a wealth of evidence to suggest that the concepts we use are themselves metaphorical in nature. If we use metaphor to fundamentally construct our conceptual architecture as Lakoff and Johnson and others have argued, then we have reason to believe that our concepts – now seen as intricate systems of metaphor – are instrumental in constructing a conceptual apparatus that is fundamentally constrained by our social and embodied experiences in the world. Put a different way, our concepts are dependent on us as beings-as-we-are and on our sociocultural and embodied experiences.

Social Imaginaries

Thus far, I've argued that our imaginations are critical to our meaning-making practices as they guide the concepts that we then use to understand and navigate our worlds. Our imaginations, in Hume's words, "[have] unlimited power of mixing, compounding, separating, and dividing" the imagined-objects we develop from our sensory, embodied, and sociocultural experiences; however, they are limited by the very finite-ness of our experiences. They can only work with what they are given, and they are given only what we as individuals experience. Therefore, our conceptual systems, following from Johnson and Lakoff's work, are limited by our individual and finite experience. However, this raises a problem: Surely we *are* able to share concepts with each other, regardless of them being constructed from the individual's imagination and, by corollary, their individual experience. If we cannot directly experience another person's experience, how are we able to construct similar (or, perhaps, the same) concepts?

As similarly sociocultural and embodied people have a variety of similar experiences in similar places, their imaginative structures become more aligned and these are "what is shared when we understand one another and are able to communicate within a community" (Johnson, 1987, p. 172).[6] It is perhaps controversial, but I take these common imaginative schemas to be constitutive of what is commonly termed the social imaginary. The social imaginary, as described by Claudia Strauss (2006), was first introduced by the French philosopher, Cornelius Castoriadis, and later developed by the Canadian philosopher, Charles Taylor. Castoriadis (1997) recognized the social imaginary as rooted in the "radical imaginary" of the individual (pp. 127,

[6] Similar, here, relies not only on similar material worlds and thus similar embodied experiences, but also on similar experiential stances. By this, I mean that we should expect similar experiencers with similar embodiments experiencing similar material surroundings to develop similar imaginative structures. This suggests that two sufficiently dissimilar experiencers can develop divergent imaginative structures from similar material surroundings.

142). The social imaginary, however, is not reducible to the individual – it reflectively structures the meanings taken up by the radical imagination (thus reinforcing the social imaginary) and social institutions (Castoriadis,1997, p. 128; Dews 2002, p. 518). Whereas Castoriadis saw the social imaginary as singular in a culture, Taylor (2004) recognizes a plurality of imaginaries. These imaginaries were "cultural models, which are similarly shared, implicit schemas of interpretation," diverging and converging across diverse communities (Strauss, 2006, p. 329; see also Jasanoff, 2015; Smith & Tidwell, 2016). Here, I defend Taylor's plurality of social imaginaries as products of similarly-oriented interpretive groups, deriving from a community's aggregated experiences while also structuring future experiences and meaning-making of the community. Again, it should be noted that those communities in asymmetrical positions of power have the ability to shape other communities' imaginaries through developing social institutions, norms, and material worlds (stemming from their own imaginaries) that can curate the experience of marginalized imaginaries. Thus, which experiences are aggregated must be evaluated with careful attention paid to the ways in which asymmetrical power relations curate experience.

It should be noted that, as Claudia Strauss argues, just what the social imaginary is has not been settled in the literature. I do not attempt to provide clarity to this on-going literature, instead using the term merely to represent the aggregate imaginative schemas of communities – if a personal imaginary is the interpretative schemata developed from a person's experience/imagination/metaphorical extension process, then the social imaginary (as I use it) is the interpretative schemata shared between multiple persons. This can be shared accidentally as people from different places/times may develop similar imaginaries, or it can be shared more intentionally through the structuring of experience in any given community. My terminology

should not be seen as either supporting or indicting similar literatures – although, as seen in Strauss's work, there may be some important similarities.

Although there may be many ways for a social imaginary to emerge, I wish to focus on two that will help to illuminate the role of the imagination in environmental governance. I label these two *common experience* and *constructed experience.* Simply, common experiences are those in which multiple persons with similar experiential stances (i.e., they are disposed to experience similarly) are present for the same phenomenon whereas constructed experiences are those where one person's experience is used to structure another person's experience. For instance, it is plausible that if two siblings raised in the same home find a frog and it is the first frog they've ever experienced, then their concept of a frog will be importantly similar as their experience of the frog is importantly similar. This is an oversimplified illustration of a common experience. These experiences will, of course, be made much more complex when two people from varying backgrounds see the same frog as they are bringing to bear different past experiences to their experience of a frog. However, as these people have more similar experiences of frogs, for instance, it is plausible (but not necessary) that they develop similar conceptions of frogs. Of course, they may never share a conception (c.f., W. V. Quine's gavagai thought experiment), but through extended and iterative mutual experience we can expect that the shared-ness will approach convergence. Extending this example, if a community whose individuals have long experienced frogs and these frogs are prevalent in their children's stories, children who never had an experience with a frog will develop a concept of "frog" based on their experiences with the descriptions of frogs. This is an oversimplified illustration of a constructed experience. The experiences of others before them have structured their experience of frogs, thereby influencing their conceptions of frogs.

I do not mean for the previous example to definitively illustrate the common and constructed experiences that develop and guide our social imaginaries. They are, however, suggestive in that they provide a plausible bridge between the individual imaginary and the social imaginary and, in turn, between individual and shared interpretation of concepts. As communities experience their local situations in common, they both construct similar conceptual systems while also structuring their future experiences through the institutionalization and normalization of their conceptual systems. As well, discursive experiences – such as the frog stories – are experiences, nonetheless, so as communities develop discursive practices they are able to share their imaginaries through them. In either case, social imaginaries emerge as the unique and "similarly shared, implicit schemas of interpretation" with which diverse communities understand their worlds.

The frog-example is misleading in that it focuses narrowly on the particular experience of a frog and not the broader schemata developed by the experience of frogs-in-their-environments. As argued, these schemata are imaginatively configured as metaphors that are extended to other facets of life that may not explicitly relate to the specific experiences that led to the development of the schemata. The aforementioned metaphors of "more is up" and "rational is up" have plausible foundations in human experience, but I suggest that in the case of the social imaginary it is not the particular experience which matters as much as the schemata that is derived from the experience. By this, I mean that it is not my personal experience of being bipedal and supposedly being rational that operates on the social imaginary, but the shared "schema of interpretation" that allows me to conceptualize my rationality as being up. The social imaginary, derived from common and constructed experiences and proliferated by extension into other aspects of the community's interpretative schemata, is implicit in all of that community's shared conceptions.

But, following from Castoriadis, it is "not reducible to the individual [i.e. individual radical imagination]". Thus, I contend, the social imaginary does not consist of a group of concepts per se (as I've used the term here), but as a group of metaphorically extended schemata that structure those concepts that we use to understand our worlds. The next section presents two examples of the social imaginary structuring our concepts in order to show both how I conceive of the social imaginary and how I intend to apply it as an evaluative tool.

Time and Sweetgrass

As I've described it, the world constrains and conditions our experiences in ways that ultimately shape our conceptual architecture. Given that each person who has ever lived has a necessarily distinct set of experiences and that, in general, human groups have developed together (and thereby, developed shared social imaginaries), we should not be surprised that the diversity of human cultures has developed a plethora of conceptual systems, at times converging and at times diverging. Take, for instance, Lewis Mumford's (1955) recognition that a fundamental shift in the conception of time occurred at the proliferation of mechanical clocks. The clock, according to Mumford, "helped create the belief in an independent world of mathematically measurable sequences; the special world of science" and yet "there is relatively little foundation for this belief in common human experience" (p.15). As a method of measuring discrete sequences, the clock structures human experiences in ways that were not previously afforded. Many of our modern routines are ordered by the clock instead of other qualitative measures, such as daily weather patterns or annual seasonal changes. The ways in which the clock serves to structure our conceptual systems are telling, as Mumford observes, since "the categories of time and space underwent an extraordinary change…[when] the application of

quantitative methods of thought …had its first manifestation in the regular measurement of time" (12).

However, this is not the only way to conceive time. Donald Lee Fixico's (2013) *The American Indian Mind in a Linear World* details the ways in which Indigenous customs, interactions, knowledges, and metaphysics challenge the linearity of euro-colonial thought as described in the relation of time to oral storytelling relations:

> Time as a part of the story…becomes less relevant as the story continues to be told. Time becomes less important as the characters come to life and relive the experience. The storyteller breathes life into the story by describing the characters involved and vividly describing the event. The past becomes the present and when common patterns are a part of the experience told about, they are lessons for the future. 'When' something happened is not so important as "why" and "how" something happened. (p. 25)

Many Indigenous traditions do not conceive of time as a linear, past-present-future progression, instead being understood as a cyclical force where the "past becomes a part of the present, and the past and present is projected into the future…past, present, and future…are a part of the American Indian circular understanding of a time continuum" (ibid, p. 27). Conceiving of time as cyclical rather than linear is well described in the literature, stemming from the experiences of the natural occurring cycles such as birth and death, the annual seasons, and celestial rotations (c.f., Little Bear, 2000; Maryboy et al., 2020; Pinxten, 1995; Pritchard, 2002). As with the linear tracking of time being experienced through mechanical device, schedule prioritizing social commitments, and future-oriented ideologies, cyclical time is experienced through natural repeating cycles, event prioritizing commitments, and both past and future ideologies. The two conceptual systems are distinct and, to the point of this project, will certainly make different questions tenable: how we conceive of time, following from how we experience time, structures our methodology by influencing the questions we ask and how we ask them, to the ways we measure the phenomenon and what counts as justified results.

There are, of course, many metaphorical schemas (e.g., social imaginaries) that condition these divergent conceptions of time. Mechanization, for instance, is extended from "nature as machine" schemas, themselves derived in part from reductionist explanations of natural phenomena. Regardless of the other imaginaries conditioning divergent conceptions of time, the example of time highlights distinct experiences that prompted different communities to recognize the metaphors of "time is linear" and "time is cyclical" in their respective social imaginaries. Although not using the language of "social imaginary," Mumford recognized that the social imaginary of "time is linear" permeates the social fabric of the communities who hold it, declaring that "during the first seven centuries of the [timekeeping device's] existence the categories of time and space underwent an extraordinary change, and no aspect of life was left untouched by this transformation" (p. 12). Mumford traces the development of linear timekeeping technologies from the rise of quantitative measurements of nature as a "belief in an independent world of mathematically measurable sequences" (p. 15), to the imposition of habit and order on Benedictine monasteries. He argues that this habit and order gave rise to the "regularity [of] the life of the workman and merchant" (p. 14) seen as broadly necessary for capitalistic systems as well as more mundane systems, such as the world of human dress as the newly measured "year" led the fashion industry to change their styles every year rather than over generational shifts. Here, the ways that the technological clock structures the imagined social future (fashion, etc.) is described by Sheila Jasanoff as the *sociotechnical imaginary* or, the "collectively imagined forms of social life and social order reflected in the design and fulfillment of…scientific and/or technological projects" (Jasanoff & Kim, 2009, p. 120). Although I use "social" in the social imaginary as signifying that the imaginary is shared socially, it is related to the sense that, akin to Jasanoff & Kim, it serves to structure imagined forms of social life

reflected in the design and fulfillment of social projects (i.e., how constructed experience promulgates the social imaginary).

The social imaginary that interprets time as being linear prompted conceptual systems that conceive of the universe as measurable discrete units that could help to bring quantitative order and regularity to human society. Those who operate under the "time is linear" imaginary structure their activities in accordance with it and, as societies evolve, this imaginary becomes institutionalized in our social systems in ways that serve to structure new experiences. Our personal imaginations develop patterns from these experiences that recognize time as linear, and thus (through constructed experience as described above), we develop similar imaginaries of time as linear. This suggests that to understand fundamental differences in how diverging communities understand their worlds, we need to account for the imaginaries that condition our practices, ranging from broad institutions such as capitalism to narrow technologies such as watches.

Perhaps a more concrete example of diverging imaginaries is Robin Wall Kimmerer's (2013) *Braiding Sweetgrass* and her account of a study on the relationship between harvest methods and sweetgrass proliferation. Indigenous teachings of sweetgrass harvest prescribe, among other things, that "If we use a plant respectfully it will stay with us and flourish. If we ignore it, it will go away" (p. 157, as quoted by Kimmerer), prompting Kimmerer's graduate student to design a project that tested two competing ways that Indigenous peoples harvested sweetgrass and their impacts on its proliferation. When the graduate student proposed the project, one of their scientifically-trained committee members dismissively responded "I don't see anything new here for science…There's not even a theoretical framework," to which Kimmerer responds that "[o]ur research was most definitely grounded in theory…in the

traditional ecological knowledge of indigenous peoples: If we use a plant respectfully, it will flourish. If we ignore it, it will go away" (p.159). The relevance of this exchange to social imaginaries may not be obvious.

For clarity, let's ask ourselves "What is the object that is central to the research?" The most immediate answer is "sweetgrass" since the study is, fundamentally, a study of sweetgrass. From the western scientist's perspective, this is clear – the plant is itself central and articulated within its ecosystem in interesting ways; the project is, to some extent, a project of understanding the nature of these articulations. On this view, the sweetgrass exists independent of the observer and it is up to the clever researcher to discover the mechanisms that provide for its proliferation. However, as I've argued, we must be careful – we must pay attention to how the concept of the plant is structured by our imaginaries. The concept of "sweetgrass" used in a western science schema cast the plant as a thing independent from us and, not coincidentally, casts its flourishing as independent of us. The committee member's reaction was meaningful as it specifically references the conceptual framework that motivated their judgment about the project. In responding "…There's not even a theoretical framework," the committee member is, in essence, saying that within the conceptual schema of western science, the proposed research is not the sort which poses a legitimate question since, as Kimmerer recalls, "*Anyone* knows that harvesting a plant will damage the population" (p.150, as quoted and italicized by Kimmerer).

Here, the committee member is evidencing their imaginary by suggesting that the concept of sweetgrass is independent from the researcher and, through a process of metaphors about the kinds of behaviors we should expect from things when we are involved in their existence versus those we can expect when we are merely observers to their existence, the sweetgrass is *obviously* going to be damaged with human intervention. The concept of sweetgrass implicit in this

statement renders the research question illegitimate since we *know* the answer. The researcher trained in western science has constructed their conceptual system in an institution that presumes the independent nature of these concepts, leading to discovery-metaphors such as “I’ve come upon a new theory,” “I’ve uncovered the mechanism behind the phenomenon,” or “I’ve revealed the underlying assumptions.” We “explore” new scientific domains and “unearth” surprising findings, “locating” them in the conceptual system that structured their own location. The social imaginary conditioning this concept of sweetgrass is “nature is an object,” prompting development of institutions that treat nature as such while subsequently conditioning some people’s experiences to recognize nature as such. This language is iteratively reflecting the experientially constructed imaginaries while also conditioning future experiences and actions that can adjust or reinforce those imaginaries.

Conversely, Kimmerer’s concept of sweetgrass is distinct from the one detailed above. The sweetgrass “beckons” with its sweet vanilla fragrance, it “wants to be found,” we must “ask first” before harvesting it, and “[i]t’s the grass that will teach you” (pp. 156-158). Kimmerer’s description of sweetgrass is described with metaphors that understand our world as having agency and relationships with human communities. The sweetgrass that foregrounds Kimmerer’s graduate student’s thesis is allowed within the conceptual system of “If we use a plant respectfully, it will flourish. If we ignore it, it will go away.” This is extended from the social imaginary of “nature is agent,” where one recognizes the sweetgrass as beckoning, wanting, teaching, and able to give consent. The scientist’s and Kimmerer’s concepts are distinct and both are legitimate within their own conceptual systems. They both posit a concept of sweetgrass but the concept employed is differentiated along the social imaginary it is developed within.

We use concepts to structure our epistemic projects and these concepts are imaginatively rooted in our embodied and social experiences. A contemporary plant biologist trained exclusively in western science may have social experiences that are best characterized with discovery-metaphors, developing a concept that allows certain questions to be asked, certain methods that can reliably produce the right type of information to answer the questions, and answers to the questions that are conceptually aligned with the defining concept. An Indigenous plant biologist trained exclusively in their community's traditional knowledge may have social experiences that are best characterized with agency-metaphors, developing a concept that allows certain other methodologies that are conceptually aligned with the original concept. These diverging concepts, in the view developed here, are intelligible through diverging social imaginaries that are developed from our embodied and sociocultural experiences and shared through our common and constructed experiences.

Conclusion

It is not my intention to outline an exhaustive account of either the individual or the social imagination. I do intend, however, to motivate the view that our imaginations play a critical role in developing our conceptual systems from our metaphorically extended experiences. Our experiences are finite and negotiated through a complex series of institutionalized imaginaries that structure our understanding of our worlds which often diverge from other conceptual schemas structured by other social imaginaries. Before turning toward the application of this view of the imagination to environmental governance, it is worth highlighting the key features of this discussion.

- Feature 1: The imagination is an embodied faculty inasmuch as it is a mental faculty. It is structured by our performance in the world while it simultaneously structures that

performance. In this discussion, many of my descriptions have used language that suggest it is fundamentally a mental faculty that only uses embodied inputs. This is as much due to my own deep-seated imaginaries that have developed in modern institutions propagating mind/body dualisms as it is an impoverishment of my language to articulate the integrated nature of the imagination.

- Feature 2: The imagination is integrally tied with our experiences which serve to provide the fundamental units of the imaginary. It can "mix, compound, separate, and divide" these experiences to form novel imaginaries, yet it is still constrained by our experiences.
- Feature 3: The imagination metaphorically extends patterns gleaned from our experiences to other facets of our experience. Thus, metaphors from one aspect of our experience can be influential in recognizing the meaning of other, otherwise unrelated, aspects of our experience.
- Feature 4: Through common and constructed experiences, social imaginaries are developed that structure the sometimes diverging and sometimes converging conceptual architecture within which diverse communities interpret their worlds and structure their actions.
- Feature 5: Social imaginaries primarily consist of sets of metaphors rather than sets of particular concepts. For example, a social imaginary may recognize the metaphor that "nature is an agent" prompting the individual to understand the concept of sweetgrass as having agency, but the imaginary does not itself contain the particular concept of sweetgrass.

- Feature 6: Our conceptual architecture (both that which is held individually and that which is shared socially) is rooted in this embodied/imagination/metaphorical extension process.

Lastly, I must recognize that in this discussion I am seeking to conceptualize the imagination through my own interpretive structures (i.e., Feature 6). I would be remiss to not recognize that if my conceptualization is persuasive, then it is also just one conceptualization of the imagination structured by my own imaginaries. I am, literally, imagining the concept of imagination and this may seem at the outset a project that promises to fail. Therefore, I offer this conception only as a possibility and it will be up to my reader whether or not they are motivated by this possibility after I attempt to defend it in the following chapters. We should also remember that if we are initially suspect of the embodied nature of the imagination – a critical feature of my argument – then we may be operating from a social imaginary that only structures the concept as such. This recognition should, minimally, leave open the possibility of competing yet intelligible conceptions of the imagination.

ENVIRONMENTAL IMAGINATION AND IMAGINARIES

> If, as environmental philosophers contend, western metaphysics and ethics need revision before we can address today's environmental problems, then environmental crisis involves a crisis of the imagination the amelioration of which depends on finding better ways of imaging nature and humanity's relation to. – Lawrence Buell (1995, 2), *The Environmental Imagination*

As embodied beings, humans necessarily experience our local environments. I explicitly recognize – and do not wish to diminish – that the term "environment" is not relegated only to those spaces often described as natural or consisting of non-human life and its requisite ecosystems (c.f. Warde et al., 2018).[7] However, both environmental philosophy and environmental governance disciplines have taken up as a subject this narrow understanding of the environment. Following from the previous chapter, though, our conceptions of the "environment" are built from both our direct experiences of our natural environments and by metaphorically extending imaginatively derived schemas from other non-(natural)environmental[8] experiences. Therefore, to understand how different communities assign meaning to their respective natural environments, we must recognize both the direct experiences that each community has with their natural environments as well as those experiences of their non-natural environments that are metaphorically projected onto the natural environment. In this chapter, I argue that the built and natural environments different Western communities have developed within has constructed divergent environmental imaginaries that confuse the meaning

[7] I recognize that the term "natural" can be misleading. For the purposes of this dissertation, I use it colloquially to distinguish between environments that are constructed by humans versus those that are not, e.g. cities versus forests, roads versus valleys, buildings versus mountains. I am sympathetic to the view that no such distinction exists on this colloquial definition of "natural" rendering either everything as natural or nothing as natural, but that is not important for this project.

[8] My use of the parenthetical (natural) denotes the subset of the environment that is conceived as the *natural* environment.

of the thing we are seeking to govern, namely the environment. Put another way, the environment that we seek to govern does not emerge from a universal environmental imaginary but instead from a multitude of divergent imaginaries that each understand the concept of the environment in fundamentally distinct ways.

Important here is an analytical distinction between the related terms of "environmental imagination" and an "environmental imaginary." The imagination, as I've described it, is a robust embodied and mental faculty that organizes and extends our experiences in ways that allow us to ascribe meaning to our worlds. The environmental imagination, as it is commonly used, does not reference this broad faculty but instead references the specific ways that we imagine our environments (analogous to colloquial usage of the term "imagination"). By this, I mean that to ask what the environmental imagination *is*, is to look for the imagined object that a specified person or community imagines as the environment or, put another way, to ask about the output of the imaginative process. It is not to ask about the faculty (i.e., process) for imagining the environment nor is it to ask about the metaphorical extensions prompting a specific environmental imagination. The environmental imagination, as it is commonly used, is the imagined-(environmental)object produced by the imagination, not a type of imagination that is specifically environmental.

For example, D. W. Meinig's (1979) oft-cited essay, *The Beholding Eye: Ten Versions of the Same Scene*, illustrates common ways to imagine the environment including imagining our environment as habitat, artifact, wealth, history, et al. But to imagine our environment as wealth, for example, is not to say anything about how the imagination constructed the environment as wealth nor how this construction of environment-as-wealth enables or hinders our ability to imagine it as something-other-than-wealth. In other words, the imagination in the environmental

imagination is not specifically *environmental*. It is telling that Lawrence Buell's (1995) *The Environmental Imagination*, quoted in the epigraph to this chapter, does not index the "imagination" nor does he make clear what he means by environmental imagination aside from the quote cited here. The environmental imagination as used by Meinig, Buell, and others (c.f. Brady, 1998; Brazeau, 2014; Meyer, 2009) can be otherwise viewed as the imagination (of any other ilk) oriented specifically towards the environment.

The environmental imaginary, however, and as I use it, seeks to provide just what the environmental imagination does not. As discussed, imaginaries (in general) are "cultural models, which are similarly shared, implicit schemas of interpretation" (Strauss 2006, p. 329) that enable communities to share interpretations of their worlds. A specific imaginary, such as an environmental imaginary, is the "cultural model…[and] implicit schema of interpretation" that predominantly operates to interpret a narrow subject. Thus, an environmental imaginary is the imaginary that operates to interpret the environment. The environmental imagination, as depicted above, will be conditioned by the environmental imaginary, but will not be sufficient to describe it. Nate Gabriel (2014) defines urban environmental imaginaries in related terms as being "understood…as conceptual framings and systems of meaning related to urban environments, including assumptions about the nature of the city and the nature of nature" (p. 39). The imaginary acts as the structure within which the environmental imagination emerges. Given this discussion, I do not focus on the environmental imagination – the imagined (environmental)objects of diverging communities – instead focusing on the environmental imaginaries of those communities. These imaginaries set the conditions for a community to imagine their environments and subsequently provide considerable obstacles to environmental collaboration. Put another way, I focus not on the products of various environmental imaginaries

but instead on the constituents of those interpretative schemas being labeled as environmental imaginaries.

Imaginaries, in general, are complex. An imaginary of the environment consists of metaphors extended from other aspects of our experience and this, in turn, suggests that these same metaphors construct other imaginaries operating to interpret other features of our world. Put simply, an environmental imaginary overlaps with other imaginaries. Much of the following discussion highlights the role that these other imaginaries play in forming our environmental imaginaries, such as our epistemological and ontological imaginaries as described below. I do not mean to suggest, however, that a focus on other imaginaries that are constitutive of our environmental imaginaries presumes that they hold primacy over the environmental imaginary. I articulate the environmental imaginary in light of these other imaginaries only for clarity and to highlight vital dimensions of our environmental imaginaries.

Although it is beyond the scope of this essay to provide a comprehensive taxonomy of environmental imaginaries, there are four dominant themes in the literature that help to illustrate the prevailing imaginaries in the environmental governance of the American West. For simplicity, I label these four environmental imaginaries as the *environment-is-machine, environment-is-community, environment-is-garden,* and *environment-is-family* imaginaries. As discussed, metaphors are powerful in their role of structuring our conceptual structures from our experiences and these four metaphors provide a jumping-off point in describing varying relationships between humans and their environments. I do not presume that these imaginaries are exhaustive of the possible imaginaries nor are they mutually exclusive. In practice, it should not be surprising to encounter an imaginary that is not captured here or one that is an

amalgamation of two or more of these. In my experience, however, these represent many of the dominant dimensions of the environmental imaginaries in Western environmental governance.

Critical to this project is the role of settler-colonialism in the production of environmental imaginaries, as it has conditioned the experiences of those it has and continues to benefit and those who both fell to and continue to survive its violence. Eve Tuck and K. Wayne Yang (2012) remind us that "within settler colonialism, the most important concern is…land...[which] is remade into property and human relationships to land are restricted to the relationship of the owner to his property" (p. 5). The settler colonial imaginary is thus marked, at a minimum, by interpreting the environment (i.e., the *land*) as a set of commodifiable objects to be bounded, collected, traded, and enjoyed by those who have some propertied relation to the land, rather than a living force that we must hold ourselves accountable to. The settler-colonial imaginary is pervasive throughout many western communities (recall the conflict arising over publicly *owned* lands and the rights that these *owners* have to use the land in line with their values and interests), although it is differentially manifested in the communities. Viewed in relation to the settler-colonial imaginary, the *environment-as-machine* imaginary can be seen as the parent imaginary (that which came before) whereas the *environment-is-community* and *environment-is-garden* imaginaries are divergent evolutions of the settler-colonial imaginary.

Divergent or not and without severe disruption (in whatever form it may take), these others are also settler-colonial imaginaries, albeit evolved and adapted to varying circumstance. However, the *environment-is-family* imaginary stands apart from the settler-colonial imaginary; in the evolution metaphor, it may be better understood as having a unique provenance wherein its genesis does not share a common ancestor.

These four imaginaries emerge from the interaction of two different dimensions of our relationships with our environments: Our ontological imaginaries as extended to the environment (e.g. whether humans are a part of or apart from our environment) and our epistemological imaginaries as extended to the environment (e.g. the ways in which we know of and about our environments).[9] For example, the -machine and -garden imaginaries are related in their ontological extension in that they similarly operate (with vastly different consequences) on the presumption that human welfare is separate from environmental welfare. The -community and -family imaginaries are similarly related (again with different consequences) in that they presume that human welfare is inseparable from environmental welfare. In contrast, the -machine and -community imaginaries are related in their epistemological extension in that they rely on linear thinking that seeks the accurate measurement and prediction of environmental phenomenon. The -garden and -family imaginaries are related in that they recognize dynamic, non-linear thinking that takes seriously forms of knowledge that may be more difficult to measure and communicate (See Figure 2).

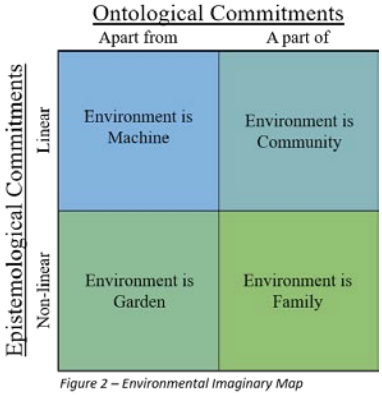

Figure 2 – Environmental Imaginary Map

[9] My use of "ontological imaginaries" and "epistemological imaginaries" is not meant to suggest either the ontological/epistemological dimensions of our imagination nor that our ontological/epistemological commitments are merely imagined in the colloquial sense (i.e. not *real*). What I do mean by these descriptions is the experience/imagination/metaphorical extension that conditions our ontological/epistemological commitments. Therefore, a description of the "ontological/epistemological imaginary" is a description of those imaginative factors that serve to construct our ontological/epistemological commitments.

As described in chapter two, imaginaries reflect our experiences in the world (imaginatively derived, organized, and metaphorically extended) and serve to guide our experiences of the world. Our ontological and epistemological imaginaries are thus products of our experiences and guide future experiences within the constraints of our varying ontological/epistemic commitments. What I mean by this, for example, is that an experience of the environment that separates human welfare from environmental welfare serves to construct and/or reinforce an ontological imaginary of human beings apart from the environment, which is then employed to direct us to imagine and act as if our welfare is independent of the environment's own. This is an iterative process and as such, our as-if behaviors (and their concomitant experiences) further reinforce the ontological imaginary. As human communities have developed and evolved within a multitude of environmental relationships that vary along their ontological commitments, we should expect that multiple ontological imaginaries have emerged. Although I focus specifically on our ontological and epistemological imaginaries – discussed below – a variety of interrelated factors (e.g. moral, social, and technological imaginaries) have developed that serve to construct our diverging concepts of the environment. Future work would do well to label and explicate other relevant dimensions of our imaginaries, helping to recognize and refine a plethora of environmental imaginaries.

However, it is my contention that describing the role of the ontological and epistemological imaginaries in the development of environmental imaginaries is a crucial starting point. Therefore, before outlining the four environmental imaginaries discussed, more needs to be said regarding our ontological and epistemological imaginaries.

Ontological and Epistemological Imaginaries

To ask "what is knowledge?" in common conversation is, according to this account, to ask "what is the concept of knowledge you hold?"[10] We should expect these answers to vary according to the relevant imaginaries brought to bear to structure our individual concepts of knowledge and we should not be surprised that our shared imaginaries (imaginative feature four in chapter two) allow many of us to answer in similar fashions. The concept of knowledge that we employ is itself structured by our individual and shared imaginaries, themselves consisting of metaphorical extensions of our imaginatively patterned experiences. Similarly, the concepts of "being" (in the ontological sense) and "what *is*" are structured by our metaphorically extended social imaginaries. A robust account of the social imaginaries that structure our ontological and epistemological concepts is well beyond the scope of this chapter. But this is not to say that general treatments cannot be informative. The remainder of this section briefly describes how our experience of various boundaries in our lives is taken up and extended by our imaginations and, through the iterative process described above, create, extend, and reinforce our imaginaries, environmental and otherwise.

The very generalized ontological distinction employed here is that some imaginaries prompt us to view humanity as being apart from the environment and conversely, some prompt us to view humanity as being a part of the environment. The critical feature here is some people imagine a boundary between humans and the environment (often justified by the perceived intentionality and rationality of humans that some see as absent in the non-human world) and to

[10] Many will find this statement worrisome. I am not arguing that knowledge is entirely socially-constructed nor am I arguing that it is entirely independent of our sociality. Just as our worlds constrain our experiences, it is possible that some form of independent knowledge constrains our concepts of knowledge. In either case, according to this account, we should expect varying conceptions of knowledge as various imaginaries develop from diverse experiences.

others this boundary is either enlarged to include the environment or it does not exist at all. These boundaries can be readily seen in material manifestations such as a chain-link fence that separates human establishment from "wild" natural areas, but also exist psychically. Consider the Confucian proverb that "without feelings of respect, what is there to distinguish humans from beasts" – although the proverb can be materially extended to separate "humans from beasts," the boundary it is espousing illustrates a psychical boundary between humans and animals founded on our contrasting capacities to respect others. However imagined or extended and disregarding the specific characteristics used to distinguish, many environmental imaginaries rely on boundaries between humans and the rest of the (natural) world to conceptualize what the environment is and how we should regard ourselves in relation to it.

Boundaries, however, are not limited to a human/nature distinction. Boundaries, in general, are commonplace in modern society ranging from innocent separations, such as painted lines in a parking lot, to more insidious separations such as militarized walls to prevent people from entering/leaving. Socially constructed boundaries are prolific such as racial and gender categorizations that bound certain people to certain social experiences. Boundaries are ubiquitous and each of them are different, but our experiences of them are still important insofar as the way that boundaries (whether material, psychical, or something else altogether) operate on our bodies impacts our imaginaries through the metaphorical extension of our reoccurring experiences. In other words, the experience of boundaries can imaginatively operate to see boundaries where they were not before.

It is not enough to say, however, that experience of boundaries in general can beget the sort of boundedness that I claim operates in some environmental imaginaries. This boundedness is complete in the sense that the boundary is clear enough to know when it has been breached

and is non-porous insofar as porosity is limited by sanction. Boundaries such as these are ever-present – we respect property boundaries where trespassing incurs fines, moral boundaries where trespass incurs personal corruption, social boundaries where trespass incurs banishment, and more. These boundaries are closely tied to how we hold ourselves accountable and responsible for our behaviors, either positively or negatively, as they can mean that a bounded thing is to be avoided and avoidance is antithetical to holding ourselves accountable and responsible to the bounded thing. I can erect a fence between my property and my neighbor's in order to avoid being held responsible for my actions impacting their property and I can lock fragile glassware away from places where it might be broken to avoid the possibility.

But, boundaries are not necessarily complete. Just as some boundaries are non-porous in the way described, others are porous. The shore at the edge of a lake is an incomplete boundary in this way – it can be crossed without punishment (and assuming no other boundaries exist, such as a property boundary) with an understanding that we may have to comport ourselves differently upon crossing the boundary. We swim in the lake, and walk on the shore. The door of a supermarket operates similarly. It is a porous boundary between two spaces and we understand that we must comport ourselves differently as we pass it. Whereas our experiences of complete boundaries prompt us to avoid that which is bounded and, in some cases, removes and/or reduces our responsibility to the bounded, incomplete boundaries prompt us to face the bounded and comport ourselves differently upon crossing the boundary. In other words, incomplete boundaries prompt us to reflect on our responsibilities and hold ourselves accountable to the bounded when crossing.

Of course there are many situations where boundaries are necessary and there are many where boundaries are harmful. I do not presume to provide general principles of boundedness

nor do I think the characteristics of all boundaries – complete or incomplete – can be captured in such a short space. For example, Patricia Seed's (1995) *Ceremonies of Possession in Europe's Conquest of the New World, 1492-1640* describes the power of boundaries in English law which served to delineate owned property as

> the ordinary action of constructing a dwelling place created the right of possession…by fixing a boundary, such as a hedge around fields, together with some kind of activity demonstrating use, anyone could establish a legal right to apparently unused land...The ordinary object – house, fence, or other boundary marker – signified ownership. (p. 19)

The ordinary action of developing a hedgerow was significantly entrenched in the legal, social, and ceremonial practices of the English in ways that resist simple descriptions of porosity or completeness. The boundary was incomplete to some, complete to others, but rarely materially complete (i.e., one could physically cross it). And relevant to land management in the West where homesteading only recently ended, these boundaries were made meaningful specifically because those constructing them saw the land as "apparently unused" thus ignoring and/or erasing the ways the land was used by people who did not confer ownership through boundedness. The ways that these homesteading boundaries enacted particular customs for particular people cannot be cleaved from the ways that responsibilities to land, other people's customs, and the distribution of power were impacted by the ordinary boundary. Simply, boundaries are not neutral – they signify something to someone.

I do want to highlight, however, that experiences of boundaries (with the concomitant meanings attached to them) and the responsibilities they demand (or not) can be taken up in our imaginations to form imaginaries that are then extended into other aspects of our lives. The imaginative experience of complete and incomplete boundaries, as I've described, gives rise to diverging schemas of *boundary is non-accountable separation* and *boundary is accountable separation*, respectively. What I mean by this is that the recurring experience of complete or

incomplete boundaries elsewhere in our lives (i.e. our embodied and sociocultural experiences) are extended to the boundary between humans and nature in ways that dictate our responsibility and accountability to the environment. Experiences of complete boundaries remove human accountability for their actions regarding the environment as a non-porous boundary exists between the two. These imaginaries present themselves to us in discourses that defend a sort of human dominion over the environment as humans are rendered completely separate from their environments and are thus not accountable to their environments. Experiences of incomplete boundaries demand human accountability for their actions regarding the environment as a porous boundary exists between the two.[11] These imaginaries present themselves to us in discourses that demand mutual consideration of humans and nature, recognizing that our responsibilities must be adjusted when crossing the porous boundary.

Boundaries of any ilk have many different functions ranging from the materially benign (e.g. parking lot spaces) to the psychically vicious (e.g., racial segregation). One function of boundaries is to delineate those things that matter and those things that do not matter in our decision-making processes, exemplified by the common moral imperative given to humans based on their perceived unique rationality (i.e., anthropocentric morality due to human rationality). In this case, humans are bounded from the natural world as they are seen to have a unique characteristic that the others do not, and it is in light of this characteristic that we must consider a different moral calculus for humans. This example illustrates the setting of a *boundary condition* meaning that the boundary is conditional on certain characteristics, in this case, rationality.

[11] To some imaginaries, no boundary exists between humans and nature. For this argument, these cases are sufficiently similar to the incomplete boundary cases to warrant including them under discussion of incomplete boundaries.

Some moralities set the boundary around the individual, the family unit, the community, or something else entirely, each supplied with its own condition (perhaps personal freedom, blood relations, or shared norms, respectively). These boundaries can be either complete or incomplete; for example, liberalism may generally be seen as a porous boundary around the self, meaning that the individual matters but we are still responsible for the freedom of other selves. Libertarianism, however, is similar in that the boundary is set around the self, but it is a complete boundary in which we are not responsible for the freedom of other individuals. This is a quick example and I do not mean it to be conclusive, instead intending only that it helps to recognize the plurality of boundaries. Environmental imaginaries diverge, in part, due to this plurality. It is not within the scope of this project to fully explicate the sociopolitical imaginaries operating within environmental imaginaries, but it is sufficient to recognize that these sociopolitical boundary conditions are themselves constructed and reinforced through the experience-imagination-metaphorical extension process described above. The more an individual has individual-prioritizing experiences, the more that they may develop individual-prioritizing imaginaries. In contrast, the more an individual has community-prioritizing experiences, the more that they may develop community-prioritizing imaginaries.

These crude categories – individual and community – are related to competing conceptualizations of another facet of environmental imaginaries: *ownership*. Concepts of ownership are tied to these individual/community/other imaginaries in that varying concepts of ownership recognize various boundaries around the self, community, or something else altogether. For instance, Lockean ownership (i.e. mixed labor and resource) is coherent with a non-porous bounded individual imaginary as what matters for deliberation is the individual self. The self performs labor and that labor permits the self to own (read: control) that which it

labored over. Communal ownership, however, is not coherent with a non-porous, bounded individual imaginary as individual labor is not sufficient to individually own that which is labored over. Communal ownership requires, minimally, a porous boundary which demands that our control over that which is communally owned must be weighed against our responsibilities to those others in the community. Our imaginaries regarding ownership and the rights entailed by it are tied to our imaginaries regarding our responsibilities to ourselves and our communities – if I own a thing under a Lockean mode of ownership, my control over that thing reinforces an imaginary holding the individual responsible only for themselves. Conversely, if we own a thing under a communal mode of ownership, our conditional control over that thing reinforces an imaginary holding the individual accountable to their community members. It is important to pay attention to the ways in which our experiences of one phenomenon (i.e., ownership) can reinforce imaginaries of another facet of our experience (i.e., social responsibility).

Varying conceptions of ownership recommend different responsibilities between the owner and that which is owned. For instance, a non-porous individual boundary that characterizes Libertarian ownership makes no demands on the owner regarding their responsibilities to that which they own. The imagined non-porous boundary works to remove this responsibility while differentiating the owner and that which is owned along some boundary condition. This boundary condition, at least in contemporary ownership discussions, follows along the well-trod lines of the subject/object dichotomy. Simply, objects (imagined as such) can be owned whereas subjects (imagined as such) cannot. The objectification of that which is owned – following from the subject/object boundary condition – along with the non-porous boundary promotes an imaginary where the individual can do-as-they-will to their property (i.e. that which is owned) without trespass as they hold no responsibility to the object nor to their

community. This imaginary is ever-present in environmental discourse, finding evidence in extractive commodification practices. A porous boundary, however, demands a responsibility of the owner to that which is owned and/or to the others that can claim ownership. These imaginaries are reflected in discourses around environmental stewardship, suggesting that the steward has a responsibility to that which is being stewarded. Paired with an individual imaginary, this responsibility may be limited to the relationship between steward and stewarded, but on a collective imaginary this responsibility is extended to the relationship between steward, stewarded, and the community who also relies on that which is stewarded.

In both cases, the boundary condition between the steward and that which is stewarded is similar to the subject/object dichotomy as the stewarded is conceptualized as that which can be stewarded (object). It should be noted, however, that the subject/object boundary condition is not pervasive in all imaginaries. For instance, North American Indigenous Peoples are often regarded as the initial stewards of the land before Euro-settlement, but the subject/object condition is not present. This suggests either that the term "stewardship" is more complex than treated here or that it is a term applied to Indigenous practices without a deeper understanding of those practices. I do not take this specific worry up here, noting only that in a nation founded on Lockean principles of ownership, it should not be surprising that settler culture has labeled Indigenous practices as "stewardship" as the settler-imaginary extended subject/object conditions to describe contrasting practices.

For these purposes, however, it is sufficient to recognize that many imaginaries – extractive and stewardship – render that which is owned/stewarded as an object. Conceptualizing our environments as objects both allows them to be owned (and in some cases, removes our responsibility to them, i.e. non-porous boundaries) and renders them an object of study in

contrast to a subject of study. The material objectification of the environment removes agency, free will, desires, beliefs, and knowledge from our epistemic concerns regarding the environment, prompting an environmental science founded on post-enlightenment ideals of "scientific exploration, universality, atomism, and progress…[and] Cartesian dualism…the dichotomization of mind/matter, culture/nature…" (Robinson & Tout, p. 160) that has largely dictated the development of Euro-centric and western environmental science. To know the environment apart from either its own subjective states or those of the people thriving in that environment constructs an imaginary of the environment as a mechanized object, one in which parts of the whole interact to cause future states. Causality, as a concept, is philosophically contested (c.f. Hume), yet does imply a causal linearity that is pervasive amongst our understandings of the environment. This linearity is not specific to the environment as it resides in our imaginaries and can be extended to other facets of our lives, as seen in the discussion of time in the previous chapter. Important here, though, is that linearity as extended in our imaginations is both reinforced by and serves to reinforce an imaginary of the environment as a mechanized object bound by linear causation.

The intersections of lines, and the study of their subsequent angles, were of high importance to the Greek mathematicians and philosophers, and have been ever-present in western thought, since. A straight line drawn on paper is among the simplest markings, but it is telling that it can be used to clearly distinguish between two things such as the dash in "culture/nature" or a fence between two properties. A straight line is commonly imagined to be the shortest path between two points as in a highway cut through a forest, tunneling under a mountain, or bridging a river. Lines often have directionality, as in Cartesian graphs, a line at the checkout of a store, or a past-to-future timeline. In contrast, a curved line – especially a circle –

operates differently. For example, a tilde (~) in mathematics suggests approximation. A curved line will not be the shortest path, strictly speaking, and a circle does not imply directionality. The way we experience linearity – straight lines, curved, or something else altogether – is extended through our imaginations to concepts such as time, efficiency, and causality as well as to our built worlds such as roads, fences, and architecture – all of which, in turn, shape our future experiences.

Different aspects of our knowledge systems can be understood through this straight/curved line distinction or, as it is more commonly referred to, as the difference between linear and nonlinear thinking. Although an oversimplification, linear thinking understands a phenomenon as "the whole [is] exactly equal to the sum of its parts, and causes are proportional to effects" whereas nonlinear thinking recognizes the "high level of interdependency, inter-connectivity and unpredictability that operate at the chaotic zone where there is no proportionality between cause and effect" (Vakili, 2018, p. 280). For linearity, the outputs of our systems are proportional to the inputs whereas they are disproportional in non-linearity. Conceiving of the environment as a collection of mechanized objects, causally related, and as a total sum of its parts begets an epistemology that prioritizes deterministic objective knowledge and neglects the chaotic elements of our relationships with the environment such as our (and its own) agency, free will, desires, and beliefs. Nonlinear thinking, conversely, recognizes the "interdependency, inter-connectivity, and unpredictability" of our environmental relationships, seeking to understand our environment with respect to those chaotic elements that linear thinking neglects. Again, this is not meant to draw hard distinctions between the imaginaries, but only to suggest that the experience of straight, curved, or other sort of linearity in our lives – through our

experience of time, causality, roads, fences, etc. – can be taken up into the imaginary and extended to other facets of our lives.

The characteristics of our ontological and epistemological imaginaries discussed here are not meant to be exhaustive or mutually exclusive; however, they are meant to illustrate how our imaginations can extend experiences of porous and non-porous borders, individual and community boundary conditions, subject/object dichotomies, and different sorts of linearity throughout our conceptual systems to make sense of our environments. Our experiences of things like boundaries and lines are metaphorically extended throughout our conceptual systems and reinforced in the ways we act (both as our actions are experienced by ourselves as well as our action dictating the conditions of others' experience) to further develop our imaginaries. The remainder of this chapter extends this discussion to the four environmental imaginaries – environment-is-machine, -garden, -community, and -family – that are often present in western environmental discourses, describing the ways in which these imaginaries cleave along these ontological and epistemological dimensions.

Multiple American Wests and Their Environmental Imaginaries

The communities in the West have evolved and developed throughout varying political, economic, and social-historical trajectories, and these trajectories give rise to distinct divergences in how the communities experience their worlds. As argued, varying experiences will vary the development of the imaginary that ascribes meaning to our environments. Neither the environments of the American West or the American West itself are, accordingly, unified concepts. What I mean by this is that when we ask in what ways should we govern ourselves with respect to western environments, we need to be clear as to which concept of the environment we are inquiring about. The diverging imaginaries construct a plurality of

environments: *The* American West is a misnomer. There are multiple American Wests that coexist in time and place and it is through the interrogation of the imaginary used to ascribe meaning to any one of the American Wests that we can begin to understand western environmental conflict.

If we take seriously the views that our conceptual systems are derived from our social and embodied experiences in the world – our imaginaries – and there are sufficiently distinct conceptual systems that interpret a set of experiences differently, then we should be prompted to take seriously the possibility that differently conceptualized American Wests may derive from a common set of material conditions but are nonetheless not reducible to those material conditions.

The discussion of the ontological and epistemological components of our social imaginaries in the previous section began with the recognition that some imaginaries prompt us to view humanity as being apart from the environment and, conversely, some prompt us to view humanity as being a part of the environment. The view that human and environmental welfare are separate serves to characterize, paradoxically, environmental imaginaries that see our environments both as machines which are put in service of humans and as gardens which are to be protected despite humans. In both cases, the imaginary rests on a non-porous boundary between humans and nature where, although the bounded is differently imagined (e.g., machine and garden), our responsibilities to the environment are limited to those that are required for our own human benefit and welfare.

Lynn White Jr. (1967) traces the imaginary separations of humans from their environments to the proliferation of Judeo-Christian theologies in combination with a “marriage

between science and technology" (p.1203).[12] Importantly, White recognizes that this separation occurred, in part, from a change in the notion of time:

> Like Aristotle, the intellectuals of the ancient West denied that the visible world had had a beginning. Indeed, the idea of a beginning was impossible in the framework of their cyclical notion of time. In sharp contrast, Christianity inherited from Judaism not only a concept of time as nonrepetitive and linear but also a striking story of creation…God had created [humans]…Man named all the animals, thus establishing his dominance over them. God planned all of this explicitly for man's benefit and rule: no item in the physical creation has any purpose save to serve man's purpose. (p. 1205)

This linear and directional time has a beginning, and, in this beginning, God created nature "for man's benefit and rule." The ontological separation is taken up in the imaginary and enacted through the advancement of mechanistic technology – itself harkening from a linear imaginary – that further reinforces a divide between humans and their environments. The ushering in of Modernist and Enlightenment ideals through "discourse of scientific exploration, universality, atomism, and progress" (Robinson & Tout, 2012, p. 160) further entrenched these non-porous boundaries through extension to subject/object dichotomies and individual/community separations conditioning conceptions of ownership. On this imaginary, the quantification that linear time-keeping promoted, as described by Lewis Mumford, and the ontological separation in the form of subject/object dichotomies is extended to the environment rendering it as a quantifiable object that is ripe for consumption by the individual who owns the land, with no moral trespass as the environment is not constituted as something that can be morally trespassed upon. Natural processes can be known through linear causality that, when extended forward in time, can predict future states. Prediction tames the savage wild as that which can be predicted can be controlled and, of course, the environment must be controlled. This imaginary, built on boundaries, subject/object dichotomies, and linearity (among much

[12] This is but one narrative of this separation – related narratives of capitalism, imperialism, and technological advancement can also help understand this separation.

more not discussed here) render the environment as a machine that operates merely as the backdrop to human activity.

The interaction of environmental and modernist discourses is well-trod in the literature and need not be belabored here (c.f. Latour, 2012; Wolfe, 1998). Of import, however, is that the environment-is-machine imaginary is alive and well in the West and, more importantly, that it is an imaginary and not merely a set of values derived from careful ratiocination. As an imaginary, we must recognize the ways in which it performed – either materially, technologically, socially, or psychically – and the ways that these extensions constrain and guide the embodied and sociocultural experiences constituting our imaginaries.

The -machine imaginary is extended through western communities by their reliance on extractive industries such as subsurface mining, energy production, and commercial agriculture, and reinforced through the social and political power these industries possess. It is also extended through origin stories told about and by the West that celebrate the struggle to survive against a wild and dangerous natural world. Hollywood westerns capitalize on (and reinforce) this imaginary through popular cinema, such as their portrayal of mountain men (e.g. *Jeremiah Johnson*, 1971; *The Revenant*, 2015) as individualistic (individual versus community), trapping furbearing animals to support distant economies (object versus subject), masters of their own domain (dominion), and traversing rough landscapes, relying only on their own wit and skill for survival (nature as savage wild). This imaginary is performed through the trope of the Wild West where cattle, mining, and lumber barons built towns around saloons, brothels, and churches while the lawman and renegade began a long history of conflict that fueled the cinema industry (West, 1988). The “Wild West,” as portrayed and imagined by Hollywood, appeals to common themes of survival, individualism, domination, and a reliance on extractive industries that

survive into contemporary times in many western communities – an extension of the imaginaries that also interpret the environment as a machine. None of these examples, however, explicitly construct the environment as a machine, yet the experience of the individual characteristics of the -machine imaginary are present in some form throughout. There will seldom be pure forms of these imaginaries, as people in practice will have diverse experiences that develop varying imaginaries; nevertheless, we should recognize that the individual characteristics often relate to each other and that the more someone experiences them, the more likely they are to develop imaginaries that reflect them.

The -machine environmental imaginary finds its origins in sociohistorical ideals of dominion and modernism, constructing an environment that is hostile and must be controlled in light of human interests. Imagining the American West as a frontier characterized by unfettered extraction, lawlessness, and individual stoicism and, concomitantly, institutionalizing these characteristics, allows reproduction of the -machine environmental imaginary. However, the American West is not always imagined as such. Aside from imagining Western landscapes as material resources to be extracted, some communities imagine these landscapes as environments to be protected from human impact and preserved for human repose. Metaphorically, the environment is seen as a garden in the sense that it is dedicated natural space valued for its aesthetic, spiritual, and transcendental characteristics (Marx, 1919).[13]

The environment-is-garden imaginary is at odds with the –machine imaginary in that it does not allow for unfettered resource extraction, instead demanding protections for environmental spaces in order to keep human activity from deleteriously impacting nature's processes. The two imaginaries may be at odds with the proper use of the environment, but they

[13] By "garden," I do not mean those spaces where people cultivate food, instead meaning those spaces where nature is curated for human pleasure such as European landscape gardens.

are related in the non-porous boundary imagined between humans and nature. This border demands that to protect the environment humans must remove ourselves from it, setting aside wild spaces that will remain untouched by extractive society. Instead of a mechanized object to be put into the service of human society, the environment is seen as garden with which to be tended and enjoyed, sans human communities. John Muir's efforts to set aside iconic environments as national parks and protected wilderness exemplifies the garden imaginary as these legal protections allow humans to derive aesthetic and recreational value from the environments, yet disallows their material use of the environment (e.g. farming, forestry, mining).

Although the -garden and -machine imaginaries are similarly related in their non-porous boundary between humans and nature, they are dissimilar in their epistemic imaginaries regarding the environment. Whereas the -machine imaginary conceives of the environment in terms of causality and linear-thinking (the preemptors to prediction and control), the -garden imaginary recognizes the dynamism of wild spaces. This dynamism appreciates the "high level of interdependency, inter-connectivity and unpredictability" (Vakili 2018, p. 280) of natural systems, demanding humble awe and a respect for unknowable nature instead of the prediction and control of it. Jack Turner (1996) argues this point in *The Abstract Wild* as:

> What emerges from the recent work on chaos and complexity is the final dismemberment of the metaphor of the world as a machine and the emergence of a new metaphor – a view of a world that is characterized by vitality and autonomy…instead of a vast machine, much of nature turns out to be a collection of dynamic systems…all that drops out, really, is long-term quantitative prediction, and that affects most science primarily in one way: control. (p.123)

Turner describes this new view of the world as a view that respects nature's inherent *wildness*, admonishing the imposition of human control over natural systems. The imagined "vitality and autonomy" of nature professed by Turner is reflected in many non-anthropocentric

accounts of the environment such as Arne Naess' (1988) deep ecology and Tom Birch's (1993) universal moral considerability of nature. If nature is autonomous and in virtue of this should not be controlled by humans, then we cannot act (either individually or institutionally) in ways that manifest human control. If our material use of nature is an act that manifests human control of nature, then we should cease the act. The -garden imaginary demands that we separate these actions from natural processes which is coherent in terms of the non-porous ontological boundary between humans and nature. Importantly, though, are the actions that do not directly manifest human control. Whereas it is easy to recognize the control of strip mining, it is not so easy to do so in the act of hiking. Specific prescriptions aside, the actions that are tolerable on a -garden imaginary are those that do not, in Jack Turner's words, "impose a human order on nonhuman orders" (p. 111). Again, and whatever specific characteristics these actions may have, this is coherent with a non-porous boundary between humans and nature.

The -garden imaginary constructs an American West where the wild spaces must be protected from human control, whichever form this may take. The introduction of National Parks performs this imaginary by material extension, literally bounding wild space and regulating it for only those acts assumed to impose minimal control over wild spaces.[14] National Parks allow for human repose through wildlife and landscape viewing, tours, and hiking, but disallows the extraction of natural resources such as forestry or mining.[15] This bounded protection is extended through other policy mechanisms such as the Wilderness Act and the National Monuments Act, and through environmental discourses that seek to protect all wild spaces – regardless of legal status – from human control. For example, Western Watersheds Project is a non-profit

[14] It should be noted that I do not claim these acts actually do remove the imposition of human control over wild spaces. It is sufficient to recognize that they are assumed to be benign with regards to human imposition.
[15] Some extraction is allowed through grandfather clauses, yet this derives from a -machine imaginary in contrast to the -garden imaginary.

organization that explicitly seeks to remove cattle-grazing from western lands in order to protect the land, performing a -garden imaginary by enacting a non-porous boundary between humans and nature. The -garden imaginary is extended through Western communities through amenity based development where people choose to migrate to the West in part due to the landscape aesthetics and recreation opportunities, a phenomenon described as the emergence of a "New West" (Vukomanovic & Orr, 2014; Winkler et al., 2007). As the New West emerges, the -garden imaginary is institutionalized in legal protections, thus curating certain experiences of the West and reinforcing the interpretation of the environment as a garden.

The sociohistoric ideals of Eurocentric thought – domination, modernism, romanticism, and transcendentalism – structure institutions that provide the sociocultural experiences allowing both -machine and -garden imaginaries to develop, promulgate, and persevere. The conceptual separation of human civilization from their environments can be seen in contemporary environmental conflicts reflected in the discourses of extractive industries and radical environmentalists that seek to protect nature by removing human use from it. Involved in these conflicts are powerful extractive industries that are themselves supported by Eurocentric philosophies, economic power, and political legitimacy within the progress narratives of United States policy (Nieto & Durbin, 1995).[16] In response to the environmental degradation that results from extractive conceptions, radical environmentalists demand that all human use of environments be de-coupled from human society for the preservation of pristine nature (see the Ecomodernist Manifesto, Asafu-Adjaye et al., 2015). The non-porous boundary between humans and nature demands that we cannot imagine nature with people in it unless it involves

[16] Progress narratives, here, refer to the idea that infinite economic growth is a desirable aim for a nation. Infinite economic growth, however, requires material inputs that further require environmental resources, thus motivating a -machine imaginary.

domination and extraction. If porosity were imagined, however, then this wouldn't be a simple either/or consideration. Communities that operate from either of these imaginaries are in tension regarding the proper use of western landscapes (i.e. environments), and this tension is complicated by the -community and -family imaginaries held by many communities living on western lands that do imagine porosity.

-Machine and -garden imaginaries both emerge from a non-porous boundary between humans and nature. However, unlike -machine and -garden imaginaries, -community and -family environment imaginaries do not share a common genesis, demanding each be understood on its own terms. The Euro-colonial settlement of the West carried with it a particular form of agriculture that had evolved from ideals of Eurocentric thought, namely that private property and an ontological separation of humans from the land rendered the environment as an object to be owned and cultivated for the production of food and fiber for human use. Agriculture required the healthy productivity of a landscape, but also required the use of the environment. -Garden imaginaries cannot capture this as agriculture necessitates the use and extraction of environmental resources, yet the recognition that healthy environments are essential to productivity diverges from purely extractive practices. Thus, a third imaginary – environment-is-community – emerged from the settler colonial imaginary, similar to that of the -machine and garden imaginaries and as an answer to this contradiction.

Aldo Leopold's (1970) land ethic famously formalizes this, prescribing an environmental relationship such that we "think like a mountain" (p.140) or, in essence, think through our practices as if we just *were* the environment. Leopold's land ethic "simply enlarges the boundaries of the communities to include soils, water, plants, and animals, or collectively: the land" (p. 239), recognizing that we should seek a "state of harmony between men and land" that

required humans to responsibly manage their environmental practices (p. 243). Wendell Berry (1977) and Paul Thompson (2017) echo this sentiment of responsible environmental management within agriculture practices, arguing that commercial agriculture's productionist ethic motivates irresponsible environmental practices and we should instead seek practices that better harmonize humans and their environments. Along varying degrees of environmental use by humans, these sentiments are reflected throughout the literature (Baviskar, 1999; de Silva, 1987; DeLind & Link, 2004; Merchant 1981; Norton, 2015).

Common to all these accounts is the demand that human practices should be held responsible to natural processes. Responsibility, as discussed, emerges from a porous boundary where we must comport ourselves differently as we cross it. The ontological boundary is weakened as we begin to imagine ourselves being responsible and accountable to the other, with the recognition that upon crossing we must reflect on our actions in ways that are not required without crossing. Whether prompted by the pragmatic recognition that humans do in fact live in their environments and, by virtue of this, use their environments or the normative prescription that humans should use their environments, this imaginary diverges from the -machine and -garden imaginaries in that it seeks to responsibly integrate humans with environments.

Although the -community imaginary diverges in the imagined character of the human/nature boundary, it does not interrogate the epistemological imaginaries that allow the environment to be managed, scientifically studied, owned, controlled, and ultimately treated as an object. Contemporary trends in alternative agriculture such as regenerative agriculture and holistic grazing management explicitly recognize the porous boundary between human welfare and the environment's welfare as well as the dynamic system between the two, yet has not been divorced from the siren of predictive control. The environment is imagined as a system of

interdependent objects that can be known by its causal processes that, when extended forward in time, can predict future states. As in the -machine imaginary, that which can be predicted can be controlled and, of course, the environment must be controlled. For the -community imaginary, knowing the environment means also knowing the social, cultural, economic, and political systems that are entwined with environmental systems as the boundary is extended to these human systems. Those sustainability discourses that explicitly consider the human, economic, and environmental systems together are examples of the -community imaginary as they imagine humanity as part of the environment and not separated from it.

The -community imaginary constructs the American West as a system of interdependencies where agricultural, human communities, economic systems, wildfire, threatened and endangered species, invasive species, and a myriad of other nodes operate as a complex system. Land managers (either private citizens, federal employees, or non-profit representatives), themselves part of the system, must act responsibly with respect to the system itself (Thompson & Talley, 2019). The system is experienced as such by those communities whose livelihoods are integrally tied to environmental health such as agriculture, ranching, and forestry, thus constructing and reinforcing the porous boundary holding their practices accountable to the environment. However, to know the system requires predictive science. The National Environmental Policy Act (NEPA) requires government agencies to perform environmental assessments and impact analyses before making decisions using the "best available scientific data" and the Bureau of Land Management requires the utilization of "high quality information, including the best available science" in planning processes (BLM Planning 2.0 Fact Sheet, 2016). The prioritization of predictive control constructs institutions that, again, constrain and guide those experiences that are taken up and reinforced in the imaginary. The

-community imaginary constructs an environment where human actions are held responsible to the environment, yet the epistemic imaginaries, deployed to understand those actions themselves, interpret the system again as a machine, knowable through causal relations and controllable through prediction, yet now incorporating human society into the -machine.

The -community imaginary's similarity to the -machine and -garden imaginaries should not be surprising given the common genesis from the post-enlightenment, Euro-colonial ideals of the settler colonial imaginary. Importantly different, however, are the foundations for the environment-as-family imaginary. Although both the -community and -family imaginaries reject the non-porous boundary between humans and nature, -family imaginaries developed prior to Euro-colonial influence within North American Indigenous communities, understanding the relationships between humans and their environments in terms of mutual reciprocity and exchange. In this case, the environment consists of both human and non-human nature intricately linked through a web of kinship relations where the welfare of any specific individual, species, or community cannot be uncoupled from the welfare of those it stands in reciprocal relation to.

Whereas the -community imaginary weakens the human/nature boundary in order to hold humans accountable to their environments (while maintaining the linear epistemic stance of prediction and control), the -family imaginary does not recognize a boundary. This imaginary developed apart from the western philosophies that condition the other imaginaries, instead manifesting through the place-based lived experiences of cultures that pre-date the rise of Eurocentric colonialism (Tuck et al., 2014). Without the dualistic and extractive imaginaries provided by western philosophies, reciprocal relationships evolved in concert with local environments, developing social institutions that align with local environmental conditions.

Vine DeLoria, Jr. and Daniel R. Wildcat (2001) explicitly recognize this contrast with western philosophies as:

> …American Indian tribal customs, habits, and social organization…[consider] as an attitude or awareness…a deep system of experiential relations on which the world is building or living. The key here is recognizing that experience is the undeveloped and untheorized site where the divisions between the subjective and objective, material and spiritual, and an entire series of dichotomies disappear…the clan system not only indicated a certain tribal human organization, but also actually existed as a symbolic representation of the ecology and environment that we human beings were and are a part of. (p. 34)

Important here is that western "dichotomies *disappear*" (emphasis added) – signifying that the imagined human/nature boundary is not weakened as the -community imaginary construes it, but altogether missing. Without this boundary, humans "were and are a part of" that thing being imagined as the environment.

The -family imaginary does not construct boundaries within the environmental web of relations, recognizing that humans and the environment are alike in that they need each other and have responsibilities to each other. This is not a responsibility tempered by a subject/object dichotomy such as me believing that I am responsible for my house (I, a subject, am responsible for the welfare of my house, an object), but instead responsibility is built on extending agency to that which we are responsible to. For example, recalling Robin Wall Kimmerer's (2013) description of sweetgrass in chapter 2, sweetgrass "beckons" with its sweet vanilla fragrance, it "wants to be found," we must "ask first" before harvesting it, and "It's the grass that will teach you" (pp. 156-158). Sweetgrass is an agent itself, with responsibilities to humans and, reciprocally, human action must be held responsible to it as an agent. As Deloria Jr. and Wildcat remind us, "the universe is personal and, therefore, must be approached in a personal manner" (p. 23), as our relationships are between mutual agents and not between agents and objects. This dynamic relationship cannot be captured in the "simple construction of cause and effect and the

reduction of causal relationships to the constant conjunction of objects" (Deloria Jr. & Wildcat, 2001, p. 51) pervading linear epistemic imaginaries. Appropriate responsibility on the -family imaginary instead appreciates the "high level of interdependency, inter-connectivity and unpredictability" (Vakili, 2018, p. 280) of nonlinear epistemologies, demanding humility and respect for our environments instead of the prediction and control of linear imaginaries. The -family imaginary constructs an environment where human actions are held responsible to their environments in the same ways as they are held responsible to other humans, understood through dynamic imaginaries developed with respect to the web of relations between experiencing human and non-human agents.

Due to the genesis of the -family imaginary apart from Euro-colonial influence, the -family imaginary is not broadly shared throughout the American West. Although it is not broadly shared in non-Indigenous communities, it does serve to interpret western environments for the Indigenous communities of the America West that must be, minimally, considered in the governance of western landscapes and, at a maximum, ceded the power to enact their sovereignty. The -family imaginary has had little uptake (or, arguably, no uptake) in western institutions and therefore does little to condition the experiences of non-Indigenous western communities. However, the vibrant Indigenous communities of the American West condition experiences according to the -family imaginary through their own practices and reclamation of Indigenous knowledges, reinforcing the imaginary in their own communities and helping to construct it in those settler communities they do influence. Despite the lack of broad institutionalization, the American West constructed by the -family imaginary must be recognized as one of the multiplicities of American Wests that must be understood in collaborative processes where Indigenous communities are present. However, given the unjust colonial impacts that have

and continue to impact Indigenous Peoples, it is more appropriate to refer to this construction as an Indigenous West with respect to these communities' sovereignty.

Conclusion

As discussed, imaginaries are "cultural models, which are similarly shared, implicit schemas of interpretation" (Strauss 2006, p. 329), where environmental imaginaries are those specific imaginaries used to interpret what is meant by "environment" to different communities. Although these will have many dimensions not discussed here, dominant environmental imaginaries in the American West rely on diverging interpretations of both our ontological experiences of boundaries (whether porous, non-porous, or missing completely) and our epistemological experiences of linearity (whether causal or dynamic) [see Figure 3]. The metaphors of –machine, -garden, -community, and -family are intentionally chosen to prompt us to extend our experience of the metaphorical object (machine, garden, community, family) to our experiences of the environment in order to illustrate the relationships constructed from the imaginary.

Environment As	Characteristics	Examples
	Non-Porous human/nature distinction	Human domination of nature
Machine	Linear epistemology, i.e., output proportional to input	Quantitative prediction and control
	Environment as object	Hydroelectric dams, strip mining
	Non-Porous human/nature distinction	Human domination of nature
Garden	Dynamic epistemology, i.e., output disproportionate to input	Romantic and Post-Enlightenment Discourse
	Environment as object	National Parks, wilderness
	Porous human/nature distinction	Natural systems include humans
Community	Linear epistemology, i.e., output proportional to input	Quantitative prediction and control
	Environment as system including objects (nature) and subjects (humans)	3-part Sustainability discourse, holistic management
	No human/nature distinction	Human/natural systems inseparable
Family	Dynamic epistemology, i.e., output disproportionate to input	Agent-to-agent responsibility and knowledge sharing
	Environment as system of subjects	Indigenous seasonal governance; place based knowledge

Table 1: Characteristics and Examples of Environmental Imaginaries

Whereas scholars have furthered our understanding of social imaginaries generally, and sociotechnical imaginaries specifically, there is a surprising lacuna in developing environmental imaginaries. Developing this account is important as it provides a method of integrating our

individual and social experiences, imaginative and rational faculties, and material and psychical worlds together in describing our varying environmental attitudes.

This brief introduction to environmental imaginaries in the context of the American West argues that our experience of things such as boundaries and linearity, whether materially or psychically, are able to impact our imaginaries in ways that extend to the interpretation of our environments. Environmental imaginaries (including how they are constructed and how they serve to construct) are important to environmental discourse, so we need to pay careful attention to the places we occupy and ways that they enable or constrain certain experiences. The multiple American Wests and the Indigenous West constitute and are constituted by different places and, as such, we need to attend to these differences in order to account for environmental conflict in the American West.

OF WESTERN PLACES AND FENCES

It's a place, it's a feeling, sometimes it's just a state of mind
It may not be what you were looking for, but it's here in what you find
And it's all these things, it's the West
– Dave Stamey
It's the West

We are in places. Some places beckon us, some are to be avoided, and some are banal; however, and regardless of our place proclivities, we are emplaced and this emplacement urges reflection. The opening lines of Edward S. Casey's (1993) seminal work on the philosophy of place, *Getting Back Into Place*, asks us to "imagine what it be like if there were no places in the world" (p. ix) – a seemingly innocuous consideration that prompted Casey to detail a history of place in philosophical thought and the experiential characteristics of place, including the ways in which place is structured by and serves to structure our experiences (Casey 1993, 1997). The places we occupy stand in conceptual contrast to the spaces we occupy, a distinction espoused by Casey and taken up in contemporary thought, especially in the geography disciplines that take as a subject the ways in which people operate in place/space (Massey, 1994; Relph, 1976; Sack, 1997; Tuan, 1990). Although an oversimplification, the distinction between place and space can be seen as the former being constituted by meaning where the latter is not (Relph 1976, p. 3). Casey's initial prompt augmented through this distinction can be revised to ask us to imagine what it would be like if there was no meaning in the worlds we inhabit. This is a challenging, if not impossible, request.

The multiple American West and Indigenous Wests described above are each constituted by various meanings that diverse communities attribute to their landscapes, serving to interpret the same landscape as a different place. The "landscape," as I use it here, is the set of material

conditions that are interpreted to give meaning to our inter-related concepts of environment and nature, deriving from our social and embodied experiences in the world and, concomitantly, serving to guide those experiences. The landscape, in this sense, is a common set of material conditions yet it is not benign with respect to how those material conditions are themselves constructed by the various communities acting from their own shared imaginaries.[17] Therefore, the landscape does not operate merely as the background to human action, but is instead an active participant in the development of our imaginaries. This raises a salient puzzle: If our landscapes have been constructed to reflect and reinforce certain imaginaries, shouldn't we expect the conditioned experiences to converge on place-meanings? Or, put differently, shouldn't the same material conditions experienced over time render the same social imaginary?

The simple answer is yes, kind of – we might reasonably expect that over time, similar imaginaries will emerge from specifically-constructed landscapes as experienced by similarly socially-positioned people. But, it is important to recognize that a common set of material conditions cannot be construed as a common set of experiences. And, to the point of this project, it is these varied experiences that operate in our imaginations. The place, itself, is critical to understanding the experience, but also insufficient. In *Space, Place, and Gender* (1994), Doreen Massey describes the ways in which places encode gender relations through the social relations that give the material conditions meaning that, in turn, are differentially experienced by differently embodied and socially positioned peoples. In recalling a teenage visit to an art gallery with two young men, Massey recalls that many of the paintings (painted by men) were of women in various stages of undress, paintings "of women seen through the eyes of men" (p. 186). That the paintings were asymmetrically devoted to women's bareness means something to those

[17] Those communities (and their shared imaginaries) that hold social, economic, and/or political power, disproportionately impact the material conditions of the landscape.

experiencing it – to the men it might mean that women are objects of aesthetic beauty or objects of dominion, but objects, nonetheless. To Massey, as she "looked at them, my two young friends, looking at pictures of naked women as seen through the eyes of men" in this place where women's bareness was celebrated, she

> felt objectified…[that] this was a "space" that clearly let me know something, and something ignominious, about what High Culture though was my place in Society. The effect on me of being in that space/place was quite different from the effect it had on my male friends…I lost that argument [about her experience] on the grounds that I was "being silly." (p.186)

To Massey, the experience of this (meaning-laden) *place* was uncomfortable, objectifying, and belittling – an experience that critically diverges from those of her male friends in a (imagined as meaningless) space that was constructed as a reflection of patriarchal society's imaginaries of women with a particularly gendered affect. The art gallery as a *space* serves to obscure the social, lived realities and experiences of women while the art gallery as a *place* centers those same gendered realities and experiences. Massey concludes that this "gendering of space and place both reflects *and has effects back on* the ways in which gender is constructed and understood in the societies in which we live" (p. 186, my italics). Just as places encode gender, they also encode a variety of different social, racial, political, environmental, etc. relations. Places, thus, are not neutral and attention must be paid to the ways in which places reflect certain imaginaries (often those of the dominant social position).

Critical to the multiple American Wests and this project are the ways in which western environments are often constructed to reflect settler-colonial imaginaries and how they are differentially experienced by varying communities in the West. The landscape diversity (mountains, deserts, urban, rural, etc.), and the sociocultural diversity of communities in the American West operate to create a varied and diverse landscape of places that, I argue,

characterize much of Western environmental conflict. Generally, I call attention to the mismatch between a community's place-meanings (interpreted through their environmental imaginaries) and the landscapes they are experiencing. This mismatch is not merely in their mental or cognitive attitudes toward their landscapes, but in their embodied and felt experiences of their places. And, to make matters more complex, the ways in which some imaginaries conceive of the "landscape" as a mere background to human activity (space) instead of an active participant in human activity (place) pose considerable obstacles.[18] Thus, before describing the ways in which various landscapes are interpreted as various places – mismatched or not – it is worth being clear regarding what I mean by both space and place.

Although there has been a resurgence of the importance of place in contemporary analyses (e.g. Casey, 1993, 1997; Relph, 1976; Sack, 1997; Yuan, 1990), the concept of place has been deliberated on and prioritized throughout history. Vanessa Watts (2013) describes Indigenous ontologies as being necessarily emplaced as "place and thought were never separated because they never could or can be separated" (p. 21), suggesting that place has always been a central theme in Indigenous practices, regardless of contemporary revivals of the notion. From a Euro-centric perspective, Casey's (1997) *The Fate of Place* traces the discussion of place throughout western thought, suggesting that place held conceptual import in the elaboration of our inhabited worlds until the early modern period, at which point the concept of space took primacy as a metaphysics of our world. Space, however, was inadequate for understanding our embodied experiences and through the phenomenological work of Husserl, Merleau-Ponty,

[18] Non-place is specifically theorized as a product of supermodernity where history does not ground current experience, global hyper-mobility detaches people from their places, and a rise of individualism prompts us to "no longer collectively share places….instead, all of us have our own 'trajectory' in space" (Drenthen 2009, p. 301). See also Marc Augé (1995) as cited in Drenthen (2009). Although I use "space" and "non-place" interchangeably, I do recognize that "non-place" is similar yet analytically distinct from "space."

Heidegger, Bachelard, and Derrida – among others – place was reinstated as a central notion (Casey, 1997).

The inadequacy of space in this respect stems from the abstract nature of space; abstract space, as conceptualized in the early modern period, was "continuous, isotropic, homogeneous, finite, or infinite" (Relph, 1976, p. 26, quoting Jammer 1969, p. 7), whereas place has "a special noncausal power found in its containing character, its qualitative differentiation, its heterogeneity as a medium, and its anisotropy of direction" (Casey, 1997, p.134). On this view, our worlds are instantiations in space, a metaphysically prior construct serving to relate and constrain our experienced realities. The objects that we interact with – fundamental to our experiences – are spatially organized, independent from each other, and able to be understood apart from our experiences of them. Places, on this account, are "merely momentary subdivisions of a universal space quantitatively determined in its natural homogeneity" (Casey, 1997, p. 134). Within space, our experiences are matters of mental processes, "subsum[ing]…every sensible appearance under a representation whose status is unremittingly mental" (ibid, p. 203). The Cartesian mind-body dualism required that our material realities – the spatially extended body and the homogenous space it occupied – were distinguished from our meaning-laden experiential realities, seen here as "unremittingly mental."

As theorists became critical of modernist dualisms, conceptions of space as metaphysically distinct from place were problematized. Lying at the heart of these criticisms was the recognition of the role of the theorists in their conceptualizations – empirically, theorists did not theorize outside or apart of their own places. Ernst Cassirer (1970), as quoted by Relph (1976), asserts that "we must admit that abstract space has no counterpart and no foundation in physical or psychological reality", itself "a free creation of the human imagination and as such is

a direct reflection of the achievement of symbolic thought" (p. 26). Space, as a creatively imagined abstraction, may be useful in certain projects where an object's extension is central to the epistemic goals of the project, yet this does not give it priority – metaphysical or otherwise – over place. Places, being "sensed in a chiaroscuro of setting, landscape, ritual, routine, other people, personal experiences, care and concern for home, and in the context of other places" (Relph, 1976, p. 29), are not merely derivate of nor are they reducible to space. Place is constitutive of space – it is "basic to protostructuring [of the rational world]…it is place that introduces spatial order into the world" (Casey, 1976, p. 5).

Whereas Casey (1997) and others contend that as embodied beings we are necessarily in place as "there is no place without body [and]…there is no body without place…our own embodiment brings implacement [sic]—as well as continual reimplacement—in its immediate wake" (p. 104), other scholars imply that place is something to be achieved rather than an entailment of embodiment. For instance, Martin Drenthen (2009) argues that a communities' sense of place and their place-attachment are something to be achieved through reflection and modification of the modern-era institutions that render place as non-place. The modern-era has, according to Drenthen, resulted in the emergence of non-places which "make up a purely functional, sanitized landscape" and this "*arrangement of space* misses the specifics of a regional place that enable people to feel connected to it" (p. 19, emphasis added). It is unclear if Drenthen admits that, as Casey argues, we are always emplaced and it is only our degree of recognition of place (our *sense of place*) that varies across the landscape or if there is a strict delineation between place and non-place. It is worth recognizing that the ontology of place is not settled – what it is, what priority it has, and/or what are the determinants of a specific individual or communities' sense of place. However, if our local environments are both critical to our

imaginative meaning-making processes and themselves constituted by those processes, then place (being that which we experience and that which is constituted by our experience) is ever-present. Our psychical engagement with place may differ by degrees (such that one person may fully recognize their emplacement while another does not), but this is not to say that we are not always emplaced. Simply, as embodied beings we are always in place and never in space, whether or not we consciously engage with our place.

Place and space are distinct, the latter an abstract notion of the continuous and infinite extension of the objects (and relations between objects) in our world, whereas the former is contextual, particular, and meaning-laden, both structuring our experiences and being structured by our experiences. Places should not be understood as simply material surroundings (landscapes) – they are, as Casey (1993) suggests, "more an event than a thing" (p. 329). This difference in abstraction versus particularity is important in the West. This dissertation began with the assertion that The American West, in general, faces conflict regarding environmental governance. In so asserting, I've imagined the American West as an abstract homogenous concept or, in other words, as a regional space. The Spacial American West is useful for epistemic projects that do not require the specificities of place such as understanding the dynamics between snowpack on distant mountains in the winter and riparian health further downstream in the late summer. Spacial analyses – whether they be ecological, social, political, etc. – have enjoyed success in understanding the broad dynamics of the West and this success reinforces the notion that the West is an abstract homogenous region. However, the multiple American and Indigenous Wests I've described do not constitute a homogenous region.

This divergence between abstract homogenous spacial analyses and particular heterogeneous placial analyses aligns with the divergence of non-porous and porous boundaries

described in the previous chapter. To conceive of a region as space (the schema conditioning spacial analyses) is to view the complexities of human experience as apart from the complexities of their landscape whereas conceiving of a region as place is to recognize that human experience and the landscapes that they experience are ontologically intertwined. This should not be surprising since, as Casey (1997) reminds us, the concept of space emerged from the same dualisms of modern metaphysics that are extended to the environmental imaginary in the form of the non-porous boundary between humans and nature. This lack of boundary is echoed in Vanessa Watts (2013) description of Indigenous ontologies as "place and thought were never separated because they never could or can be separated," explicitly eschewing the dichotomous boundary between human experiences and the world in which they experience. The epistemic resources that emerge from and are used to describe spacial conceptions of landscapes reinforce the landscape-as-space notion by conditioning the experiences of those invested in these. Although our spacial understanding of natural and social systems can be generally applied across the region, the cleaving of human experience from spacial landscapes is ill-suited to attend to the ways that diverse Western individuals and communities construct meaning and behave in their local places – a primary focus of environmental governance. Space is useful, but where matters of governance are concerned, place is prior.

As our imaginaries derive from our embodied and sociocultural experiences within our respective landscapes, understanding those landscapes in which we experience is critical to understanding our imaginaries. Places are experienced differentially depending on what relations they encode and who is experiencing them, and understanding how the felt experience (positive, negative, or something else) of places is critical to recognizing diverging imaginaries and the opportunities/obstacles they provide for environmental governance. In other words, where we are

is critical to who we are and, conversely, who we are is critical to where we are – simply, our places matter. The remainder of this chapter further elaborates on the ways that an individual or communities' place functions to guide their varying imaginaries, focusing on the roles that both their natural habitats as well as their built environments play in this process.

Nature, Technology, and the Body

Our places, as I've described, are particular to a person and/or community and various places may derive from the same material conditions. Although places are not things inasmuch as they are events, they are in part comprised of things. "Things," of course, is broad. For these purposes, I distinguish only between those things composing the natural habitat being experienced and those things that are artifacts within the natural habitat. In practice, this is not a clear distinction since a genetically modified plant occurring in place may be a considered as both an artifact as well as a natural thing. This is also not meant to exhaust the types of things inhabiting place. For instance, the experiencing body is a thing in the experiencing body's habitat and as such, is part of the habitat being experienced. However, it is unclear if one's own body is an artifact or a natural thing. This suggests that we cannot so easily distinguish the constituents of a place, yet this crude distinction serves to highlight specific considerations of place.

Before turning towards the artifacts and natural things in place, it is worth noting the heterogeneity of the human body. We are emplaced bodies who interact with our places in a variety of ways. I recognize that it is a mistake to homogenize the "human body" since the considerable variation in the ability of different bodies will ultimately lead to varying experiences of place. The abilities of marginalized bodies will provide a variety of experiences that must be considered and can lead to novel understandings of our places, and we must be careful not to obscure these experiences in analyses. I recognize that my own embodiment serves

to guide my interpretations of place and, as such, I limit this project to the environmental imaginaries that are in part developed through social institutions and not fully through my personal, direct experiences.

The natural/artificial distinction is meant only to guide our intuitions regarding those things that we experience in place. I use the terms to denote a sort of intentionality regarding things, such that natural things are those that proliferate despite human intentionality and artifact things are those whose proliferation requires human intentionality. For instance, a seed that is deposited by wind and sprouts into a sapling would be a natural thing as it proliferates without human intervention. A tree purchased from a nursery, planted, and carefully pruned would be an artifact as the thing – the pruned tree – is as it is because of human intervention. Machinery, architecture, and infrastructure are overt examples of artifacts, whereas naturally occurring geology, flora, and fauna are examples of natural things. These two labels – artifact and natural – may be better seen as the poles of a continuum where degrees of human intervention dictate the naturalness/artificialness of a thing. This distinction is not meant to analytically delineate types-of-things, but is instead offered as a heuristic to evaluate the ways that our places serve to guide our experiences and, ultimately, construct/reinforce/modify our imaginaries. I consider each of these types of things – artifacts and natural things – in turn.

Our embodied experiences are conditioned by the habitats in which we find ourselves. We may feel a sense of foreboding when looking up the face of a large bluff, or a sense of vertigo when looking over a cliff. We may feel a sense of tranquility sitting beside a stream in the sun in summer, whereas that same stream in the leafless winter may give us a sense of dread. How we specifically feel in light of our surroundings is not important, only that our surroundings can have this impact on us. Of course, this impact can either be conditioned by our own prior

imaginaries (a past experience with the forebodingness of something larger than me may metaphorically extend to the forebodingness of the large bluff rising above me) or aid in the development of novel imaginaries. In either case, the places we occupy – complete with both the "things" in place and the meanings attached to those things – are integral in shaping our experiences and, in turn, creating or reinforcing our imaginaries.

Edward S. Casey (1993) offers an example of this complex interaction between place and body in his evaluation of the phrase "the look of the land" (p. 195). The phrase "the look of the land" encapsulates this embodied interaction between human and place as "the look" requires the interpretive faculties of the agent while "the land" is proffered as that place which is to be interpreted. The look of a land will vary greatly across the multitude of natural variations of landscapes, but in general Casey argues that the experience of "the look of the land" leads to either an "experience of desolation" (p. 196) or a "peculiar sense of consolation" (p. 193). Which we are led to is dependent on our affective experience (itself structured by past experience) of four features of the landscape – the relative *barrenness* (the lack of features essential to life such as water, vegetation, wildlife, or shelter), *vastness* (perceived endlessness and lack of delineation), *impenetrability* (resistance to movement, cultivation, or development), and *isolation* (disconnected from other people and places) of the landscape. These characteristics are meant only as conspicuous examples tied specifically to the experiences of desolation/consolation. Different experiences such as joy/sorrow, calm/dread, larger than/smaller than, close to/far from, etc., may require analyzing different features of a landscape than those offered for desolation/consolation and future work would do well to elaborate on these.

However, the desolation/consolation experience is significant in the experience of western landscapes as the experience of arid deserts and recalcitrant granite peaks is in some

sense explained by these features. Yi-fu Tuan (1990) relates early settler-explorer accounts of the American West in familiar terms, such as Lieutenant J. H. Simpson's reproach "of the almost universal barrenness which pervades this country," J. R. Bartlett's characterization as "barren and uninteresting in the extreme," and W. H. Emory's concession that the land was "wholly unsusceptible of sustaining an agricultural population [read: impenetrable]" (p. 67). To Euro-American settlers accustomed to the rich soils, plentiful waters, and rolling topography of the East, the arid deserts and impassable granite peaks of the West could certainly appear barren, vast, impenetrable, and isolated. It is no wonder that the bulk of early settlers merely passed through the arid deserts of the Intermountain West in search of the greener – and more consoling – landscapes of Oregon and California. Contemporary settlement in the West illustrates the perceived desolation/consolation of the place to those who settled it – the majority of population centers occur in wide fertile valleys along waterways, connected by those interstates and highways that replaced the trails used by settlers, miners, trappers, and Indigenous peoples since time immemorial. These settlements are in the least barren landscapes of the arid, rocky desert. The landscape's vastness is tempered by the delineation between arable fertile valleys and otherwise impenetrable landscapes and connected by the most-easily traversable trails/highways through a rough landscape.

The bulk of the western populace lives in these consoling places where water, land, and comfort are relatively abundant, but the West is also littered with small communities – both settler and Indigenous – thriving in the "desolate" landscape. The natural habitats of these communities, complete with the things constituting these habitats such as water, geological formations, flora, and fauna, prompt a range of varying experiences that are taken up through the imagination and extended through our imaginaries. Simply, different features of a place will be

differentially interpreted by diverse communities. An Indigenous community that has lived in the arid deserts of the west will not likely feel "desolation" in similar landscapes, whereas settler-colonists that came from more populated, vegetative, and (to them) more comfortable environments could feel a "displaced desolation" when settling the West.

On this view, the physical character of a place can, in part, determine the interpretation of a place for a community. As argued above, however, the imaginary developed by the imagination from previous experiences will influence place-meaning as well. For example, Ángel J. García Zambrano (2012) shows that pre-European contact Mesoamerican communities preferred founding cities in places where they could align their buildings with a mountain peak that was visible beyond a concave mountain recess to give the impression that the peak was emerging from the recess. This is due to both the landscape features (mountain recesses and peaks) as well as the pre-conceived meanings of these features, namely that they were the "'place of ancestors' or 'place of those who have ancestors'" (p. 217). Our places are therefore constituted by both the landscape features as well as our prior place-interpretations – a desolate place is that which is not consoling and that which is consoling is a natural habitat interpreted as such.

The relative consolation or desolation imparted by a place is intertwined with the environmental imaginary developed in that place. A desolate place is a place to be avoided and recurrent avoidance (by the individual and the group, over time) prompts the development of a non-porous boundary as discussed in chapter three. The desolate becomes a landscape which we hold little responsibility to – it is too barren, vast, impenetrable, and isolated to be of practical use – and as such is rendered either disposable (e.g. -machine imaginary) or to be cordoned off

as wilderness (e.g. -garden imaginary).[19] In contrast, a consoling landscape entices inhabitation and, as such, a responsibility to the landscape prompting the development of a porous boundary (e.g. -community and -family imaginaries).

Importantly, however, places may vary between desolate and consoling throughout the year. While spring in the arid desert may be consoling due to seasonal stream flows and desert blooms, late summer can be desolate as water becomes scarce, plants dry out, and wildlife retreats to cooler alpine meadows. Western settlement occurred on the socio-political assumption that static land tenure rendered the ideal citizen – find a place, put down roots, and weather whatever comes at you. The economies of western static settlement – livestock ranching, agriculture, forestry, etc. – are seasonally dependent such that the more consoling spring landscape is most suitable to economic production and the more desolate seasons are least suitable to production. Thus, these communities vacillate between experiences of consolation and experiences of desolation, prompting an engagement with and responsibility to their landscapes that seasonally varies. The experience of both seasonal consolation and desolation prompted by static settlement in the arid desert or recalcitrant mountains renders an imaginary that blends the porosity of the human/nature distinction (from the consoling landscape) with the otherness required of the objectification and linear epistemology (from the desolate landscape) of the -community imaginary.

However, Indigenous communities did not prosper under the socio-political assumption that static land tenure was ideal. Instead, these communities traveled throughout their landscapes as changing seasons provided varying subsistence opportunities, expanding and shrinking their

[19] Romantic wilderness retains the desolate features, but instead inspires a sense of awe/sublimity in light of the desolate: "A desolate landscape may also, paradoxically, give rise to a peculiar sense of consolation…the isolated figure in the empty landscape finds in wilderness itself a con-soling partner. The lonely individual and the desolate landscape form a silent but powerful pact" (Casey, 1993, p. 193)

social groups according to the abilities of their environments to provide necessary resources (Benton-Benai, 1979; Faulkner, 1977; Meyer, 1990). Seasonal rounds, however, were not a mere reaction to the challenges and opportunities provided by seasonal change. As the Kootenai Peoples (2015) recognize, "The Kootenai lifestyle, before the reservation era, was migratory but *far from random*. We knew every aspect of our homeland…We knew what to expect as the seasons unfolded, year after year…" (p. 49, italics added for emphasis). Seasonal rounds are more than random or reactive movements on the landscape – they integrate community norms and responsibilities with seasonal change to develop harmonizing relationships that act in accordance with (not in reaction to) environmental change. For example, the Kootenai historically returned to the same campground every winter (what is now called Apgar near Glacier Park in Montana) to "dance and sing in an important renewal ceremony" (p. 51). There were three songs sung at the ceremony – one for good health, one for food, and one for material possessions – which told people to store resources at other campsites throughout the year. During the Leaf Bud Moon, now known as March, winter food stores were depleted and food was scarce since snow still covered much of the land, but the people had food that had been stored at specific sites during fall hunts to feed them through spring (p.57). Where the natural habitat would be seen as seasonally barren and impenetrable by static communities, seasonal rounds (complete with the concomitant social institutions) allowed Indigenous communities to move across landscapes without the experience of desolation. This dynamic emplacement conditions the -family imaginary as the imagined boundaries experienced in avoidance of desolation does not occur, instead it demands responsibility to the constituents of place, varying by season.

Our natural landscapes (recalling the nature/artifact distinction expressed above) impress upon us in various ways. The desolation/consolation impression discussed here is but one of

these ways. In *Topophilia* (1990), Yi-fu Tuan describes an array of place/landscape characteristics that operate in a similar fashion, including colors, spatial organization, symbolism, and scale. Our experience of place (taken up by the imagination and extended through our conceptual architecture) will be molded by boundless features that often go overlooked – our experience of smooth rocks, for example, is distinctly different than our experience of rough rocks. The same for depth of grass, leaf cover of trees, steepness of terrain, rigidity of soil, the sounds of near/far water and wind, the smells of various decomposing vegetation, and much more. As Relph (1976) notes, places are "sensed in a chiaroscuro of setting, landscape, ritual, routine, other people, personal experiences, care and concern for home, and in the context of other places" (p. 29). We may amend this to include sensory, affective, and imagined experience. Recognizing the desolation/consolation and the static/dynamic dimensions of our experience in natural landscapes provides a jumping off point to consider the multiplicity of American and Indigenous Wests, but it is woefully incomplete. The deficiencies of this analysis aside, we can conclude with some certainty that those natural things that occur without human intentionality and make up much of our natural spaces (in the sense of green nature, not metaphysical nature) are integral to understanding our places. Future work would do well to elaborate on the most efficacious of these characteristics.

However, our places are not merely constituted of natural things. As I walk a trail through the mountains I need to, minimally, recognize the experience of the trail itself. I may also recognize the water bottle I carry, the shoes I wear, and the jet-trail across the atmosphere. Just as the natural landscape molds my experience, the artifacts within the landscape do the same.

Just as the features of our natural landscapes – in combination with our prior imaginaries – can help to structure our places, the artifacts within our places serve an interpretive role. Here I focus on artifacts understood as the products of our respective technologies. Technology, here, is a broad concept that I use to describe both the tools and techniques that humanity uses to modify their worlds. I do not offer an analysis of technology, per se, nor do I offer a specific definition of what I take to be an artifact (or technological object). For my purposes, it is sufficient to recognize that those features of our places that are built, constructed, or fabricated are recognized as technological artifacts. As the possibilities are near infinite, I limit my discussion to one aspect of technology-in-place – the imaginaries that varying technologies are structured by and serve to structure.

Although the specific details of the relationship are yet to be agreed upon, it is widely recognized that technology, in general, has a role (both implicit and explicit) in shaping "the ways we view ourselves and our communities, and consequently the direction that our individual, community, and corporate activities will take" (Hickman, 2001, p. 3; see also Ellul, 1964; Feenburg, 1991; Haraway, 2006; Ihde, 1990; Marcuse, 1968; Winner, 2010). It is not my aim to defend or refute this, only to show how technology operates on our places in ways that offer insights into different communities' varying interpretations of their place.

The ways that imaginaries serve to structure our places is well-evidenced through Kent Nerburn's (2010) *Neither Wolf Nor Dog* (chapter six – "Junk Cars and Buffalo Carcasses") where he discusses the supposed junk he sees on the Lakota Pine Ridge Reservation with an Indigenous elder, Dan. Nerburn was "mystified" by the lack of "order or indication of effort to keep things clean" regarding the objects on the reservation, prompting him to ask Dan about the "junk cars and all the trash." Dan's eventual response is telling:

> Watch our little children. They might get a bike and ride it, then just leave it somewhere, like that. You say they are irresponsible. They are just being like their ancestors who believed that you owned something only so long as you needed it. Then you passed it to someone else…All of this – all these cars and stuff – makes me proud…It means we haven't lost our traditional ways…In our way, everything had its use then it went back into the earth. We had wooden bowls and cups, or things made of clay. We rode horses or walked. We made things out of things of the earth. Then when we no longer need it, we let it go back in the earth…We are living the same way, but we are living with different things. (pp.78-80)

Although this passage is, on the surface, explained by mere cultural differences, it is suggestive of deeper forces that help to understand how the same place can be differentially understood. Nerburn, raised with the material-consumerist experiences of the settler state, interpreted the place as disorderly and dirty, strewn with junk and decaying items. Not only did Nerburn interpret the place as such, but his interpretations were being structured by this experience – he thought it "reflected a lack of self-esteem and a sense of hopelessness about life," a preferable option to his "earlier explanation – that people who lived like this were simply lazy and shiftless" (p. 75). The meaning of the objects, themselves, were meanings of the place – the place imbued with pre-conceptions of the people who inhabited it. Dan, on the other hand, was proud of the artifacts. His place-meaning reflected a different imaginary that structured his interpretation as hopeful (see also Medak-Saltzman, 2017). The meaning of the artifacts, to Dan, were reflective of his people and their traditions in ways that ran contrary to Nerburn's interpretations. The technological artifacts are not artifacts in space – they are artifacts in place, part and parcel of the meanings of the place. The objects, taken in context, are interpreted differently by both parties.

The ways that technology relates to place can be more subtle than the overt interpretative differences between communities. For example, the hearth in a house is a common example of emplacement – Casey (1993) explains that the hearth was built in the center of Greek homes,

structured by the socioculturally experienced image-schematic of the Greek goddess of the hearth, Hestia. Hestia was said to be the first Greek deity to build a house and symbolized family life and household economy (p. 133). For the Greeks, the place-meaning of the hearth-centered home was structured by the sociocultural experience of the deity and, reflexively, the hearth structured the place-meanings of home and family. Perhaps not coincidentally is Albert Borgmann's (1987) example of the structuring effects of technology: "a stove [is] used to furnish more than mere heat. It was a focus, a hearth, a place that gathered the work and leisure of a family and gave the house a center" (pp. 41-42). Certainly, the emplaced hearth in both examples was intentionally used as technology, but as Borgmann recognizes it is not for mere warmth or cooking. The home-place, itself, structures interaction in the home in ways that are likely to be hidden without focused reflection. Similarly, the height of ceilings, the length of hallways, and the emplacement of doors and windows structures our place-meanings and interactions (Casey 1993).

These examples highlight two interrelated dimensions of artifacts-in-place – the materiality and the permanence of the artifact. Materiality, here, refers to the provenance of the artifact including both the material that the artifact is constructed of and the relative opacity/transparency of the process by which the artifact was created. Working horses[20], wooden tools, leather garments, and flax twine, for example, have an ephemeral materiality in that their existence (as an artifact) is relatively temporary in virtue of the material they are constructed of. Cars, plastic tools, polyester garments, and steel cable, on the other hand, have an enduring materiality in that they will exist as they are for much longer than their ephemeral counterparts.

[20] Horses may seem an odd addition to this list as they are not obviously an artifact. It is true that some horses – such as wild horses – are natural in the sense that their proliferation does not require human intervention, but working horses proliferate as a result of human intervention. They are selected, trained, and cared for by humans for specific purposes, just as the nursery tree is selected, pruned, and cared for to fill a specific need.

As illustrated by Dan's response to Nerburn, the experience of ephemeral artifacts prompted a different engagement with objects writ large – leaving an artifact where it is at when it is no longer useful would not add to the "clutter" of a landscape as it would go "back into the Earth." As artifacts are direct products of human intervention, ephemerality reminds us that the human world is not removed from the natural world – our things come from the earth and go back to the Earth. Ephemerality reinforces the porous or non-existing boundary between humans and their environments present in -community and -family imaginaries, whereas enduring artifacts reinforce a notion that human enterprise proliferates in spite of the natural world, reinforcing the human/nature boundary essential to -machine and -garden imaginaries.

Similar to the material provenance of an artifact is the relative opacity or transparency of the process by which the artifact was created. By process opacity/transparency, I mean to highlight that the process required to create an object can be either easily grasped by the experiencer or may be technically nuanced and not understood except by a minority of people. For instance, a hammer that consists of a rock tied to a wooden handle with sinew strap is process-transparent as many people would readily grasp how such an artifact was created. In contrast, a framer's hammer consisting of molded plastic and titanium, magnetic nail setters, and recoil dampening design is process-opaque as most people would not readily grasp how the hammer is created. This is due, in part, to the materiality – where the wood, leather, and rocks come from is obvious whereas the provenance of titanium and plastic is not so obvious. Materiality aside, the design of the framer's hammer is the product of technical acumen and process that is not available to many. The process of creating the wood/rock hammer can be understood by many whereas the process of creating the complex framer's hammer can be understood by only a few. Important, here, is the sense that upon experiencing an artifact we can

imagine – consciously or not – ourselves creating it (given the right materials and time) instead of being baffled by its creation. Transparent artifacts are more readily integrated into our life experiences as we apprehend the interconnections between material, process, and expertise in ways that are hidden by opaque artifacts. Opaque artifacts require a suspension of disbelief in that we understand that some process created the artifact, but we are unable to apprehend the process. We are not able to integrate the artifact into our life experiences as we do not know which experiences are relevant to the artifact – we do not know the provenance of the materials, the design, or the manufacturing process. This relative (non)integration is again important to the development of our imaginaries. Somewhat paradoxically, opacity reinforces a take-it-for-granted simplicity that prevents us from recognizing how we are integrated in our environments and grappling with the complex interdependencies of dynamic thinking. Transparency, in contrast, makes visible the complexities of our integration into our environments as we are able to fully place our artifacts within the intricacies of our worlds, reinforcing the dynamic thinking and porous boundedness of our lives within our environments. The process-opacity of an artifact helps us understand our place within the environment, either as apart from it or a part of it.

The materiality of our emplaced artifacts is also related to the permanence of those artifacts or, more specifically, the artifact's ability to withstand stressors and/or adapt to changing circumstances. Artifacts range between fragility and durability, referring to the relative ability of an artifact to endure throughout repeated use and/or degradative processes. Although integrally related to the ephemerality or endurance of an artifact, fragility/durability diverges in that the materiality of the artifact will impact its fragility, but it is not wholly responsible. For example, some glass artifacts are fragile with respect to their repeated use, yet durable with respect to degradative processes. Some wood tools, on the other hand, gain durability by

repeated use due to our hand's natural oils protecting the wood whereas these same tools are susceptible to degradative processes without use. Importantly, however, is the sense of responsibility we have to our artifacts depending on their general fragility/durability. Fragile artifacts require care, whether that be through repeated use, maintenance, or protection. Durable artifacts do not require the same care as they retain their integrity sans human use, maintenance, or protection.[21] Thus, fragile artifacts prompt experience of responsibility and care, key notions in the -community and -family imaginaries, whereas durable artifacts do not. The experience of responsibility, especially to objects that for many are assumed to be inanimate, is important as it can be extended to care for other non-artifact things.

Perhaps more important than the fragility or durability of an artifact is the adaptability of that artifact. This adaptability refers to both/either the ability of the artifact to be used as it is in a different circumstance and/or the modification of the artifact itself to be re-tooled for a new need. Artifacts range from being versatile to being rigid, referring to the overall adaptability of the artifact for changing circumstances. For example, a pocketknife is highly versatile as it can be used in many different situations – it was not created for a singular purpose. In contrast, a cement curb is rigid as it is functionally limited to a small range of tasks, namely to prevent certain size vehicles from entering certain areas with ease. Its rigidity is due, in part, to its materiality – the cement is too heavy to be easily moved elsewhere and too hard to be easily re-tooled. However, a curb made of wood can be moved, chopped, burned, and re-shaped much easier than concrete, rendering it more versatile than its concrete counterpart. Adaptability, whether versatile or rigid,

[21] It should be noted that all these characteristics of artifacts are temporally relative. Given enough time, the majority of artifacts will "go back to the earth" through degradative processes and many durable materials can be worn through repeated use. Thus these characteristics are relative to our own sense of time. This should not be surprising as our experiences are necessarily limited to our lifetimes and thus our lifetimes act as a relative benchmark which we relate durability (and other temporal characteristics) to.

is not an inherent property of the artifact, as to know whether something is adaptable requires answering adaptable *to what* and *by whom*. Some communities will find artifacts adaptable that others will not, varying both by their own experiences with the materiality and process-opacity of the artifact. Machinists may see vehicles as versatile as they perceive the machine as process-transparent and can re-tool it as needed whereas others see them as rigid as they cannot adapt it to changing circumstances.

Adaptability is largely relative, yet this relativity is tempered by the social imaginary guiding our artifact-interpretations. In relating Indigenous views of technology to Nerburn, Dan recognizes that

> If a car is new and shiny…then you say it isn't trash. If it is old and can't go, then it is trash…[but] Maybe we're still using it. That was the Indian way. Use every part of the buffalo. Make ropes from its hair. Make drumsticks from its tail. Some of these people are making one car out of a lot of them. I'm making a dog house out of mine. (ibid, p. 77).

Here, Dan suggests that his communities' imaginary recognizes artifacts as versatile – an imaginary that stems from the experience of using "every part of the buffalo". In contrast, the dominant imaginary constructs artifacts as developed for a singular purpose, limiting the communities possessing these imaginaries to interpret their artifacts as rigid (i.e. an inability to recognize the versatility of the object) as well as construct more rigid artifacts (i.e. the materiality and process-opacity of artifacts prompt a rigid interpretation). The experience of artifacts as versatile – whether it be due to the artifact's construction or the interpretation of all artifacts as versatile/rigid – reinforces the imaginary that guides future experiences of artifact adaptability. Similar to the ephemerality, materiality, and process-opacity of artifacts, experiences of adaptability reinforce the either staticity or dynamism within diverging imaginaries. Versatile artifacts can be re-tooled to meet varying conditions, similar to the ways in

which Indigenous seasonal rounds can be seen as re-tooling social institutions to meet varying conditions. Rigid artifacts reinforce the experience of static emplacement; the artifact just *is what it is*, similar to the static imaginary prompting settlement as finding a place and weathering whatever comes (with a notable lack of re-tooling sociocultural, economic, and political institutions).

Our built environments are comprised of artifacts that, taken together, help develop a community's sense of place. Although it is not likely useful to evaluate any particular artifact, the aggregation of artifacts and natural features allow comprehensive place-meanings to emerge. The interpretative dimensions of artifacts described above are useful in describing the emergence and reinforcement of varying imaginaries as our built environments are places and our places guide the experiences that are metaphorically extended in our imaginaries. On this account, our artifacts range across various materialities and permanencies with each possessing different degrees of ephemerality and endurance, transparency and opacity, fragility and durability, and versatility and rigidity. In general, artifacts with high degrees of ephemerality, transparency, fragility, and versatility are more easily integrated into our natural habitats and life experiences in ways that reinforce a porous (or lack of) human/nature boundary and a dynamic, non-linear epistemology. In contrast, artifacts with high degrees of endurance, opacity, durability, and rigidity are not so easily integrated into our natural habitats and life experiences, reinforcing a non-porous human/nature boundary and a linear epistemology. As admitted in chapter three, in practice our place-interpretations cannot be so neatly cleaved and we should not be surprised to discover imaginaries that are not described by these dimensions and/or imaginaries that are an amalgamation of multiple imaginaries. However, these dimensions help to describe (in broad

strokes) the varying built environments in the American West and their role in the development and reinforcement of various environmental imaginaries.

In general, built environments in the United States range from the urban to the rural. This distinction is significant in the American West as the desolate landscape (so perceived by Euro-American settlement) prompted development around the relatively few consoling places in the arid desert – the flat, arable, water-rich valleys – leaving the majority of land undeveloped and sparsely populated. Urban centers are densely populated (relative to the West as a whole) and quickly give way to rural landscapes. In turn, the rural landscapes quickly give way to undeveloped public lands, which make up the majority of western landscapes. This gradient from urban to suburban to rural and then to far-rural is further discussed in the following section, but it is informative in light of the artifacts that each place holds.

Given the nature/artifact distinction espoused above, urban centers can be seen as predominantly artifact – they are near-fully constructed, curated, pruned, and landscaped according to the intentions of their communities and institutions. The far-rural (development furthest from the urban centers) are also artifact, yet to a much lesser degree. In the West, rural populations often live surrounded by public lands and public lands (managed by the federal government) cannot be developed without a lengthy National Environmental Policy Act (NEPA) process. Not only is the degree to which the environment is developed suggestive, but – and to the point of this discussion – the artifacts that are constitutive of the built environment are telling.

Urban centers are constructed of durable, process-opaque materials that are intentionally designed to endure both degradative processes as well as natural disasters, e.g., engineered buildings to withstand earthquakes. As explained above, these characteristics of the built

environment give us places that are experienced as apart from the natural environment. The artifacts surrounding us are not easily integrated into our worlds – they do not admit of their manufacturing and design processes and are not adaptable to varying conditions. They are made to withstand against nature, reinforcing an imaginary of being bounded from nature.

Rural places are also constructed and intentionally designed, yet significantly depart from the durability of urban centers. Much of the built environment is ephemeral – dirt roads, wood-rail fences, and dirt banked ditches all put in service of agriculture which is, itself, an ephemeral artifact (recalling the intentionality of artifacts). Much of the built environment in rural areas is not specifically designed to endure, requiring constant upkeep to maintain fragile artifacts that reinforce experiences of responsibility and care for these constituents of place. The often celebrated simplicity of rural environments is a reflection of the process-transparency of the artifacts and their relationships to each other – we can imagine their creation, integrating our skills and knowledges into the paradoxically complex construction.[22] We do not need to suspend disbelief regarding the provenance of the built elements of these rural landscapes, instead recognizing our place qua human being as the progenitor of the artifact and, by virtue of this, recognizing the dynamics of ourselves in place. The interconnectedness of ephemerality, fragility, and process-transparency prompts experiences that reinforce the dynamic, non-linear thinking and porous boundaries that characterize imaginaries of humans as a part of nature.

I must emphasize that as described, these characteristics form an ideal that is hardly – if ever – realized in our reality. Urban centers do in fact have ephemeral and fragile characteristics and rural places have enduring and durable characteristics. Our built places are complex

[22] The construction may not be complex, per se, but recognizing the process of construction is prima facie recognizing more complexity than suspending disbelief regarding the construction and taking the process-opaque artifact on face-value.

heterogeneities that cannot be neatly cleaved and, as such, our experiences of varying places are of a multiplicity of characteristics of that place. Imaginaries are not simple constructs that can easily be traced – to recognize the imaginary is to recognize the complex multitude of experiences that, over time, coalesce into persistent metaphorically-extendable schemas. In general, however, the more that we experience certain characteristics the more we may expect diverging patterns to emerge. Also, the more attention we pay to our (and other's) experiences of certain place characteristics, the more we may recognize previously unrecognizable schemas. Urban dwellings with gridded streets, manicured landscapes, and ordered lots are structured from and reinforce imaginaries of non-porous boundedness and linearity. The errant bike, broken down cars, and ephemeral built landscapes of rural places are structured from and reinforce imaginaries of porous (un)boundedness and dynamism.

The natural and artifactual things of our worlds are emplaced, providing meaning and interpretative experiences to the emplaced individual. The ways that our places structure meaning can evidence the ways in which different communities dwell in place, as well as the imaginaries they bring to bear when interpreting place-meaning of other places, such as Nerburn and Dan's divergent interpretations of artifacts on the reservation. Regarding the natural and artifactual things of our places in the abstract is useful in developing concepts that center our experiences in the world instead of centering the world itself in our epistemic projects, but this may not be wholly convincing without concrete illustration. Much of the power of diverging imaginaries lies in their relative boundedness (porous, non-porous, non-existent) and this boundedness pervades our place-interpretations as described through the permeability, materiality, and permanence of our places and the things they are constituted of. Boundedness, however, is not merely a conceptual construct – it is materially constructed and socially enacted

in our landscapes through fences, walls, and other obstructions. As fences et al. are both material and social instantiations of our imagined boundaries as well as emplaced artifacts prompting interpretation, they are salient examples of how our imaginaries both structure and are structured by our places. Thus, fences[23] provide concrete illustration of the abstract dimensions of our places described above.

Fences as Material Boundaries

Fences in the American West are as varied as they are ubiquitous throughout the landscape. Although the nearly 640 million acres of federally managed public lands is relatively protected from development, much of it (especially those parts that are relatively accessible – recall the impact of *permeability* on our place-meanings) is crisscrossed with various fencing. Rural agriculture is enclosed by fencing and suburban homes are separated by fencing. Urban spaces are permeated with boundaries such as the cement barriers dividing traffic and chain link enclosing vacant lots. Those traveling between the urban center and far-rural places in the West may recognize that a sort of fencing-pattern emerges – the fence-boundaries that occur along the urban/suburban/rural/far-rural landscape are distinct to each landscape yet vary wildly between landscapes in their purpose, materiality, and permanence.

Fences are technological artifacts. These sorts of technologies are often characterized as extensions of our own capacities, augmenting our bodies in order to enact desires that are beyond the purview of our natural endowments. Fences, in this sense, are extensions of our defensive and resistant bodies allowing ourselves to "fend off" the other or "fence in" that which we wish to hold close. However, the instrumentality of the fence as an extension of the body does not readily admit to the experience of the fence beyond that use which it is intended. Vine Deloria

[23] For ease, I use fences to refer generally to material boundaries, although I recognize that not all material boundaries may be considered to be a "fence."

(2001) reminds us that artifacts have "their own power and wisdom" (p. 62) – it is not sufficient to merely ask how the artifact works or what use it is, but to also ask "What does it mean?" (p. 63). Answers to this question may be diverse, but, at least in part, I take it to point towards the relationship between the artifact and those experiencing the artifact – a relationship that is not easily reducible to instrumentality or materialism. The power of the artifact, or in this case, the fence, is somewhat revealed in how the fence is experienced. How the fence is experienced is a reflection of the dimensions of the fence that promote varied interpretations such as the materiality and permanence of the fence, themselves a reflection of the desires (guided and constrained by varying imaginaries) of those who constructed it.[24] Fences are constructed artifacts that reflect the imaginaries of those who constructed them, and, in turn, present themselves to be interpreted and experienced by others, thereby constructing and reinforcing imaginaries impacted by those of the constructor's.

Take for instance the barbed wire fencing that is used across the West to manage large livestock herds. To Euro-American settlers operating within an imaginary of colonial progress, modernism, and Christian dominion, barbed wire was an obvious technical solution to demarcate land – public or private – and control the movements of livestock as, during settlement, it was "increasingly inexpensive and…used to control motion and space, on a massive scale, exploiting its capacity for mass production and its power of violence over flesh" (Netz, 2004). Barbed wire is a material enactment of those imaginaries that interpret nature as a wild force to be tamed and controlled through industrial ingenuity. To progress as a settler-nation required the demarcation of property and the control of wildness both within and without that property – control that

[24] Materiality, as used here, is meant to point to the material dimension of our experiences and not that our experiences are essentially described by materiality. Materiality is, therefore, a necessary but not sufficient component of our experience.

recognized livestock as objects to be manipulated through the violent tearing of flesh. In an early advertisement for barbed wire from I. L. Ellwood & Co. (Figure 3), barbed wire is described as providing "safety to passengers and property…last[ing] twice as long as any other kind of fence…sparks do not set it on fire, floods do not sweep it away" and being exalted as "the Pioneer barb fencing"(Glidden steel barb wire manufactured by I. L. Ellwood & Co.).

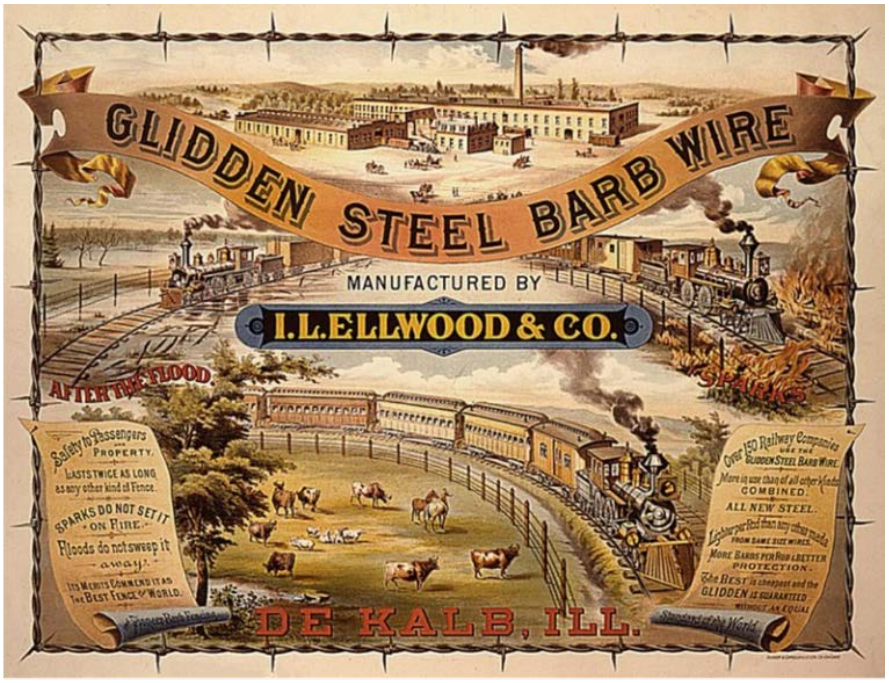

Figure 3 – I.L. Ellwood & Co. barbed wire advertisement

The desires of a settler-colonial nation were being enacted through barbed fencing, desires that reflected imaginaries of private property (and the objects – presumably livestock – that were considered property) and standing against nature through fire and flood. Barbed wire is enduring in that it does not require continuous upkeep and its rigid in that it resists being adapted to changing circumstances. The enduring and rigid qualities, combined with the violence inherent in the barbs, further reinforce the same imaginary that allowed for the proliferation of the fencing – an imaginary that recognizes the non-porous boundary between humans and nature and the suspension of dibelief regarding the provenance of our technologies that obscures the

complexities of mass industrial production and distribution that, in turn, encourages the linear epistemologies conditioning mechanistic and reductionist perspectives.

In contrast, consider worm fences that are constructed from split rails and zig-zag across the landscape. While these are also used to further property demarcation and control movement on the landscape, they do so under much less violent conditions. They are ephemeral as they are made of wood that will require upkeep or, in the language used above, they require a responsibility to the technology that enduring and durable technologies do not require. Worm fences do not require vertical posts anchored in the ground and can be moved to respond to changing circumstances such as stream banks moving through the evolution of water channels. They do not limit wildlife crossing and due to their zig-zag design, allow for natural ecosystems to proliferate in their corners. Although their purpose is to prevent livestock movement, they do so in a way that does not impart the violence of tearing flesh, instead gently suggesting movement instead of forcibly preventing it. They are imperfect and do require more care than industrial counterparts, but the requirement for care also reinforces our sense of responsibility and consideration to our worlds in light of the natural processes that will impact the fence.

Aside from barbed wire and worm fences, privacy fences are commonly used to fully demarcate property in suburban communities. Privacy fences are primarily constructed from wood planks that have little spacing with the intent to fully prevent the other from crossing, whether it be moving across the fence or merely seeing through the fence.[25] These enact complete non-porous boundaries where my actions are removed from my neighbor's and vice versa. Their ephemerality is tempered with stain and paint with the express intent to slow natural degradative processes. Unlike split rails which retain the curves and erratic lines inherent in the

[25] It is worth noting the proliferation of vinyl privacy fencing which holds the same characteristics of wood plank fencing while also removing the natural materiality of the fence.

tree being split, privacy fence planks are milled to consistent rectangular shapes that erase the character of the tree that they are created from. This erasure reflects the imposition of order on natural processes – the same imposition reflected in constructing straight roads through landscapes instead of allowing our technology to operate in concert with natural forms. Privacy fences reinforce both the boundedness of the other and views of individual ownership that limit our responsibilities to the other. The ephemerality of wood planks does elicit a sort of integration with the natural world yet is tempered by control and manipulation in order to suit our sociocultural desires (e.g., privacy).

Among barbed wire, worm, and privacy fences are an array of fence-types that vary along the materiality and permanence characteristics described above, among others not described here (e.g. the ability to permeate the fence, the intended outcomes of the fence, the relationship between the fence/those bounded by the fence/those aiming to bound, the sociohistorical role of the fence). Following Vine Deloria, we must ask what these fence-types mean – what is their power and wisdom as emplaced artifacts and what can we learn by reflecting on our own experience of fences. The role of mundane or invisible technologies (e.g. fences, hiking boots, water bottles), generally, is complex and multifaceted, yet as intermediaries between our pure bodies and our experiences of our environments they warrant reflection (c.f. Borgmann, 1987; Michaels, 2000). It is beyond the scope of this project to describe the multiple variations of fencing and the ways that experiences of them can reinforce those dimensions of our imaginaries that are metaphorically extended to our interpretations of the environment. As Davis and Williams (2008) recognize, the "contentious interpretations" of fencing constructs "physical, philosophical, and psychological barriers of all types…Fences skirt our properties—and our minds" (pp. 243-244), and it is just this skirting of our minds that I seek to describe. Future work

would do well to better elaborate on the ways that our embodied and sociocultural experiences of materially manifested boundaries are interpreted to develop and reinforce those boundaries that operate in our environmental imaginaries.

Perhaps more important to this project, however, is the way that attending to fence-types can inform collaborative environmental governance in the American West. There are three broad considerations coming from fencing. First, given that ontological boundaries of varying qualities are critical to diverging environmental imaginaries, recognizing these divergences (and, subsequently, facilitating in light of them) is necessary for productive collaboration. Attending to people's preferred fence types can illuminate those dimensions of their imaginaries that can be difficult to ascertain through ratio-discursive reflection.

Second, the consideration of fencing (or boundaries in general) in collaborative decision-making must be paid attention, especially as current fence discussion rarely (if ever) moves beyond the level of cost-effectiveness and convenience. Fencing and boundaries are ever-present in environmental governance in the West and are thus overlooked opportunities to engage with the embodied experiences (and metaphorically extended imaginaries) of western communities. Briefly, I contend that when collaborations decide to bound something – perhaps a natural spring in a cattle pasture or a riparian exclosure to prevent grazing – they can more intentionally reflect on the implications of the chosen boundary. Choosing boundaries that promote responsibility and care through their inherent ephemerality and fragility gives collaborations opportunities to physically toil together in ways that reinforce desire to collaborate in other venues and on other projects (see chapter 6 for more on this).

Lastly, reflecting on body/fence/nature relationships is humbling and this humility is, itself, a sociopolitical divergence from the (relative) certainty of mechanistic analyses. As

Michael (2000) recognizes, these technologies operate on such "mundane a level…that there can be no overarching principles by which to derive 'what to do' as an environmentally concerned actor. However, this is the point. It is an analytic that 'advises' modesty and caution…" (p.122). The act of fence-reflection – or any other mundane/invisible technology – in collaborative forums performs the caution and modesty that collaborative places require.

Conclusion

Returning to a claim made at the beginning of this chapter, as embodied beings we are necessarily emplaced as, following from Casey (1997), there is no place without body [and]…there is no body without place…our own embodiment brings implacement—as well as continual reimplacement—in its immediate wake" (p. 104). This diverges from many "sense of place" analyses in that many seek to inscribe place where none was before (c.f. Drenthen, 2009). Analyses of either sort, I contend, are not incompatible or otherwise irreconcilable. We are always and necessarily emplaced, but the power of our places (comprised, in part, of the artifact and natural things in place) may develop and reinforce imaginaries that themselves do not recognize the power of place as in, for instance, -machine imaginaries relying on materialist and reductionist explanation. We might call these "self-depreciating" places as the place itself may appear as a non-place since its power compels non-place explanations and narratives. Thus, to inscribe place where none was before can be seen as a reconfiguration of place as to compel its own recognition as a place.

Place, whether self-depreciating or recognized as such, is critical to understanding how our varying embodiments experience our world and, concomitantly, how our imaginations metaphorically extend those experiences to other facets of our lives. The desolation that many

Euro-American settlers experienced in the American West can be seen, here, as a characteristic of a self-depreciating place. However, as communities recognize their emplacement through concerted reflection of the power of those places, their imaginaries may develop a reticence towards those experiences that ignore, distort, or arrest the power of place. The landscape of the American West – including its natural, sociocultural, and technological components – requires an emplaced politic that recognizes the power and wisdom of place. Embodied co-laboration, I suggest, is such a politic, but it must be reconciled with the predominant ratio-cognitive collaboration and the impacts of the settler-colonial imaginary in its various forms that permeate current efforts. In particular, the role of science in environmental and collaborative governance must be attended to with respect to the emplaced communities in the multiple American and Indigenous Wests.

EXPERIENCING SCIENCE

> "Any experience is mis-educative that has the effect of arresting or distorting the growth of further experience." – John Dewey (1938, 25), *Experience and Education*

Contemporary environmental governance is complex as it must consider a wide range of institutions (e.g., economic, political, social) across varying spatial and temporal scales (e.g., local to global, present to future) while respecting diverse values and worldviews (e.g., environmental imaginaries) enacted at different social levels (e.g., individual, community, nation), all within the context of the uncertainty regarding our knowledge of the complex ecosystems we inhabit (Lemos & Agrawal, 2006). If we take environmental governance to be governing the behaviors that impact our environments (at whatever level and scale one chooses), then we may be tempted to say that environmental governance encompasses most of human activity. Although this may be trivially true, it is suggestive as it lays open the sorts of knowledge that is applicable and relevant in matters of environmental governance. Scholars have met this variety in kind with research and study spanning across the arts and sciences that reflects on and interrogates the impacts of humanity on our environments. In short, the study of environmental governance is parsed and organized across many scales, levels, dimensions, and disciplines within and without the academy.

However, the practice of environmental governance has not followed suit. Although there are those that seek epistemic diversity in matters of the environment, by and large the governance institutions that are deemed responsible for and wield the most power in maintaining our environments widely rely on scientific knowledge to guide the rules, regulations, policy, and law that condition human behavior in our natural environments. To be sure, non-scientific inquiries do influence scientific management through ancillary considerations, such as

environmental justice concerns, political culture, and the role of values in science. These considerations, among others, do impact environmental governance, yet the predominance of and reliance on scientific institutions cannot be understated. This may merely be a problem of priority – it is not that these ancillary considerations are not important, only that they must be compatible, comprehensible, and/or articulated through the norms of science. For instance, the concept of *place* described in the previous chapter resists the generalizable, quantified, and objective qualities that are prized of scientific knowledge. On the surface, we might assume that this relative incomprehensibility may render the concept opaque to science – and, by extension, opaque to environmental governance – yet ancillary studies have developed the concept sufficiently to be taken seriously by governance institutions. However, place as "sensed in a chiaroscuro of setting, landscape, ritual, routine, other people, personal experiences, care and concern for home, and in the context of other places" (Relph, 1976, p. 29) resists scientific translation. If contemporary environmental governance wants to take place seriously, it must reform the concept of place in ways that cohere with scientific norms. Writing on "sense of place" being used in geoscience pedagogy, Steven Semken (2005) illustrates this translating of the concept of place into a more functional vocabulary:

> Place is distinguished from space by being socially constructed and local, rather than quantitatively described and universal…Land managers and planners have recently been encouraged to factor sense of place into their decision-making processes, adopting a more ecologically holistic, rather than economically-driven, approach to resource use…Such an approach requires a clear definition or even a quantification of sense of place, and this has led to development of psychometric models and methods… (p. 149)

Within a few sentences, Semken clearly regards sense of place as resisting quantitative and universal description, but then proceeds to "require" clear (read: universal) definition and quantification if it is to be useful to land managers. Again, this may be seen as a matter of priority – although sense of place as an obscure and complicated concept is important, it must be

made legible to science in order to be useful for environmental governance. If, on the other hand, contemporary governance valued these ancillary considerations in their own right, then it would not require translation since translating an essentially non-quantifiable and non-universal concept into quantifiable and universal terms will clearly change the concept at the risk of impoverishment. In this case, it is likely that the governance institutions themselves would require retooling in order to develop methods that are responsive to these sorts of ancillary considerations as described in chapter six.

None of this is meant to suggest that science is not a reliable form of knowledge, valuable for our governance projects, or should be disregarded in any way. It is meant only to illustrate the predominance of scientific knowledge in environmental governance and the impulse to translate non-scientific considerations into scientifically coherent concepts before they can become useful. But, as with place, some aspects of human experience resist universal, quantified, objective description. Take human experience itself, as described in chapter two. Our experiences are continuous, being conditioned by both our external environments and our internal attitudes as well as those experiences that came before. Some of them are forceful in ways that we recognize them as having *an* experience, yet many of them are inchoate such as our experience of the artifacts in our environments. Experience is, presumably, a complex combination of objective external conditions and subjective internal attitudes, discrete in some ways (such as my spatio-temporally located experience of a certain desk) yet ultimately continuous. They are often unrecognized as our inchoate experiences far outnumber our intentional experiences, and characterized by an infinite and unknowable amount of past experiences. How are we to maintain scientific objectivity, reliable measurement, and

universality when our subject is inherently amorphous and impacted by, while concomitantly impacting, the scientist's own experience?

I do not aim to substantively answer this question as, plausibly, any answer will make the same prioritization errors described above, namely that by translating phenomena that resists scientific comprehensibility (i.e. objective, universal, and/or quantifiable) we risk impoverishing the phenomena itself. Our experiences, imaginations, and place-meanings are crucial to how we conceive of, live in, and appreciate our environments, yet it is difficult to see how these can be made functional to contemporary governance as scientific concepts. It is tempting to shoehorn these facets of our lives into governance discussions by demanding that they be treated without scientific translation in our environmental decision-making, yet this does not grapple with the underlying tensions regarding the difficulty in employing concepts that are perhaps fundamentally incommensurable with current institutions. I contend that it is not just that the norms of science (and scientific governance) disallow the treatment of experience/imagination/place in governance, but that the *experience* of science "arrests or distorts" (quoted in the epigraph of this chapter) future experiences, developing an imaginary that is unequipped to treat these amorphous dimensions of our lives.

In order to understand how science can promote these arresting and distorting experiences, it is first necessary to understand what I mean by "science" as it is uncharitable to homogenize such a diverse activity. Scientific activity ranges across subject material, methodology, and accepted practices in ways that make it difficult to generalize the experience of science (in general). Despite this diversity, there are recognized activities and norms of science that taken together promote the experiences that function to limit the uptake of incommensurable orientations. This chapter describes this process through discussion of

scientific experience in general and the particular experiences of measuring, grouping, and realism, ending with a discussion of scientific management in the American West and our opportunities to move toward a more holistic and diverse environmental governance.

Scientific Experience

Given that our experiences are continuous, meaning that we are constantly in a state of experience whether it be forceful or inchoate, any of our activities will necessarily be experienced. The character of that experience, however, is dependent on the activity including both the environing conditions it takes place in, and our attitudinal dispositions toward the activity. The infinitely various characteristics of our activities are, as described in chapter two, taken up and organized in our imaginations to be metaphorically extended to other aspects of our lives; thus, attending to the ways in which scientific activity – proliferate in environmental governance – sets the conditions for our experiences is helpful to understand how the norms and tenets of science are extended onto other, perhaps less-scientific, aspects of our lives. It is well beyond the scope of this project to fully describe the scientific experience as, *prima facie,* it will vary across time (as norms develop and evolve), discipline (as the disunity of science highlights ontological tensions between the disciplines themselves, a la Dupré [1983],), and individuals (as each individual scientist's experiences will differ based on their own past experiences).

Although scientists have a unique experience of science given their proximity to the process, they are not alone in experiencing science. The prominence of science in issues of governance, technology, and society at large guarantees that a large number of non-scientists will experience – even minimally – science. If we are continuously experiencing and, at times, we encounter science, then in some trivial way we all experience science. The power of these experiences will likely depend on the quality and quantity of the experience along with prior

dispositions toward science, such that people who rarely have meaningful encounters with science will not develop imaginative and metaphorical extensions that draw from their minimal experience of science. In contrast, those complacent within the scientific institution – either as researchers, community outreach specialists, or the various administrators upholding and safeguarding scientific values – will likely develop imaginative and metaphorical extensions that draw heavily on their scientific experiences.

The infinite diversity of individuals between these two positions makes it difficult, perhaps impossible, to determine with any sort of reliability the character or quantity of experiences that render certain metaphorical extensions. But this suggests only that we cannot determine the exact imaginative potential of the individual, leaving space open to evaluate the experiential potential of the situation. By this, I mean we may not know how an individual will experience a scientific situation as their experience will rely on an immeasurable set of prior experiences, but by understanding the situation sans the specific experiencer we can recognize a broad set of experiential possibilities that describe the potential experiences of the individual.

Taken together, the task of describing the scientific experience appears, minimally, daunting. Here, I do not take up the task of describing a full taxonomy of scientific experience, instead evidencing the experiential potential of scientific experiences by briefly evaluating only a few paradigm examples of scientific activity. Following from Hasok Chang (2011), one helpful way to distinguish between different types of scientific activities is to distinguish between operational activities and mental activities, although Chang himself rejects this "atomistic analysis," recognizing that these two dimensions of scientific activity are a mere projection of a much more complex activity and, as such "[w]e cannot literally construct the [complex activity]

from the projections, but studying the projections does provide important insights about the [complex activity]" (p. 210).

The complex activity of science – and the experience it provides – can thus be illuminated through studying these operational and mental projections. However, these activities are not unrestrained. They occur within the institution of science and are thus normatively constrained. Again, Chang recognizes this as "activities are rule-bound systems of actions, they are inherently normative in the sense that the actions within [a scientific] activity are continually evaluated in terms of their conformity to the rules" (p. 209). These normative rules structure the actions and activities of the scientist and are thus critical to understanding the experience of science as the individual's experience is importantly constrained by the expectations and demands placed upon them by the normative institution. This suggests that an analysis of scientific experience (thin as it may be) must recognize the operational aspects, the mental aspects, and the normative aspects of scientific activity.

The paradigm examples I evaluate here are the operational activity of *measuring*, the mental activity of *grouping*, and the normative criterion of *realism*. What I mean by these will become apparent in the following discussion, but briefly I take *measuring* to be the activity of describing the size, shape, amount, quality, etc. of a phenomenon by appealing to uniform standards of comparison; I take *grouping* to be the mental faculty of organizing phenomena by appealing to shared characteristics of the constituents; and I take *realism* to be the attitude that our scientific knowledge is that of a mind-independent reality. I recognize that each of these (measuring, grouping, and realism) are complex ideas that have been analytically treated in the literature (c.f., Kendig, 2015; Savage & Ehrlich, 1992) and while describing these complexities may be useful, it is plausible that the everyday occurrence of science most commonly

experienced is not reflected on with the sort of nuance that these accounts provide. Put a different way, most people carry out these activities in these normative institutions with a sort of ignorance to the analytical intricacies of the activities and norms. Therefore, these general definitions serve as a jumping off point to broadly evaluate the ways that science is experienced while a more nuanced account would require recognition of both the particular circumstances and the individual experiencer of a situation to fully explicate the specific experience.

Measurement in our lives is ubiquitous. Assume, for example, that you wish to make a beef stew and find a recipe that looks appealing. Thanks to Fannie Farmer, a 19th century chef whose book *Boston Cooking-School Cook Book* introduced standardized measurement into recipes instead of the imprecise pinch-of-salt, handful-of-sugar, and plum-size-of-butter of the times, adherence to the measurements and methods of your recipe will assure that your beef stew is comparable to the beef stew of the recipe writer. The standardized measurement of ingredients in our recipes may seem trivial, yet it is an apt example of measurement in general. Measurement allows the chef to guarantee their results, share their recipes, and reliably compare their culinary dishes by evaluating the quantities of the constituent parts of the dishes. Prior to standard measurement, preparing quality beef stew required a personal familiarity with stews in general, the specific components of stews, the methods of stew production, and the preferences of those eating the stew (among other considerations). To borrow from common parlance, prior to standard measurement preparing beef stew was *not a science*. It is not accidental that Fannie Farmer introduced these standard measurements at a time when the Morrill Land-Grant Acts (1862, 1890) were promoting the study and teaching of trade skills, including domestic and home economics (Richards, 2000). The creation of academic programs around home economics introduced activities such as cooking to scientific investigation and methodology, including the

standardized measurement of our recipes, and more broadly measurement to many (if not all) aspects of our lives.

Standardized measurement allows the chef and the scientist to guarantee reproducibility, develop common practices in order to share methods and results with each other, and learn more about their own projects by studying the constituent parts of their projects. But, in doing so, it also obscures the immeasurable aspects of their projects that, upon recognition, may require a different comportment to confront. But, I am not arguing for a philosophy of measurement *per se*, but that the experience of measuring operates in our imaginations and metaphorical extensions in ways that need to be recognized. To be sure, this is a nuanced distinction. Whereas a philosophy of measurement asks "what is the nature of measurement?" an evaluation of the experience of measurement asks "how are we impacted by measuring?" The nature of measurement certainly matters much in the same way as the nature of our environing conditions matter to condition our experiences, such that what we are measuring and the reliability of that measurement condition how we go about measuring (i.e. experience measuring).

If, for instance, we take our measurements to be approximations of objective qualities of the measured (mind-independent) phenomenon or, simply, measurement realism, then we may opt for measurement apparatus and processes that aim to reduce the distance between our measured values and the objective qualities being measured (Michell, 2004; Trout, 1998). The focus here would be on creating instruments that track objective qualities and relations – whatever these instruments may be, we can be assured that they prompt experiences that are conditioned by the particular instruments. Put differently, we will have experiences of the instrument *and* experiences of measuring – although they are related and the experience of one will be influenced by the other, the experience of measuring is common across many instruments

whereas the experience of the instrument is particular to that instrument. This discussion focuses specifically on the experience of measurement while recognizing (and putting to the side) that the instrument being experienced may play a role in the experience of the measurement.

The nature of measurement one explicitly or implicitly subscribes to – whether it be representational, operational, conventional, realist, or something else altogether (c.f. Savage & Ehrlich, 1992) – will track and be conditioned by the commitments of the particular philosophy of measurement subscribed to, developing instruments and practices that track the relevant phenomenon. Common to theories of measurement, however, is the *act* of measuring – despite our varying beliefs in what we are measuring and how reliable that measurement is (according to the nature of measurement), our measurement activities prompt an experience of measurement.

To measure requires something to measure (the phenomena), a measurer (the experiencer), and some mediating process that tracks the relevant qualities in some standard way (the measuring). That measuring requires something to measure is straightforward, but it is also telling – to delineate the thing to be measured is to decide what sort of phenomena count as the "thing" as opposed to the "not-things." It should be noted that this is inherently a boundary-setting process (as described in chapter three), but I do not wish to belabor that point here. Importantly, though, is the discreteness of the boundary-setting. Whether or not the attended phenomena is ontologically discrete is an important metaphysical matter (recall that discreteness prompted Democritus' atomism), but it is not so important to the experience of discreteness. To measure a phenomenon is to imply that the phenomenon can be distinguished from other phenomenon in some way – it is this distinguishability that renders the experience of discreteness. We may have rational (i.e. cognitively justified) reasons to believe that the phenomenon in question is continuous, yet by applying measurement we experience the

phenomenon as discrete (or, at least, that the constituent components of the phenomenon are discrete). Again, I do not make any claims to the ontology of that which is measured, only that our predilection for measuring asks us to experience the phenomenon as if it is discrete in order to isolate the qualities and/or values that are important for our project. The targets of our measurement become discrete-able in order for us to measure, begetting an experience of discreteness in the process of measurement.

The discreteness of measurement is integrally tied to the quantification of measurement in that discrete units – whatever they may be – can be counted and mathematically manipulated in ways that the phenomenon sans measurement may resist. The numerical analysis of non-numerical phenomena is ever-present in contemporary science, allowing for complex mathematical analyses that help us to understand the phenomenon in question. The epistemic power drawn from measurement via the scientific institution cannot be understated – our ability to measure and mathematically represent our world is critical to the scientific progress enabling our understanding of our world. Aside from the epistemic power quantification affords, the quantification of measurement also allows us to impart standards to compare and contrast seemingly diverse phenomena. For example, our understanding of the relationship between matter and energy, famously expressed as $E=MC^2$, relies on the standardization of the quantification system it is written in. We can relate energy and matter and, in so relating, understand more about our world through the standardization of the system we use to represent both phenomena. The numbers and operators of our equations mean the same thing across different formulations, regardless of the phenomena they were derived from. In a recipe, 1 cup is just 1 cup – it may be 1 cup of flour or of sugar, but the measurement, quantification, and standardization of 1 cup is familiar across recipes requiring either flour or sugar.

I do not argue that these characteristics of science are wrong, misguided, or otherwise unreasonable. However, our experience of these characteristics, especially given the quantity of these experiences in the scientific institution combined with the epistemic power given to them, can be taken up in the imagination and extended to other aspects of our world that may resist measurement, quantification, or standardization. The complex interplay between the experiences of measurement, including discreteness, quantification, standardization, and the epistemic, political, and social power afforded the scientific institution is critical to the development of an imaginary where the important aspects of our world (however decided) are those that *can be* measured, quantified, and standardized. These imaginaries can manifest in many different ways from the preference and prioritization of some phenomena over others, the reduction of immeasurable phenomena to measurable (i.e. discrete) units, and the (often implicit) disregarding of phenomena that resists measurement. In the recipe metaphor, these manifestations can be seen as preferring recipes that have measurements to those that do not, imparting measurement to recipes that do not yet have them, and/or neglecting any recipe without measurement as whatever it may be, it is not *a recipe*.

This is not surprising as our imaginaries, in general, comport us to certain aspects of the world that may obscure others or may require translation at the risk of impoverishment. What needs to be recognized, however, is the way that the imaginary itself either allows or disallows the recognition of other imaginaries – a point that will be taken up later in the chapter. Experiencing measurement, complete with the discreteness, quantification, and the standardization it requires – as well as the epistemic, political, and social power it enjoys – prompts imaginaries that see the world as if it were measurable. A world that is structured as if it is measurable (i.e. phenomena are understood in measurable terms from culture and science to

recipes and economic markets) will certainly be more comfortable for these imaginaries and thus prompt the material and systemic reproduction of the imaginary. However, measurement is but one scientific activity that is experienced and extended into some imaginaries and future work would do well to evaluate other operational activities and their experiential potentials.

When we are measuring, we are manipulating the materiality of our world in ways that further our epistemic projects. The activities of science require a wide array of material manipulation, but it also requires specific mental activities such as asserting, denying, deducing, ordering, and believing (Chang, 2011). As suggested above, although it is worth evaluating each of these (and others), it is not my purpose to provide a nuanced account of the mental activities and experiences of science. However, the activity of *grouping*, or the mental faculty of organizing phenomena by appealing to shared characteristics of individual phenomenon, is illuminating with regards to the overall experience of science. To group is to recognize a certain characteristic (or multiple characteristics) and delineate all phenomenon sharing that characteristic from others that do not share it.

I take it to be trivially true that we all, in some fashion, group. The fruit farmer may group by picking bad apples (due to some "bad" characteristics) from good apples to preserve the crop and the financial analyst may group investments by their predicted return rates. That we all group is important, however I contend that the experience of grouping as a scientific researcher is importantly different than the more general activity of grouping. This is due to the goals of the grouping – the goal of removing bad apples is to protect the apple crop, the goal of organizing investments is to direct future investments, and the goal of scientific grouping is to uncover and describe the truths of our world. As with measurement, the epistemic, political, and social power afforded the scientific institution privileges the institution with the ability to

safeguard these truths, including the ways that they are discovered and what sorts of things are truth-apt. Grouping is an essential activity to the truth-aptness of the phenomena of scientific study as the characteristic of truth-aptness primarily delineates those phenomena that are acceptable for scientific inquiry with further groupings occurring along different disciplinary lines and for different epistemic projects. These further groupings occur at different levels, such as disciplinary grouping that delineates the sorts of phenomena that are deemed appropriate for particular disciplinary study or subject grouping that delineates the particular phenomena relevant to a particular research program.

Importantly similar to grouping, is the activity of dividing where the former places two things together due to similarity and the latter separates two things due to dissimilarity. In the *Phaedrus*, Plato describes the two activities of grouping and dividing as fundamental epistemic activities where:

> the first is in which we bring a dispersed plurality under a single form…[and the second] whereby we are enabled to divide into forms, following the objective articulation; we are not to attempt to hack off parts like a clumsy butcher... (Plato & Hackforth, 1952, p. 133)

Plato's description is noteworthy as grouping and dividing could presumably track the "objective articulation" of the world where our categories reflect a mind-independent world; our groupings are not mere convention, but reflective of the metaphysically prior world of forms. The tracking of either naturally occurring or socially constructed groups is well trod in the literature on natural kinds (c.f., Dupré, 1996; Kendig, 2015; Mill, 1884). A natural kind is taken to be a grouping that occurs naturally and independent of human involvement such that "elephants" are a natural kind due to their grouping sans humans but "large mammals" are not as they're grouping requires the relativity of human's own size as "large" means large-as-compared-to-humans (or some other criteria). Natural kind realism is the view that our scientific

groupings track mind-independent natural articulations such that the label “elephants” is describing a unique set of objects that exist prior to human intervention. It is worth noting that the metaphysical notion of natural kind realism does not, by itself, imply the epistemic notion that our groupings do, in fact, track these articulations as it is possible – and historically prevalent – that our groupings have just got it wrong and what we initially thought was a natural kind turned out to not to be (Psillos, 2005).

But not all are committed to natural kind realism. Conventionalist accounts argue that what we may treat as mind-independent groupings are, nevertheless, socially constructed such that whatever we may be grouping is dependent on the humans doing the grouping (Kukla, 2000). On this view, our epistemic aims can be furthered by novel groupings but it is a mistake to assume that these groupings thus track a mind-independent and naturally articulated world. Grouping plants as weeds and flowers, for instance, does not track a mind-independent difference in the plants, but instead the human preference for one over the other (Bird, 2018). For conventionalists, it is human interests that characterize our groupings and not a naturally articulated world. These descriptions of realism and conventionalism are brief and not meant to exhaust the range of positions regarding natural kinds (e.g., the *promiscuous realism* of John Dupré, 1995).

What we are grouping and dividing has been heavily argued in the philosophy literature on natural kinds, ranging from accounts that center our groupings on a realist account of the world to groupings that center on a conventionalist account of the world whereas our groupings are dependent on our social, epistemic, and moral projects and thus do not track natural articulations. Although philosophers have analyzed the notion of natural kinds, it is not likely that the practicing scientist reflects on the metaphysical foundation of their own grouping

activities. In this unreflective experience of science, the epistemic goal of describing the objective articulations of a mind-independent reality are ever-present.

It is not my aim to argue whether or not we are tracking the objective and natural articulations of a mind-independent reality as we group, only to recognize that the scientific activity of grouping is experienced as if we are tracking such. Although constructionist and conventionalist commitments are commonplace in the humanities and critical social sciences, the natural sciences – biology, ecology, geology, etc. – are committed to acting (and thus experiencing) as if there is an objectively articulated mind-independent world. If there is such a world, then it is only our fallibility as humans that prevent us from correctly, reliably, and truly describing this world. The scientific institution (with the epistemic, political, and social power it enjoys) seeks to redress this fallibility and has, in doing so, developed practices that prompt the experiencer to experience their projects as-if they are tracking such a world – an iterative process that is taken up into by the imagination and manifested in future (intergenerational) scientific projects that are iteratively experienced. This means, in summation, that regardless of the reality of objective articulations, scientific activities are experienced as-if the groupings are reflective of reality.

What does this experience amount to? As mentioned, we all experience grouping in some fashion. However, experiencing grouping as being reflective of reality combined with the epistemic, political, and social power of the scientific institution renders a scientific experience of grouping as something more than the functional grouping we all partake in. Scientific grouping is doing something *more*. Although experience of this grouping may be varied, in general grouping requires the imposition of boundary-conditions to delineate that which is within the group and that which is without, which itself requires the objects of grouping to be of such a

nature that their relevant qualities can be ascertained. These boundaries are not porous as the perceived reality of the grouping is predicated on its constituents possessing particular characteristics that distinguish them from other objects – apples, as a group, are clearly distinguished from non-apples and the boundary between the two cannot be crossed while maintaining fidelity to the original group. An apple is an apple, and if it is not, then it is not. The experience of non-porous boundaries, as described in chapter three, reminds us that the experience of these sorts of boundaries is extended through our imagination to view non-porous boundaries in other aspects of our lives. It is telling that the scientific institution is prominent in environmental governance when many (settler colonial) governance institutions treat nature as being non-porously bounded from human activity.

The activity of scientific grouping is directed toward either a better understanding of the relationship between multiple groups or a better understanding of the group itself. By dividing phenomena into groups and then studying the relationships between those groups, we impart an organization on the world wherein reality is constructed of constituent parts that stand in relation to each other yet remain distinct from each other. Although the river and the bank are related, they are not the same thing, nor are the fish and the river or the riverbed and the river. We can understand rivers, fish, banks, and beds as related, but they are importantly different things that can be grouped apart from each other. The as-if-reality character of these groupings – regardless of whether they *are* reality – develops an imaginary that views reality organized as such. And since, in the realist tradition, reality just is as it is (meaning that there can only be one reality) the organization of this reality as practiced, experienced, and imagined by the institution that our society has come to rely on to define reality can just be the *only reality*.

Following from the organization of reality as grouped and related objects is the disciplinary specialization that has developed in the scientific institution. As multiple groupings have developed through time, themselves related by qualities of the groups rather than qualities of the constituents of the groups, science has specialized by studying various groups. For example, the river in the previous example may be studied by hydrology, the riverbank by riparian ecology, the river bed by geology, the fish by aquatic biology, and so on. Of course, there are many ways to understand disciplinary specialization – historical process, political reaction, economic opportunity, technological possibility, etc. – but scientific grouping, i.e. imposing boundary conditions on apt objects in order to better understand the relations between groups or the intricacies of a group, is essential to specialization.

Thus, the experience of scientific grouping can be understood as the experience of imposing non-porous boundary conditions that presumably track reality, recognizing as real those objects that are of a nature that the relevant qualities are ascertainable, describing reality as various groups related to each other, and the experience of disciplinary specialization. Such an experience will invariably manifest in many ways beyond the scope of this project, but the experiential potential of grouping can be broadly described along familiar lines. First, imaginaries developed around reductionist and atomist accounts of the world follow, in part, from the experience of grouping as individual groups of distinct phenomena can be divided along more particular, differentiated qualities as more is learned about the group in question. Common taxonomy trees operate in this way, such that sufficient knowledge of the group “deer” prompts division into the sub-groups of “moose”, “elk”, and “mule deer” based on differential deer-physiologies, allowing ever-more nuanced – and reductionist – accounts of the world to emerge. Epistemic progress seen as refined grouping (i.e. the increasing subdivision of a phenomenon)

and as experienced in scientific research with the goal of ascertaining the truth of the world, is taken up in the imagination and extended to the world at large, now imagined as the schema *truth-ascertainable is group-dividable*. It is not that truth is not ascertainable on the reductionist model, but only that this metaphorical extension limits what counts as truth-ascertainable – namely those phenomena that are not groupable and/or group-dividable – which can have, in terms of the epilogue to this chapter, the effect of arresting or distorting future epistemic experiences by failing to recognize the truth of experiences that resist grouping, dividing, sorting, measuring, etc.

Second, for a phenomenon to have groupability its nature must be such that the relevant characteristics can be clearly delineated. Fuzzy phenomena, or those that are difficult to pin-down, define, and/or measure, are disregarded, distorted, or de-prioritized in much of scientific research. Salient examples are the topics of this project – imagination, experience, place, etc. – which, if taken seriously, are exceedingly difficult to group.[26] Again, limiting the relevant criteria to that which can be grouped has the arresting/distorting effect warned against in the epilogue. It is not that clearly delineated characteristics are not relevant, only that the experience of them as *only* relevant or *primarily* relevant impoverishes our future experiential possibilities.

Lastly, the variety of groupings, sub-groupings, and combined groupings that help to define disciplinary specialization also make it exceedingly difficult – if not impossible – to offer a unified picture of reality. As John Dupré (1983) reminds us, "the ideal hare that the physiologist might construct out of ideal cells is just not the same as the ideal hare that is hunted by the ecologist's ideal lynx" (p. 335). Perhaps we do not need or desire unification, but the

[26] I recognize that this project, itself, relies on grouping. I am explicit about my constructionist commitments and attitudes, such that my groupings are mere heuristics to guide our intuitions and not to be seen as reflective of some mind-independent reality. If this project is taken seriously, any sort of mind-independent reality is always arbitrated by the imagination and our affective, (sub)conscious, embodied, and mind-dependent experiences.

groupings inherent in science and highlighted in this quote construct an epistemic system where it is unlikely that unification could ever be achieved. In practice, theoretical unification is not likely necessary. But a non-unified epistemic system can still pose practical challenges such as further disciplinary entrenchment when interdisciplinarity is needed to address wicked problems.

The experience of grouping, in general, supports an imaginary of reality as consisting of groupable objects, that when grouped can be studied to better understand the objects themselves and/or the relations between the groups. When a grouping is studied (and thus experienced) extensively, an imaginary of the world emerges where the ontological properties of that group (e.g. physiological properties of individual wildlife versus population dynamics of that wildlife group) take precedence over other concerns. In the extreme, this can manifest as imaginaries seeing all of reality only from the perspective of a singular disciplinary commitment, such as reducing all population dynamics to the aggregate expressions of individual animal behavior. This sort of disciplinary capture hampers the ability to recognize relationships between different ontological groupings as "what counts as a good research question, what counts as an acceptable answer to a research question, and what is an acceptable path from question to answer" (Brister, 2016, p. 84) is both defined by the discipline in question and can significantly diverge from other disciplines. Evelyn Brister (2016) argues that disciplinary capture occurs when the commitments of one discipline – in part defined by the objects of study and accepted methods of studying those objects – "takes precedence over [the commitments of] other disciplines'" (p. 84). Combined with the power differentials between disciplines, this can present reality as being best understood by only certain disciplinary explanations. If we imagine the world as groupable objects, then disciplines will emerge with this imaginary as the foundation. As these disciplines emerge, they specialize into sub-disciplines and diversify across their subjects, with those most

closely aligned with the dominant imaginary gaining epistemic, political, and social power through disproportionate research grants, institutional support, and social interest. The iterative process promotes the most powerful disciplines which reinforce the imaginary while also narrowing our experiential possibilities. Again, this narrowing arrests and/or distorts the growth of future experiences and can, practically, hinder the just resolution of complex and wicked social problems.

The limited scientific activities of measuring and grouping described here share in common a realist orientation where scientific activities are presumably describing a mind-independent world. On its own, this is not worrisome and has truly increased human capacity in ways that should not be understated. But, the objectivity, discrete-ability, quantification, standardization, reductionist and atomistic characterizations of this reality are not without consequence. The experience of these activities and the imaginaries constructed from these experiences form a worldview where only certain practices can provide truth as they are most closely tracking "objective" reality thus limiting the epistemic communities that do not have imaginaries where these practices are relevant. This gives the scientific institution considerable power to describe what is epistemically right and wrong and, in doing so, safeguarding their imaginary from those it perceives as threats. The world it constructs is a world following from a particular imaginary replete with its own meanings, recognized by Elena Ruiz-Aho (2011) as "preliminary distinctions aimed at disambiguating the technical meaning of foundational terminology...[rely on] a particular conception of meaning [that] is already at play that filters out alternative possibilities for critically engaging some of the broader nuances of the field…" (p. 314). Divergent imaginaries are thus rendered incoherent and/or incommensurable and, as they

are not seen as reflecting mind-independent reality, they are disregarded or unrecognizably (and often unjustly) contorted to align with the dominant imaginary (Latulippe, 2015).

Philosophers have long argued about reality. I do not presume to know or describe what a mind-independent reality is, only suggesting that our very real experiences can develop imaginaries that constrain our future experiential-possibilities and limit the expression of non-dominant imaginaries. Our experiences are of *some thing*, but they are organized and manifested in ways that construct that thing very differently. Experiences that treat that thing as prior and independent of our experience of that thing can, as I argue, arrest and distort our ability to experience that thing as some thing other than an objective/mind-independent thing. The experiences of scientific activities such as measuring and grouping, as well as the experience of science – writ large – as taking mind-independent reality as its focus, have just this arresting and distorting experiential potential.

This discussion is likely to annoy many readers. Our intuitions are often groomed by this dominant imaginary, and so it is hard to imagine otherwise. What we imagine the world as when we measure it or divide it up in a laboratory forms a concept of the world as completely and wholly measurable and groupable. But this is only one way to imagine the world. I leave it up to future work and better scholars to evaluate the possibilities and constraints of varying imaginaries, recognizing here only that there *are* different imaginaries and that they are differentially accepted and treated in our epistemic, ethical, social, and governance practices. I suggest only that those imaginaries that distort, disregard, or reject other imaginaries should be treated with caution as rejecting an imaginary is akin to rejecting the experiences and worldviews of the community that holds that imaginary and, further, disallowing the rejector from imagining, experiencing, and learning from the world as some thing other than they imagine it.

The remainder of this chapter describes livestock permitting on the federally held lands of the American West, illustrating how the experiences of measuring and grouping are institutionalized within rangeland management and citing ways in which the imaginary built from these experiences limits other experiential possibilities from emerging.

Rangeland Practice

As described above, scientific activities are carried out on presuppositions that may diverge from other communities' imaginaries, consequently constraining environmental governance to those epistemic foundations that conceptualize the world in a way that can marginalize some communities (replete with their divergent imaginaries) from participation in governance. A salient example of how the scientific institution impacts western environmental governance can be seen in the role of environmental monitoring and livestock grazing in the West. As mentioned in the introduction to this project, livestock ranching is common in the West, but it is managed differently than in other parts of the country. Federal agencies permit livestock ranchers to use federal lands for grazing, whereas much of the rest of the country grazes on private lands that do not require government-sanctioned permitting. These western permits are subject to federal regulation, including the Federal Land Policy Management Act (1976), the National Forest Management Act (1976), the National Environmental Protection Act (1970), and a variety of United States Fish and Wildlife Service regulations, state and local resource plans, and regional management plans. Given the proportion of federal lands in the American West (the majority of which are eligible for grazing), grazing permits – and the subsequent impacts of grazing (positive, neutral, or negative) – are an integral consideration in western environmental governance.

Grazing permits were first issued in the passing of the Taylor Grazing Act of 1934 as a way to manage for conflicts arising from usage of the commons by competing ranchers. In contemporary permitting, these permits designate a day of the year when livestock can be "put on" to the range (allowed to graze on federal lands) and a day that they must be "taken off." The number of livestock permitted per grazing allotment is decided by the amount of graze-able feed that the allotment has, itself a product of scientific calculation. Governance, and the science it is often founded on, understands the environment as being sufficiently stable from growing season to growing season in order to demand specific dates, as well as that the amount of vegetative growth was a sufficient determinant of herd size. The stability imagined of the environment prompts a governance strategy that reinforces the place-stability discussed in chapter four – itself constructing a non-porous boundary between humans and nature as human activity is not aligned with the ebbs and flows of natural activity.

The decades since issuance of these permits have shown that the livestock management they prescribed often results in extreme environmental degradation, especially given the relative fragility of arid desert ecosystems. This, in turn, has resulted in the proliferation of anti-livestock ideals arguing that the arid environments of the West are not suited to livestock production and thus livestock should be removed (Wuerther & Matteson, 2002). While the demand to remove livestock due to the legacy impacts of overgrazing may be ecologically justifiable, it has also led to substantial conflict in western environmental governance. Western environments are predominantly held in common as federal public lands, so it is not obvious which public to favor when the values are contradictory – the conflict is often simplified to livestock are either allowed to graze, or they are not. The conflict rises above livestock when viewed as competing imaginaries; the -garden imaginaries that predominantly arise from the recreation experiences of

the urban community stand at odds with the -community and -extractive imaginaries that emerge from the agricultural experiences of the rural communities.[27] Thus, the conflicted imaginaries pit rural communities versus urban communities, long-term residents versus newcomers, recreation versus ranching, and environmentalists versus ranchers (among others), pitting varying communities – with their respective imaginaries – against each other in a multitude of conflicts beyond livestock.

Governance has responded to this conflict in various ways, but, with regard to livestock, permitting has largely stayed the same. Although the state of rangeland science has greatly improved, the process remains: Scientists group and measure the ecosystem to ascertain its carrying-capacity for livestock, permits are issued on these recommendations, and ranchers operate within these permitted constraints. On the surface, this appears to be a viable approach if one wishes to continue livestock permitting and desires to do so within the ecological constraints of the desert since, surely, we do need to *know* what the land is capable of. We need the best available science to help us understand the ecological impacts, opportunities provided, and constraints imposed by ranching activities on the land.

But, perhaps, we need more than the best available science or, put differently, science may be necessary but it is not sufficient. The criteria of "best available science" is not my own hyperbole – it is institutionalized in governance through the requirements set forth by the National Environmental Policy Act of 1970 (NEPA), requiring that environmental decision-making on federal lands use the "best available scientific data" to perform environmental assessments and impact analyses. Aside from the legal requirements set forth by NEPA, the hiring requirements laid out by the federal Office of Personnel Management (OPM) for federal

[27] Both livestock production and the rural/urban settlement of the West are settler-colonial projects that must be reimagined beyond this description in the -family imaginary.

environmental management agencies – e.g. BLM, USFS, USFWS – narrowly require natural science credentials for land management positions, thus reinforcing the necessity *and* sufficiency of science in governance. For instance, the OPM requirements for a Rangeland Management Series job (classification 0454) require either a degree in "range management; or a related discipline that included at least 42 semester hours in a combination of the plant, animal, and soil sciences, and natural resources management" or a combination of education and experience with "at least 42 semester hours of course work in the combination of plant, animal, and soil sciences and natural resources management…plus appropriate experience or additional education." (Rangeland Management Series, 0454 2020). These requirements are common throughout federal hiring for environmental jobs with the related consequence of narrowly defining our epistemic stance (i.e. the sufficiency of science) while demanding and reinforcing experiences of environmental governance as those that follow from scientific imaginaries. Taken together with the epistemic, political, and social power of the scientific institution, the research funding priorities of our contemporary society, our techno-scientific fetishes, and the perceived certainty (read: measurable, groupable, knowable, predictable, and controllable – thus *regulatable*) of scientific findings, we should not be surprised that federal environmental management is at a minimum invested in scientific management and at a maximum indistinguishable from scientific management.[28]

Scientific management seeks to understand the causal connections of our ecosystems in order to predict future states and through current regulation (e.g. permitting), guide the ecosystem to whichever state is predicted and desired (read: control). The regulatory tool of

[28] Teddy Roosevelt's support of Gifford Pinchot's scientific forest management, institutionalized in the creation of the United States Forest Service, is important to the priority given to scientific management in the governance of western lands.

permitting is only the vehicle through which scientific management is enacted. Given the structure of permits (on/off dates, Animal Unit Months [AUMs], etc.), science's role is limited to figuring out the size of herd that a specific location can endure relative to its current ecological state and/or its desired state. For instance, a heavily degraded location may not be able to endure any livestock, while a stable ecosystem may be able to endure an economically viable (for the rancher) herd. The location is critical to these analyses as western landscapes range across low and high elevations, with varying water availabilities, plant and animal communities, soil types, wildfire and invasive species risk, and a host of other factors. Thus, science is employed to describe these varying ecosystems and, in doing so, able to provide guidance in deciding the livestock carrying capacity of particular systems as we can now predict the impact of livestock on that system. But, as with the discussion of sweetgrass in chapter two, there is still considerable divergence on whether *any* human-caused (i.e., livestock) use of the environment is most ecologically beneficial. I do not attempt to provide clarity to this divergence, recognizing only that science itself seems insufficient to decide whether livestock should be permitted at all. That decision must account for the variety of cultural, social, economic, political, and to the point of this project, experiential and imaginative, realities of livestock in the West. It is likely that Western landscapes could be restored both with and without livestock, the former being enacted through concerted restoration and preservation practices with the acceptance of nature being able to heal itself sans humans and the latter being enacted through concerted conservation grazing practices and a re-tooling of the political and economic systems that constrain current grazing strategies. Science may be able to help us achieve whichever end we choose, but it is insufficient to both make that decision and decide on the appropriate social configuration that

can help achieve that condition. Again, science may be necessary in environmental governance, but it is not sufficient for environmental governance.

To whatever degree federal environmental management is invested in the scientific institution, we must recognize that environmental governance – as described in the introduction to this chapter – is complex and must consider a wide range of institutions across varying spatial and temporal scales while respecting diverse values and worldviews enacted at different social levels, all within the context of the uncertainty regarding our knowledge of the complex ecosystems we inhabit (Lemos & Agrawal, 2006). Clearly, science plays a role in understanding this complexity and conditioning our behaviors in light of it – but it is not sufficient to capture the multi-dimensionality of governance. The scientific imaginary described in the previous section intersects with environmental management practice in setting the conditions for what can reliably be known and thus governed. This is due, in no small part, to the experience of studying a mind-independent reality that is materially constituted by fully measurable and groupable objects, thereby giving the scientific institution considerable power to describe what is epistemically right and wrong.

Thus, when grazing permits are issued on the basis of the scientific ascertainment of carrying capacity, I am driven to ask "how are those imaginaries/experiences/knowledges that are incoherent to the scientific imaginary being excluded from this process?" Reflecting on the complexity of environmental governance writ large, answers to this question will vary across the scale and scope of the various dimensions of governance. However, one particular instance of this exclusion occurs in the monitoring requirements of livestock grazing on public lands. Monitoring, in general, can be understood as the periodic observation of a phenomenon. Watching a pot boil is monitoring the pot, just as annual measurements of deer populations is

monitoring the deer. In the context of grazing, western lands are monitored in order to better understand the impacts of our behaviors so as to modify future behaviors. Given the general definition of monitoring given here, it should not be surprising that monitoring in the West occurs across and within many jurisdictions, institutions, and communities with a similar diversity of accepted monitoring methods and analyses. The dedicated bird watcher may monitor local birds using binoculars and specimen counts, whereas the hydrologist may monitor aquifer volume using sophisticated equipment and computer models. What is monitored and how it is monitored is highly dependent on the person doing the monitoring and their objectives of monitoring, an obvious point yet one critical to monitoring in the West.

The Bureau of Land Management (BLM) is responsible for managing 48 million acres in the state of Nevada alone (67% of the state; BLM.gov) which is a large administrative task for a perennially underfunded agency – not including BLM managed land in the other western states. Due to the need for monitoring and the lack of resources to accomplish monitoring at this scale, the BLM can enter into a Cooperative Monitoring Agreement (CMA) with a civilian party (often ranchers and other land users that have permits to specific land areas) to allow the civilian party to carry out the monitoring. The CMA details the purposes and objectives, anticipated use of data, methods and protocols, and data analysis requirements of a specific monitoring project with the intention that any data provided by a civilian party can be legally used to justify land management actions. This practice is commendable and should be recognized for its inclusion of the public in federal monitoring, yet it is not without conflict.

As described, federal land management is invested in the scientific imaginary for a variety of reasons, including the need for legally justifiable data that meets the NEPA requirement of best available science. The need for more monitoring of sufficient scientific

quality in Nevada led to the publication of the Nevada Rangeland Monitoring Handbook in 1984 and updated by the University of Nevada – Reno for its 3rd edition in 2018. The handbook serves as a public communication of current rangeland science and details a variety of scientifically validated monitoring protocols that are generally accepted by the BLM. For the civilian party wishing to enter into a CMA with the BLM, the handbook is a beacon of best practices that, if followed, protects the civilian from regulatory impasse. For all the good that the handbook provides, it must be noted that it provides only a narrow vision of monitoring – one that extends from the scientific imaginary and the entities/relations it deems groupable, measurable, and thus monitorable.[29] What this means, in practice, is that if a civilian party does not have the relative expertise in a prescribed monitoring method, if the phenomena to be monitored is not deemed monitorable, if the monitoring method is not tracking scientifically recognized groups, or if the objectives of monitoring have (scientifically) obscure determinants, then the regulatory body – in this case, the BLM – does not enter into the CMA. This is good insofar as it can be a bulwark to maligned interests, but it also constrains the possibility for other benevolent communities with their own imaginaries from participating in the regulatory monitoring of the land (or if an imaginary conceives of the land as including people, then also the land's economies, communities, cultures, etc.) that they deem important. The monitoring that matters takes for granted the sorts of things that can be grouped and measured or, put another way, demands an experience of the land as that of scientifically groupable, measurable, and monitorable things. And, of course, this experience is taken up in the imagination and extended so as to construct a conception of the land as just consisting of those things that are groupable, measurable, and monitorable.

[29] Of course these are reflections of the objectives set forth by the civilian parties and the regulatory agencies, themselves extensions of certain imaginaries – colonial, scientific, extractive, etc.

Monitoring, in general, is an integral part of responsible grazing. To decide how many livestock a certain location can support, the rancher must minimally know the state of that location such as whether water is available or whether grasses and shrubs are mature and healthy enough to withstand grazing. The realities of ranching on large tracts of land, however, make it so that scientific information of this sort is generally unavailable across the diversity of the landscapes, especially as annual conditions such as drought or wildfire can alter conditions drastically. Given the lack of information, the irresponsible rancher may choose to put their livestock onto the range regardless of condition yet within the legal constraints of the permit as it only demands on/off dates and number of livestock. Ignoring the conditions of the range in this way can and often does result in degraded rangeland as the livestock gather around the scarce water in the desert, trampling riparian areas and over-grazing small tracts of land. The scarce water resources in the arid desert are integral to the functioning of the ecosystem and so the damage to these areas (pollution from cattle waste, destabilization of stream banks, reduced riparian health, etc.) have a disproportional impact on the overall arid ecosystem.

Ranchers are thus faced with a dilemma. On one hand, the lack of scientific information combined with the current permit structure prompts a keep-doing-what-I've-done grazing strategy – a strategy that does not often promote ecological health, but does promote anti-livestock imaginaries. On the other hand, those that wish to responsibly graze are limited in two important ways. First, the structure of current permits are not in harmony with seasonal realities, especially given the impacts of climate change on the ecosystem. In the arid desert, run-off from mountain snow in the spring fuels desert blooms. These spring desert blooms kick-start the growing cycles of desert plants which provide forage for livestock and wildlife, but also must be protected to ensure plants grow to maturity so that the annual cycle – and the health of the

ecosystem – remains viable. The static put-on dates do not recognize this reality as in any given year, it may be better for the ecosystem to put livestock on earlier or much later, depending on that year's run-off and spring growth. Furthermore, the number of livestock the ecosystem can sustainably support will vary depending on spring growth and water availability. Second, the ranchers who recognize that the "way-it's-always-been-done" does not promote ecosystem health and wish to explore novel grazing strategies (e.g. different on/off dates, varying herd sizes, rest-rotation grazing) must scientifically justify their decisions. But to justify these decisions, they need the site-specific monitoring data that is not available. They can enter into a CMA, but to allow the rancher-collected monitoring data to validate novel management, it must meet scientific standards (thus prompting the publication of the *Nevada Rangeland Monitoring Handbook*). Collecting this data requires both expertise that is scarce and often mistrusted in these communities, and time. Instituting a scientific monitoring program on a large acreage ranch requires ranch time and labor that isn't often available. This time-requirement can be met by allowing ranchers to monitor in situ, meaning that instead of collecting data beforehand, they are using their own experience of the ecosystem as they move livestock around to decide their grazing strategies. Simply, the ranchers are on the land daily and can observe/monitor their surroundings and make decisions regarding how to manage their livestock in the moment. However, as their experiences may not meet the standards of scientific rigor, land management agencies – in line with scientific management – are reticent to allow ranchers this latitude.

This complex example can be simplified sans detail. On one approach, monitoring requires the valid collection of scientific data beforehand in order to justify grazing activity, but this data is either unavailable or is unreasonably expected to be attained by the rancher (due to expertise and time requirements). This is the core of scientific management – observe the

ecosystem, collect and analyze the data, and then act to attain a pre-determined desired state. On this approach, science is necessary and sufficient. Obstacles to management do not stem from the scientific approach per se, but from the availability of data and expertise. Thus, we may find a range of solutions from the economic (increasing resources to hire labor to collect data), the technological (finding better methods for collecting data, e.g., remote sensing), or the sociopolitical (train more rancher-scientists to be able to collect their own data).

But, there is another approach. Working in tandem – or, to the point of this project, *collaborating* – ranchers, land managers, and other parties can decide what they want the land to look like prior to the grazing season, and then the rancher observes the land throughout the season and makes adjustment to their strategy to attain the desired state. The desired state, or, the product of collaboration, can be described in a variety of ways, including aesthetic appeals, scientific indicators, or something else altogether. During the season, the rancher tracks their grazing strategy and before the next season, they again come together to see what worked, what didn't, and what the desired state should be in light of any changes. This approach might be called "pragmatic management" in that there is substantial focus on the experimentation of grazing strategies allowing novel methods to emerge in order to satisfy the group's desired state. The inclusion of land managers and other community members in the collaborative process both mitigates for the moral hazard of ranchers enacting their own desired states on public lands (which may conflict with that of others) and holds the grazing strategy accountable to its results and the rancher to the group. In this approach, science may have a role but it is not necessary or sufficient. It is not necessary as the on-the-land experiences of the collaborative group and the rancher are enough to guide grazing strategies and it is not sufficient because science alone cannot tell us what the group wishes the desired state to be.

In scientific management, place attachments, land experiences, non-human agency, and aesthetics – among many other phenomena that resist mind-independent measurement – are either disregarded as being unimportant or they are translated into a scientifically legible ontology such that they can be grouped and measured with some scientific reliability. As these facets of our environmental relationships are undervalued or deemed irrelevant to environmental governance, our practices develop in ways that reinforce their irrelevance and thus construct an imaginary where it is difficult (at a minimum) to recognize their importance. Thus, not only do the imaginaries, reinforced by the seemingly innocuous scientific monitoring, have the arresting and distorting character we may wish to avoid, but they also have the very real consequence of disallowing the participation of those communities (through CMAs or other regulatory means) that have divergent imaginaries. Aside from the obvious concerns for justice, this arresting and distorting character limits the possibilities for environmental governance as what is deemed possible is deemed possible by virtue of what is monitorable. The suggestion for pragmatic management shows that the scientific monitorability of the landscape may not be necessary for collaborative environmental governance, suggesting minimally that it is possible to govern sans scientific management. It is beyond the scope of this project to fully imagine what could be possible in environmental governance without the arresting imaginaries, yet it should be noted that many cultures do have robust, community-supporting, and ecologically healthy environmental governance programs that are literally unimaginable to many of those in the West.

But it is not unimaginable to everyone in the West. The current livestock permitting that prescribes on/off dates and the number of livestock allowed is being challenged by a growing contingent of ranchers on the recognition that its lack of flexibility doesn't allow for the sort of pragmatic management described above – a necessary concern with increasingly common and

more intensive wildfires, loss of biodiversity due to annual grass monoculture expansion, and changing water regimes due to climate change (Thompson & Talley, 2019). In order to modify their ranching practices on federally managed land to align with adaptive and flexible management, they must navigate the regulatory systems to be issued a new grazing permit developed on a different grazing management philosophy. Pragmatic livestock management in the arid deserts requires near-continuous observation that currently cannot be supplied by site-specific scientific analyses so that changes can be made both in the very short term (e.g. moving cattle away from areas that are not responding well to grazing) and in the long term (e.g. multi-year plans to limit encroachment of annual grasses and restore lost habitat). In addition, these ranchers seek to integrate consideration of their communities economic health, cultural traditions, and social well-being into their objectives for grazing permits on the explicit recognition that their well-beings (economic, cultural, social, etc.) are intimately tied to their environmental practices and these practices are regulated by the federal agencies. Pragmatic management, and the permits that may allow it, can provide space for these considerations in the annual collaborative work and the pluralizing of considerations beyond that which is scientifically measurable and monitorable.

Current permits do not require much – if any – monitoring on the permittees part as the permits only establish what the permittee can or cannot do. The new permits being sought, however, require a tremendous amount of monitoring on both the agency and the permittee's part. The monitoring that needs to be done, however, is dependent on the agreed upon objectives of the permit (whatever those may be) and the legal justifiability of the monitoring methods, protocols, and processes. Following from the above discussion, these monitoring considerations are constrained by the best available science clause of the NEPA process (which must be

completed for permit changes) and the imaginaries of the regulatory agencies themselves. Objectives must be articulated in ways that their determinants are groupable, measurable, and monitorable and monitoring protocols must reliably track the relevant phenomena and also be either carried out by experts or be designed so as non-expert data collection can be externally validated. In either case, the cultural, social, and general well-being concerns are ancillary considerations (if considered at all) due to their inherent immeasurability and perceived irrelevance to livestock permitting.[30]

Additionally, the scale at which we monitor (chosen with regard to the proclivities of the regulatory agencies and the specific expertise of the scientists designing protocols) impacts the effectiveness of the permitted grazing management. Site-specific monitoring is constrained in which ecosystem factors are monitored as there are a wide range of factors that may or may not be present in specific sites. For example, a site within the riparian zone of a stream versus a site at high elevation will have different biotic communities, soil types, and atmospheric conditions. These site assessments seek to describe appropriate livestock usage rates given site-specific factors, and thus stocking rates vary considerably between sites. Permits developed on site-specific methods require additional labor to collect monitoring data and this serves as a critical bureaucratic barrier given the requirements of federal NEPA processes. Furthermore, the additional resources necessary for site-specific monitoring are generally unavailable to the underfunded federal agencies responsible, and so there is a burgeoning movement to allow ranchers to collect data themselves – of course this is weighed against the validity of their data as there is a perceived moral hazard in the process. Although not discussed in detail here, this requires reflection on the moral hazards presented as well as the epistemic trust and validity of

[30] It should be noted that their perceived irrelevance is also a product of a certain sort of imaginary – it is plausible that the human/nature and subjective/objective distinctions described in chapter three apply here.

citizen collected data – issues that are ethically and socially significant and derive directly from the scientific choice of analyzing at site-specific levels.

In contrast to site-specific analyses, some rangeland ecologists use landscape-level data to develop range assessments. A notable example is Tamzen K. Stringham et al.'s (2016) description of disturbance response groups that has received considerable attention in rangeland assessment. Disturbance response groups (DRGs) are landscape categorizations that group ecosystems into similarly characterized groups based on their response to ecological disturbances including wildland fire, insect herbivory, grazing by domestic livestock and wild horses, off-road vehicle use, and climatic events such as drought. On this view, two specific sites may have different ecosystems yet be classified under the same DRG as they respond similarly to disturbances. DRGs can be developed by aggregating key factors of a landscape, such as precipitation zone, soil type and temperature, moisture regimes, and vegetation dynamics using computer modeling and GIS software. This allows for large-scale monitoring that is relatively inexpensive compared to the labor requirements of site-specific assessments and, thus, is preferred given the budget constraints and requirements that federal agencies are subject to. This is reflected in the BLM's explicitly stated goal of improving "the BLM's ability to address landscape-scale resource issues and use landscape-level management approaches to more efficiently and effectively manage the public lands" (BLM Planning 2.0 Fact Sheet, p. 1). Landscape-level monitoring can be seen as a technological solution to the problem of incomplete data that is needed for annual livestock management, but it is also a solution that is supported by and, importantly, reinforces those experiences that prioritize scientific management, thereby making it more difficult to imagine management, otherwise.

Landscape-scale monitoring does not provide data on the particular state of ecological sites that is required for the short term and small-scale information that is required by ranchers for robust livestock management. The activity of scientific monitoring, in general, poses considerable challenges to both the inclusion of the community into governance (with their sometimes aligned and sometimes misaligned imaginaries) as well as the modification of scientifically managed livestock permits to pragmatically managed flexible permits. The experience of ranching as regulated by these permits will be vastly different – at a minimum, the former does not force the rancher to engage with the dynamics of their environments in the ways that the latter does, thus prompting experiences of non-porous human/nature boundaries that condition the extractive practices of the -machine imaginary. Nor do they require collaborative efforts, the experience of which can help develop imaginaries that hold us accountable to other, be that the environment or other communities. However, experience of pragmatic management as described above does prompt experiences of holding ourselves accountable through both the collaborative efforts and the porous boundary between the rancher and the environment as they seek to manage their livestock within in the natural variation and capabilities of the landscape.

The constraint imposed on the determinants of agreed-upon objectives needing to be groupable, measurable, and monitorable, combined with the exclusion of non-expert community members and their imaginaries, the complexities of environmental governance at various scales, and the legal justifiability of data all aggregate to show how monitoring – and being monitorable – impacts environmental governance in the West. And, of course, this is merely describing settler-colonial rancher's experience – I do not presume to describe those experiences of oppressed communities that likely find the regulatory process even more misaligned with their imaginaries.

Monitoring is but one activity prevalent in environmental governance, and a relatively banal one at that. But as monitoring standards play a part in setting the conditions for what matters and, by extension, setting the conditions for how our regulatory practices can themselves condition our experiences of the environment, it serves to highlight how the scientific activities of measuring and grouping can broadly influence imaginaries. Any activity, however, that rests on assumptions of a measurable, groupable, mind-independent reality are at risk of this arresting/distorting effect. It is not that these activities are epistemically wrong, only that a reliance on this sort of reality to make governance decisions precludes consideration of other sorts of phenomena that play a role in our environmental attitudes, behaviors, and decisions.

Constraining experiences of environmental governance to modes that do not recognize these other fuzzy dimensions is – through the imagination/experience/metaphorical extension process described above – constructing an imaginary of the environment in the familiar terms of rationality, object/subject dichotomies, reductionism, materiality, universality, linear causality, and value-free methodologies that characterize some environmental imaginaries. It is important to note, however, that this is not a necessary consequence of these constrained experiences. Monitoring, for example, is not done in isolation, and thus past experiences and concurrent experiences will inevitably interact to either reinforce or dampen the development of these imaginaries. For example, a community whose imaginary treats place, experience, imagination, etc. seriously will likely be able to group, measure, and monitor without these arresting consequences as the act is focused on but one dimension of their environment – namely, the groupable, measurable, and monitorable dimension. The other dimensions of their environments may be recognized, observed, and respected apart from the scientific activity, thus balancing the development of a pluralized imaginary. It is those communities whose imaginary disregard place,

experience, imagination, etc. that scientific regulation stands to reinforce their imaginary. And due to the sociohistorical realities of the West, these communities are also the ones with political and social power – their imaginary is the dominant imaginary that conditions environmental regulation, both constraining other's experiences (and experiential potential) and reinforcing their own imaginaries.

Conclusion

Many scholars have convincingly argued that science is replete with value-decisions and does not supply objectivity, at least not in the sense of strong realism and human-independent referential truth (e.g. Bloor, 1991; Chang, 2015; Deloria, 1997; Dupré, 1995; Ihde, 1999; Latour, 2005). This chapter reinforces this notion, yet does not take it as its focal point. For the experience of scientific activity to impact our imaginaries as described, it does not matter if science does or does not supply this sort of objectivity – it only matters that practicing scientists and the institutions that support them imagine that it does. How we experience science is just as impactful to our imaginaries as how we experience other phenomena in our life. Science is unique in its norms, methods, and practices and therefore we should expect that the experience of it is unique. Future work would do well to better describe this uniqueness and develop a more nuanced account of how different disciplinary practices and institutional settings modify this experience and the concomitant imaginaries it produces. I do not argue that science is not necessary in our world – it is and we would do well to continue the work on making our science more inclusive, better communicated, and more aligned with democratic prescriptions. But, if the experience of science can arrest and distort future experiences, we would also do well to honestly grapple with these consequences and better understand just which experiential possibilities we wish to preserve.

(RADICAL) CO-LABORATION IN THE AMERICAN WEST

> …For ideas belong to human beings who have bodies, and there is no separation between the structures and processes of the part of the body that entertains the ideas and the part that performs acts. Brain and muscles work together… – John Dewey (1927), *The Public and its Problems*

The American West is uniquely situated to re-tool our environmental governance practices in ways that engage with the multiple Wests, diverse communities and cultures, and diverse landscapes. The West holds a powerful place in American – and global – imaginations with appeals to rugged individualism, frontier lifestyles, and cowboy legends and this power could be responsibly put to service to renegotiate our practices in light of the environmental degradation and justice concerns that are fore-fronted in contemporary governance. The environments of the West also hold a powerful place in America's environmental imaginations, from the rugged granite peaks of the Rocky Mountains and the serene alpine lakes nestled within them, to the geysers of Yellowstone and the desert canyons snaking through miles of sagebrush and pinyon pine. These environments also face unique governance situations – it is common for a particular Western landscape to face pressure from sub-surface mining, livestock grazing, timber-cutting, recreation, water quantity and quality issues, and hunting all at the same time and all within the specter of droughts, lengthening (and worsening) wildland fires, loss of biodiversity, unchecked development, and population growth. And, among all this, the American West is predominantly public land where governance is rooted in ideals of public ownership rather than private ownership. The American West is, in sum, a powerful place (importantly *not* a space). Taken together, we have an opportunity in the West to do things differently and in ways that make sense for the landscapes of the West – both the physical landscapes and the imaginary. We have an opportunity, as noted by Daniel Kemmis in the epigraph to this project, to outgrow

our political infancy and develop a genuinely western way of dealing with western issues. But what does this amount to?

This final chapter does not offer a complete vision of this "western way of dealing with western issues" and, by virtue of what it does offer, could never. Whatever the answer is, if it follows from these recommendations then it will surely be the product of diverse communities coming together to creatively develop place-based solutions to place-based problems. Simply put, it will be a product of western collaboration. Here, though, is the hitch. In the process of this re-visioning, the West must also reflect on what we mean by collaboration. It is the task of this final chapter to offer a revised vision of collaboration and to broadly outline ways in which Western institutions can adjust to actively promote this new vision in order that, in some small way, the West may begin to develop our own way of dealing with Western issues.

Collaboration Then, Co-laboration Now

Collaboration, generally, is often seen as a normative ideal especially in those cases where complex problems require complex solutions, diverse communities can impact and are impacted by decision-making, and public support is sought for governance outcomes (McKinney & Kemmis, 2011; Talley et al., 2016). Although, in principle, collaboration is lauded, in practice it is fraught with ethical and justice concerns (Leeuw et al., 2012), effectiveness concerns (Koontz & Thomas, 2006), and conceptual slipperiness (Douglas & Talley, forthcoming). As Sherry Arnstein (1969) notes in her seminal paper *A Ladder of Citizen Participation*, "The idea of citizen participation [here, collaboration] is a little like eating spinach: no one is against it in principle because it is good for you" (p. 216). In principle, many agree that collaboration is good, but it can be difficult in contemporary practice. Collaboration is studied and practiced under, against, and otherwise in relation to other familiar terms of public engagement, stakeholder

engagement, democratic participation, participatory theory, and a host of other disciplinary specific terms that each have their own considerations, determinants, and prescriptions. I do not mean to suggest that collaboration is somehow an umbrella term that resides, conceptually, above these others, only that in its broadest form it seems to be present in these other projects. But, just what do I mean by *collaboration*? Answering this in the context of this project requires the recognition of the different ways in which collaboration is imagined in different communities. Although I do not specifically evaluate which communities hold which conceptualizations, it is useful to trace the concept historically to see how it has shifted, providing insight as to how it is differentially employed in contemporary practice.

The Latin roots of collaboration – *com laborare*, or to work with – point towards its most basic usage, suggesting that working together (in any context, and as seen through the range of similar terms) is sufficient to collaborate (Online Etymology Dictionary, 2020). A search for collaboration and the related terms of collaborateur, collaborator, collaborate, and co-laborer in The Oxford English Dictionary (2020) highlight significant variations to the original theme of *to work with* (selections listed chronologically):

> 955 J. THOMAS No Banners iii. 28: The collaborateurs, who hated England and all she stood for.
>
> 1801 H. C. ROBINSON Diary (1869) I. v. 107: A body of poor students called collaborateurs…who assist the more wealthy but less advanced.
>
> 1940 Economist 26 Oct. 511/2: Pétain may be outvoted on the question of mitigating the peace terms by some sort of shameful collaboration.
>
> 1941 Ann. Reg. 1940 162: In foreign affairs the watchword of the Vichy Government was ‘collaboration’ with the German conquerors.

1943 Times 5 June 5/2: Not all have a record as black as Laval's...There were some who collaborated with a sick heart.

1922 Contemp. Rev. 122 582: They should also profit from the expulsion of Signor Turati and the ‘Collaborationists’ from the Socialist party.

1923 Contemp. Rev. 123 151: The Socialist Party...had again split up into a collaborationist and an anti-collaborationist group.

1942 W. SIMPSON One of our Pilots is Safe vi. 192: Those of them...who were a hundred per cent collaborationists, who had thrown in their lot with the hated enemy.

1958 E. HYAMS Taking it Easy 69: Dutchmen...denounced each other as collaborationists unworthy to be employed by the Allies.

1959 Observer 8 Mar. ½: Certain Africans who had collaborated with the Government.

1968 Listener 5 Sept. 291/1: The Russians were genuinely astonished...that they couldn't find collaborationist politicians prepared to overthrow Tito.

A dedicated etymologist is required to fully understand the evolution of the linguistic concept, yet these examples highlight some significant changes through history. Most striking is the shift from the original and relatively neutral *to work with* to the negatively and slanderous usage in the entries, especially those in the early 20th century entries where collaborators worked together yet against the perceived greater good. Phrases such as “hated England and all she stood for”, “…some sort of shameful collaboration,” “collaborated with a sick heart,” “collaborationists… thrown in their lot with the hated enemy,” and “denounced as other as collaborationists unworthy to be employed by the Allies” suggest that to collaborate, in the early 20th century, was to work against the greater good and signified the collaborator as an enemy

(c.f. Von Soest, 2015). Also striking, although underrepresented, is the 1801 entry where collaborateurs were poor students who helped wealthier students. This poignantly suggests an inherent power differential between those collaborating and those who seek collaborators, and one that regardless of historical usage is present in many contemporary collaborations – a point I will return to shortly.

The general arc, as I read it, for the use of the term collaboration, is that it began neutrally as a description of working together, came to be negatively connoted as collaborators were those working against the greater good, and – somehow – is now positively connoted as working together for the greater good. Varying contemporary collaborative efforts seem to take meaning from each of these. These varying interpretations will impact our collaborations, and so I must be clear about these meanings and what I mean by co-laboration.

Those who seek neutral collaboration in the sense that they only intend to work together, i.e. solve complex problems, are likely imagining collaboration as not inherently laden with power-differentials. To the non-critical practitioner, this is a familiar position – there is a problem whose solution will be better or more quickly identified with the assistance of others and so efforts are extended to gather and direct a group to identify and carry out a solution. This is the type of collaboration that happens in much of our mundane lives such as working together to prepare meals and working together to complete work assignments.[31] Imagining collaboration as such in our mundane lives provides the experience of collaboration (working together) as neutral, thus being taken up in our imaginations and extended to other, perhaps more explicit, collaborative efforts. In my own experience, many collaborations assume this sort of neutrality

[31] Although often not recognized in this sort of collaboration, I argue (without further defense) that power differentials will nearly always be present – it only matters, in this case, that the collaborators do not imagine collaboration as having such power differentials and, therefore, not acting in accordance with them.

or, if they do recognize power differentials, are practically and conceptually ill-equipped to confront the inequalities.

Those who imagine collaboration as a means to build public support for predetermined outcomes, to expose a community to expertise or public opinion, or as social validity for their own projects are likely to imagine collaboration in a similar sense as that of the early 20th century. It may be the conveners of the collaboration or the participants themselves who see the others as somehow cooperating with the enemy and to be kept at distance. Those one wishes to collaborate with are constructed as an "other" that must be taught, convinced, or led. They are not often labeled as the enemy (although, importantly, I've experienced collaborators in the West invite opposing perspectives under the auspices of "keep your friends close and your enemies closer"), but the collaborators – either the conveners, the participants, or both – are treated with suspicion (consciously or otherwise), as inferior or naïve, or with neglect. Divergent values and perspectives are seldom genuinely considered and have little impact on the process or outcomes. Where divergent values and perspectives are considered, they are seen as resources to be extracted from – these collaborators are seen as having valuable knowledge that is needed by the project, yet the engagement with this knowledge will be one-directional (such that the interpretation of the knowledge and the collaborative effort as a whole is controlled by the dominant imaginary, c.f. Latulippe, 2015). Collaborations imagined as such have difficulty in navigating divergent perspectives as one may wish to include the other, but their contrariness – imagined as such – must be subjugated instead of encouraged and acted upon. Power differentials, of course, are prevalent here – it is the dominant imaginary of the collaboration (whichever that may be) that overwhelms, misrepresents, or ignores the other. Although this characterization may seem overly combative and, as such, not obvious in contemporary

collaborations, I contend that how these collaborations are imagined can be (at least) metaphorically understood through terms of hostility, dominance, and treating with the enemy. These general characteristics are ever-present in many of our contemporary experiences, reinforced through the polarization of our country along religious, political, environmental, etc. beliefs. As we experience this polarization in other aspects of our lives, we risk extending these imaginaries into our collaborative practices.

Those who seek positive collaboration recognize that considering the diversity of lived experience, knowledge, social position, and perspectives are ethically prescribed and will yield more equitable results. As well, and importantly, due to the consideration of diversity, they are likely to imagine collaboration as necessarily laden with power differentials. They will seek equitable and diverse representation, prioritizing relationship and trust-building over compliance and conformity while inviting dissent and respectful interaction. These collaborations explicitly recognize that the methods, objectives, and assessment of the collaboration will likely change to reflect group needs, thereby shifting the focus to the collaborative process itself rather than the outcome of the process. Again, this general characterization may seem too altruistic to be present in contemporary collaborations. I do not suggest, in any of these characterizations, that the practice of collaboration will follow these descriptions ideally, but only suggest that the individual people organizing, facilitating, and/or participating in the collaboration will enter it with an imaginatively derived concept of collaboration that will condition their experiences of the collaboration (perhaps challenging their initial conception or perhaps reinforcing it).

Of course, in practice, we are not likely to encounter pure interpretations of collaboration aligning with any of these as the character of the collaboration will necessarily be influenced by the imaginaries of the members, the landscape of power, the context of the collaboration, and a

host of other considerations not treated here. In practice, we should not be surprised to see collaborations with elements of each description intermingled with other imagined types of collaboration that I have not, myself, imagined. As well, I do not mean to suggest that any of these interpretations is necessarily better than the others, especially with regard to power differentials. It may be that dominant imaginaries need to work to recognize a more positive collaboration while not expecting marginalized imaginaries to do the same – at least until the landscape of power has sufficiently shifted to mitigate for inequities. But, minimally, recognizing that these different interpretations exist and accounting for them in the development of collaborations may help in understanding the successes, failures, and complexities of collaborative efforts.

Despite the variation in the interpretations of collaboration, there is a common thread that runs through many collaborative efforts, especially those that occur through academic and governance institutions: the successes, difficulties, triumphs, and failures of collaboration stem from ratio-cognitive discursive practices (Davies, 2014; Harvey, 2009). By ratio-cognitive discursive practices, I mean those practices that seek consensus through rational argument, debate, and/or deliberation. For these purposes, Jürgen Habermas' (1981) description of rationality in *The Theory of Communication: Reason and the Rationalization of Society* is apt as:

> When we use the expression "rational" we suppose that there is a close relation between rationality and knowledge. Our knowledge has a propositional structure; beliefs can be represented in the form of statements. …The close relation between knowledge and rationality suggests that the rationality of an expression depends on the reliability of the knowledge embodied in it. (p. 8)

Important in this description is the suggestion that to be rational, an expression must be reliable in relation to the knowledge it contains. Habermas further describes this as people acting rationally if they "use predicates such as 'spicy,' 'attractive,'…and so forth, in such a way that

other members of their life-worlds can recognize in these descriptions their own reactions to similar situations" (pp. 16-17), thereby rendering the use of descriptive language that does not resonate with other's life-worlds as irrational. It is telling that Habermas uses the example of a "clinically noteworthy…reaction to open spaces" described in presumably irrational terms of "their 'crippling,' 'leaden,' 'sucking' emptiness [which] will scarcely meet with understanding in the *everyday* contexts of most cultures" (p. 17, author's italics). The interlocutor describing open spaces in such terms is, according to Habermas, "not behaving rationally" (p. 17) as their descriptions are not shared by the others.

Ratio-cognitive discourse is thus the reliance on people being able to articulate their knowledge, attitudes, and beliefs (understood as cognitive states) in terms that are coherent with their interlocutor's life-worlds and own knowledge. With the recognition that collaborative efforts do need to pay attention to the ways in which participants deliberate, demanding rational discourse neglects the ways that varying embodiments, affects, emotions, and social positions condition the experiences of diverse participants and the meaning of their words. It short, instead of demanding that rationality be intelligible within other's life-worlds, collaborative efforts need to recognize this interpretative challenge and make space for the irrational (as Habermas may describe it). On this account, power, dominance, and subjugation will set the conditions for rationality such that the misinterpreted are rendered irrational. The rendering of irrationality cannot make space for diverging imaginaries in ways that Western governance require, thus we must look beyond rational discourse in collaboration.

Rational discourse will, assumedly, allow social learning, perspective sharing, relationship development, and trust building in order that a group of people – each with their own cognitive values and knowledge – can work together for better decision-making. The

reliance on the ratio-cognitive discursive dimensions of our human interactions should not be surprising as these institutions are built on modernist principles of mind/body dualisms. Our experiences of these systems build imaginaries that prioritize the psychical dimensions of our lives and it is these dimensions that we seek to engage each other within. But, as argued throughout this project, our embodied and sociocultural experiences are vital to and inseparable from our ratio-cognitive lives. Sarah Davies (2014) elaborates on this point, arguing that the practice and study of collaborative efforts does not:

> pay attention to the non-discursive – to the role of…the emotional, material or creative…[collaborative efforts] are *sites*, full of objects and bodies, and they deal with experiences and knowledges which are similarly embodied and ordered through material practices…they take place in particular kinds of sites and spaces…produce different emotions…and deal with very different form of embodied knowledge. (pp. 94-95, author's italics)

We do interact discursively and our ratio-cognitive selves are critical to this interaction. However, we are not merely ratio-cognitive-discursive beings, and this needs to be attended to in our collaborative efforts.

The skeptical reader might point out that our non-discursive practices might provide opportunity and constraint to our discursive practices, but we can nevertheless reliably engage each other discursively and through rational cognitive reflection, thereby mitigating for differences in our non-discursive experiences since, certainly, discursive experience is still an experience (with all the imaginary developing potential experience affords) and, even more so, an embodied experience (the act of speaking, listening, and experiencing the place discourse occurs in). This essay is, itself, an example of this sort – through my words and propositional thoughts, I seek to modify my readers' imaginary in order to allow imaginative potential that was previously not afforded. And to some readers, this may be sufficient as their own imaginaries are of a sort that can be extended to the non-discursive aspects of their experience. But to suggest

that discursive experience is, in general, sufficient to capture non-discursive experience is to double down on the mind-body prioritization being argued against. If the imagined dualism does not track the reality of our experiences, then prioritization in either direction is misguided. We therefore need to recognize the impact that both our minds and our bodies have on our practices without retreating to dualisms. We need to talk about what we feel at the same time as feeling what we talk about. Richard Shusterman (1994), commenting on John Dewey's conception of experience, summarizes this philosophical point nicely as:

> Wanting to celebrate the importance of this nondiscursive experience, Dewey did so in the way philosophers have habitually emphasized factors they thought primary and essential – by erecting it as a theoretical foundation. This was a bad confusion of what was (or should have been) his true aim – to establish and improve the quality of immediate experience as a practical end and useful tool. Dewey wanted philosophers to see that nondiscursive experience could be used to improve knowledge as well as the felt quality of living. Even if philosophers were trained to dwell instead on discursive reason, their task of giving an account of human reality required recognition of the role of nondiscursive reason. Moreover, given pragmatism's aim of not merely explaining reality but improving it, the value of nondiscursive experience seemed still more important as a project to be realized, and its crucial but much neglected locus was the body. (p.136)

What I take Shusterman to be saying is that although Dewey (and in this project, myself) might be emphasizing non-discursive realities in ways that seem prior or otherwise foundational to discursive realities, our goal is more pragmatic. It is to balance discussion of the discursive with recognition of the non-discursive in order to more fully appreciate the scope of our experiences and improve our future practices.

Taken together, collaboration is imagined in different ways, such as the neutral working together, the negative working contrarily, or the positive working reciprocally yet most often on the assumption that working together takes place within careful ratio-cognitive and discursive reflection. To engage with the non-discursive realities of our collaborations is a radical departure from contemporary western environmental governance and one that the American West should

take seriously. The West's engagement with non-discursive co-laboration is not merely recommended because of the perceived benefit of this sort of modality, but also because discursive collaboration is misaligned with the experience of multiple Wests. Put a different way, the experience of the multiple Wests begets a form of co-laboration that is not often present due to dominant governance strategies.

The communities of the West are intimately tied to their shared environments, whether that be agriculture, mining, and timber communities operating on public lands, urban recreationists enjoying the solace of iconic landscapes, or Indigenous communities enacting sovereignty through their traditional connections to their homelands (among the many other communities in the West). Western landscapes not only provide resources that support various communities, but also the unique experiential currency that conditions divergent environmental imaginaries to emerge. The harsh desolate desert stands in contrast to green blanketed alpine meadows, the impassable granite peaks rise above heavily traversed river bottoms, and technological urban hubs stand amidst eroding rural agriculture. The unique experiential possibilities of the West are highlighted in the jacket of John D. Dorst's (1999) *Looking West* as:

> The American West…perhaps more than any other [region] in the United States….comes to us in visual terms. The grand landscapes, open vistas, and magisterial views have made the act of looking a defining feature of how we experience the West as an actual place.

Although Dorst is certainly correct to highlight the visual terms of the West, his statement could be revised to say that the American West…comes to us in *experiential* terms. It is the experience of the landscapes of the West – the visual, auditory, affective, embodied, and sociocultural experiences – that define how we experience *a multitude* of Wests as actual places. For many communities in the West, to thrive was to engage with the land in ways that required engaging the breadth of experiences – each conditioned by the diversity of the land itself.

Although Western peoples are often characterized as ruggedly individualistic, there is also an inherent recognition of the value of community, from Indigenous ontologies that center community to the practical considerations of having others to help construct a new barn.

In psychical terms, it is fair to characterize the West as individualistic. But in embodied terms, it is not. The value of working together is at the heart of the West, although it is often overshadowed by and enacted (or not) through unjust institutions. For all of the conflict regarding federally managed public lands, this principle of working together permeates the multiple use doctrines that westerners live within, demanding shared responsibility of commonly held landscapes. Western experience, at this juncture in history, is manifold and at the heart of a diverse set of imaginaries all striving to flourish in their respective Wests. The West, as it is currently structured, is young in the sense that it has yet to develop its own institutions that track the unique opportunities, socio-historical realities, and experiential possibilities of a region that is so unlike others. Its promise is yet to be realized and, in part, this is due to the misalignment of institutions, structures, and systems developed elsewhere to the experiential realities of the West. Discursive collaboration is just one of these misaligned projects.

The colloquial proverb that "what you do speaks so loud that I cannot hear what you say," attributed to Ralph Waldo Emerson, suggests the misalignment of discursive collaboration. Originally, Emerson (1875) wrote:

> Let us not look east and west for materials of conversation, but rest in presence and unity…Don't *say* things. What you *are* stands over you the while, and thunders so that I cannot hear you say to the contrary. A lady of my acquaintance said, "I don't care so much for what they say as I do for what makes them say it. (p. 96, author's italics).

Although similar, Emerson's original passage suggests that the body, social position, and past experiences of the speaker have meaning, and not merely the words that they speak. That "what we *are* stands over" our words is a critical point. Our words do not exist nor, if this is correct,

cannot exist in neutral space as our bodies are not neutrally emplaced. Just as our bodies are not neutral, the places we occupy are not neutral as described in chapter four, nor are our past experiences. In collaborative efforts that aim for rational discourse, the words that are said are not enough to convey this complexity and they are not heard apart from the listener's own embodied and experiential complexity.

At this juncture, it is worth being clear about what I mean by discursive versus non-discursive collaboration. As argued throughout this project, the dichotomy is, in practice, constructed. Collaboration, writ large, cannot be characterized in either/or terms, instead falling on a continuum where the poles are thus characterized. Therefore, it is worth considering points along this gradient that describe collaborative variants. The three variants I wish to consider are discursive collaboration, non-discursive by proxy collaboration, and non-discursive collaboration.

What I mean by discursive collaboration is those efforts that render rational discourse sufficient for collaboration. By definition, these efforts will promote dialogue among participants, and through dialogue, decision can be reached, conflicts can be resolved, and lessons can be learned. These collaborations will find it comfortable to meet in conference rooms, virtually (by phone, digital video, etc.), or gather relevant information through surveys and other one-directional communication strategies. Where non-discursive elements are germane to the collaboration, they must be able to be articulated in a way that align with the other participant's interpretative schemas. As Habermas reminds us, people act rationally if their use of "predicates such as 'spicy'…" is done such that others "can recognize in these descriptions their own reactions so similar situations." (pp. 16-17). Thus, the non-discursive (here, articulated as descriptive predicates) is relevant to the effort insofar as it is commensurable with the other's

interpretive schemas – seen here as their imaginaries. This is clearly not sufficient if divergent imaginaries are present.

To be sure, many collaborative efforts do recognize the importance of the non-discursive and do not assume that similar interpretations are a given. In such a case, the collaboration might be described as non-discursive by proxy. It is not assumed that meaning is self-evident in the words and thus attention is paid to the non-discursive dimensions of interpretation. Although these efforts are discursively reflexive – meaning that they reflect on the interpretative elements of their discourse – they still seek to discursively describe, explain, and manage the non-discursive. Instead of one-directional communication, these efforts will value two-directional and relational communication yet will also find conference room meetings comfortable or, in general, displaced collaboration. By displaced collaboration I only mean to suggest collaborations that occur removed from the places relevant to the collaboration: the conference room is unlikely to be the place being discussed. Non-discursive by proxy is laudable and perhaps necessary given the realities of our social lives; in any case, it is still prioritizing the discursive.

Collaborative efforts that treat dialogue as sufficient to navigate the complexities of diverse embodiments reinforce an imaginary – through the experience-imaginative-extension process described in chapter two – that the discursive is more important to our collaborative efforts than the non-discursive. But, as Hasok Chang (2011) reminds us, I am not (nor are any of us) a "ghostly being that either believes or doesn't believe certain descriptive statements, fixing [my own] beliefs following some rules of rational thinking" (p. 210). The discursive is important, to be sure, but prioritizing the discursive treats our experiences, attitudes, beliefs, knowledges, etc. as detached from our embodied realities in that they must be translated and communicated linguistically and following some "rules of rational thinking."

But our embodied and social realities also exist pre-discursively. For example, Audre Lorde (1984) describes true knowledge as the erotic, considering the phrase "It feels right to me" as acknowledging "the strength of the erotic into a true knowledge, for what that means is the first and more powerful guiding light toward any understanding…The erotic is the nurturer or nursemaid of all our deepest knowledge" (p. 56). Lorde's recognition that the phrase "It feels right to me" denotes a deeper knowledge suggests that, for Lorde, this knowledge is viscerally personal and exists prior to discursive practice. Similarly, Gloria Anzaldúa (1987) describes La facultad as the "capacity to see in surface phenomena the meaning of deeper realities, to see the deep structure below the surface. It is an instant 'sensing,' a quick perception arrived at without conscious reasoning" (p. 60). Again, our experiences, attitudes, beliefs, knowledges, etc. are cultivated *before* conscious discursive reasoning, necessarily embodied within the experiencer. Additionally, Dian Million (2013) describes a felt theory of Indigenous knowledge, recognizing that the "lived experience, rich with emotional knowledges…underline[s] the importance of felt experience as community knowledge, knowledge that interactively informs our positions…" (p. 57). Again, Million's account suggests that some things are known pre-discursively and that the specific lived experience is critical to their being knowable.

I understand these thinkers as telling us a rich story about the ways our bodies hold onto pre-discursive knowledge – knowledge that cannot be merely translated and transferred discursively. If we take them seriously and we wish to collaborate within the diversity of lived experience, then we need to also take seriously that rational discourse may not be sufficient to capture the intricacies of our lives. Non-discursive collaboration does not occur sans discourse, instead relegating discourse to a necessary but *not* sufficient role. These collaborative efforts will recognize the primacy of embodied and sociocultural experience. These collaborations center

experience by reflecting on the determinants of certain experiences (e.g., the historic and current experience of land dispossession needs to be recognized in collaborations with Indigenous Peoples), reflecting on the experience of the collaboration itself (e.g., reflecting on individual's experience of the discourse, activities, etc.), and curating future experience (e.g., reflecting on the experiential potential of possible decisions). Above all, these collaborations should take seriously the lesson of the proverb "what you do speaks so loud that I cannot hear what you say:" participant's actions must be taken into account and not merely their discursive commitments.

In principle, non-discursive collaboration should not be difficult nor especially novel. The obstacle to promiscuous co-laboration in the West is in the imaginaries that are brought to bear in some collaborative efforts that prioritize and deem sufficient discursive practices. Those imaginaries – whatever they may be – that arrest, distort, deprioritize, or otherwise neglect the pre-discursive reality of our lives will be hard-pressed to appreciate the variance, diversity, and plurality of non-discursive collaboration. And if the non-discursive is critical to understanding the places of the multiple American and Indigenous Wests, then those arresting/distorting imaginaries pose a considerable obstacle to place-based governance. The experience of discursive collaborations only reinforces the imaginary that they cannot exist elsewise – to collaborate is just to discursively collaborate. The West needs to remember that to co-laborate – or to *com laborare* – is merely to work together and to recognize that as embodied, ratio-cognitive beings, we bring our minds, bodies, and souls to this work. If who we are is conditioned by where we are (and vice versa) then we must confront the minds, bodies, and souls conditioned by the multiple Wests and strive to labor together. Collaboration, as it is currently imagined, must make way for co-laboration – laboring together with our complete and varied selves.

Although there a multitude of imaginaries that do not treat the non-discursive as, at least, on equal footing with the discursive, there is something to be said regarding co-laboration and the environmental imaginaries discussed in chapter three. In general, and following from the scientific imaginary (which, as I argue in chapter five, will find it difficult to prioritize the non-discursive), any imaginary that is founded on a linear epistemic imaginary will be ill-suited to grapple with the complexities of the non-discursive. The non-discursive resist reductionist, objective, and causal accounts of the world, which are constitutive of the sort of linear thinking that pervades -machine and -community imaginaries. For these imaginaries, co-laboration may need to begin with a sort of Introduction to Experience or Imagination (or, perhaps, something else altogether) in order to make non-discursive elements legible to linear thinkers. It is important that these elements are introduced discursively and, where available, in empirical terms as these are the modes that will be most charitably interpreted to linear epistemologies. After sufficient introduction, the co-laboration can move on to treating the non-discursive *qua* non-discursive.

As described, our places are essential to our experiences. This essentialism may be interpreted by some imaginaries as a collapse of the human/nature non-porous boundary where our experience is seen as a phenomena of the place itself inasmuch as a phenomena of our lives. For those imaginaries – here, described as -community and -family imaginaries – founded on a porous or non-existent human/nature boundary, the non-discursive may be easier to entertain given the recognition that we are integrally intertwined with our environments in ways that resist conceptual separation. The -machine and -garden imaginaries, and the non-porous human/nature boundary imagined by them, will find it difficult to imagine how our environments themselves constitute our conceptual schemas and thus co-laboration with these communities may begin

with a sort of Introduction to Place in order to elaborate the ways in which our lives and our environments are inherently woven.

Following from this, the -machine imaginary will find it most difficult to entertain the non-discursive, while the -family imaginary will find the non-discursive exceedingly comfortable. Generally, collaboration founded on rational discourse tracks settler-colonial imaginaries and thus, at a broad socio-political scale, settler-colonialism in all forms must be confronted in order to usher in a co-laborative politic. The recognition that our imaginaries – and the experiences that give rise to them – are critical to our co-laborative potential allows facilitators, supporters, and sponsors of collaboration to evaluate the co-laborative potential of their efforts through the predilection of some imaginaries to arrest or distort the non-discursive elements of our lives.

Co-laboration is not uniquely Western nor should it be – we are all complete selves and so we should all seek to co-labor (and deserve the recognition that co-laboring requires). The West, however, is uniquely situated (public lands, diverse imaginaries, cultural power, etc.) to enact co-laboration in order to develop institutions that take seriously the non-discursive elements of our lives. What co-laboration looks like in practice will vary immensely. It will, however, seek to understand the diversity of place-meanings of the American West and the constitutive elements of those. It will celebrate the range of ways people connect to their places and respect the range of expertise that communities bring to bear. It will demand that we are humble in our prescriptions, recognizing that they are themselves products of our own experiences and imaginaries. And it will celebrate the diversity of experience, helping to construct an imaginary where Western Peoples reflect on their own experiences and the ways in which their imaginaries arrest or distort other's experience. Lastly, recalling the discussion of

bodies/fences/nature relationships in chapter four, reflecting on our experiences, places, and imaginations is humbling and this humility is, itself, a sociopolitical divergence from the (relative) certainty of mechanistic analyses. As Michael (2000) recognizes, these considerations operate on such "mundane a level…that there can be no overarching principles by which to derive 'what to do' as an environmentally concerned actor. However, this is the point. It is an analytic that 'advises' modesty and caution…" (p. 122). The act of reflection on the non- or pre-discursive in co-laborative forums performs the caution and modesty that we require. This project is, itself, discursive and too short to fully recognize the character of co-laboration as non-discursive co-laboration will happen in ways that may resist discursive interpretation. But there are general strategies we could employ to encourage the non-discursive and, in doing so, we begin to characterize co-laboration as something other than collaboration.

First, we need to contend with our own intuitions about experience. Our experience, as described in this project, is continuous and a complex interaction between our embodiment, mental attitudes, sociocultural norms, material conditions, etc. Experiences range both from the passive to the intentional and from the internal to the external. Some are inchoate, and some are forceful. Dedicated work to understand the determinants of a range of experiences is required to understand both how some imaginaries are constructed (e.g. how co-laborers are conceptualizing the co-laboration) and how to structure our lives in such a way as to produce desirable experiences. Of particular import, however, is that we should seek to prioritize those experiences that promote imaginaries that value pre-discursive experience or minimally, do not arrest or distort it. Whether this be experience of boundaries, natural spaces, artifacts, science, co-laboration, or something else altogether is beside this point – whatever we demand of experience, it should at least be recognized as having the force to limit or distort future experiences. If we

have diverse imaginaries constructed from diverse experiences, we need to minimally grapple with those experiences (as extended in certain imaginaries) that prevent us from recognizing experience per se or the diversity of worldviews. This is what I take John Dewey (1938) to be suggesting in saying that "Any experience is mis-educative that has the effect of arresting or distorting the growth of further experience" (p. 25). We should strive for experiences that do not arrest or distort future experiences and, if we must have certain sorts of experience to even recognize the fundamental value of experience, then we should strive for these sorts of experience.

The recognition of experience in co-laboration allows us to focus our efforts on the types of experience being had in co-laboring. Instead of developing a co-laboration around desired objectives, the co-laboration may instead be developed around the sorts of experiences it arouses such that the experience of the co-laboration is not inchoate, but instead becomes forceful or, as Dewey describes, *an* experience itself. Discursive practices can help to guide these experiences, but will need to take seriously the limits of discourse. The objective of the co-laboration matters and can still serve as a destination, but the imaginative value is now seen as arising from the way we get to the destination; the sort of experience our co-laborers have during the travel. Co-laborations focused in this way are intended to be taken up in the imagination and extended to our conceptual systems, allowing the non-discursive (and all the fuzziness that comes with it) to be contended with alongside the discursive.

Our bodies matter to our experience and are thus a locus of co-laboration. They are reflections of our past experiences such as the scars we bear and the callouses that evidence our recurrent activities. They are also our vehicle of experience and each vehicle can traverse different sorts of experiential possibilities. Co-laborations need to take this seriously, creatively

imagining how the physical act of working together can be pluralized to include the diversity of bodies that exist. There will need to be focused effort on physical interaction between the co-laborers and their material worlds, such that they experience their place in their own way yet share multiple and varied experiences of common places. Through iterative material and co-laborative interaction, co-laborations help to develop place-attachments that can be shared between diverse communities. However, co-laborers will bring their past experiences and place-attachments to their co-laboration, and so attention need be paid to the ways that some places pre-empt some experiences. Nevertheless, place is not static and can be reshaped through place interaction – the common experience of a place with explicit focus on experiencing that place together can help to accomplish this.

Our bodies also affectively, emotionally, and physically recoil from some experiences. Co-laborations need to take this seriously as recoiling is itself an experience and one that can arrest or distort future experiences for the one experiencing recoil as well as those experiencing the other's recoil. For example, blatant disregard for someone's lived experience may provoke the disregarded to recoil from the co-laboration and the recoil, itself, will impact the experience for the other co-laborers. Recognizing the non-discursive allows the discursive to track and help mitigate for recoil – co-laborations need to be clear about prioritizing embodied actions/reactions and develop in ways where reactions are treated without being minimized. Careful reflection of the co-laboration, done in concert with the co-laborers, can itself be an experience that both prompts us to learn and care about the non-discursive through recognition of its reactive impact as well as develop further experiences to mediate reactions. Some mediation efforts will prompt experiences that allow co-laborers to diversify their experiential possibilities and some will

prompt experiences that arrest experiential possibilities – careful co-laborative reflection can help to achieve the former over the latter.

And, above all, co-laborations should seek opportunities to physically engage rather than merely mentally engage. Some practices in the West already take this seriously – many environmental collaborations (importantly *not quite* co-laborations) take place in the natural world through site tours and conservation projects. Of course, there will be many times where discursive engagement is necessary, but there are also many missed opportunities to engage bodies. Long periods of discursive engagement can be broken up with physical engagement such as planting a tree, walking a trail, or lying in the grass. Engaging the body allows non-discursive experience to be integrated into the co-laborative, bringing with it the embodied, aural, visual, affective, etc. experiences of the place.

Focusing on the non-discursive in co-laborative efforts may seem pointless, frivolous, or otherwise inappropriate. And to the dominant imaginary in environmental institutions, they very well may be. Taking seriously the impact and role of experience as well as the experiential possibility of Western landscapes, however, should prompt us to creatively re-imagine just what we are doing when we are working together. Our co-laboration is an experience itself and just what sort of experience do we wish to be taken up in the imagination and extended? These brief considerations implore us to re-imagine the experiential potential of the co-laboration, but we also must consider the experiential and imaginative potential of the results of the co-laboration. We must also consider how the ultimate products will be experienced into the future, opting for those that improve future experiences rather than those that arrest or distort them. For example, environmental decision-making in the West often must consider fence-types to construct on the landscape – a discussion regarding the potential of varying fence-types to promote or dissuade

certain imaginaries would help to ensure the principles of co-laboration are extended into the future experiences of those interacting with the fence. Our choices to measure, group, construct, regulate, recognize, etc. condition our future experiences – taking the non-discursive seriously demands that we take this conditioning seriously.

As recognized, I cannot provide a full characterization of co-laboration in practice. What is needed is to firstly recognize the value of the non-discursive and then experiment with ways to integrate it into our collaborative practices to develop them into co-laborations. We can start by talking about the imagination and our imaginaries, what place is and what our places mean, and reflecting on experience writ large and our particular experiences. By recognizing the impact of the non-discursive on our worldviews, we can begin to work together to integrate multiple imaginaries in ways that at this current time may seem unimaginable. This brief discussion has only suggested a few ways to do this at the level of the co-laboration itself. However, the environmental institutions in the American West have a role to play in prompting non-discursive co-laboration at the systemic level and it is at this level that the principles of co-laboration must be recognized.

Co-laborative Place-Based Environmental Governance

Environmental governance, generally and as described previously, is complex. It is especially so in the American West where considerations of economic, political, and social institutions that operate across varying spatial and temporal scales are foregrounded by concerns of appropriate government intervention (federal, state, local, or none) on millions of acres of stolen land that is explicitly managed for multiple (often incompatible) uses and, at times, no use at all. Tracing this complexity is a career-long project itself, and thus I cannot do it justice in this small space. What must be recognized, however, is that whichever form it takes and to

whichever ends it proceeds, environmental governance in the West acts on, with, and through emplaced human bodies.

Perhaps most important to the discussion of environmental governance in the American West is the role of the various federal agencies in sponsoring, regulating, policing, and otherwise governing Western landscapes. If one wishes to engage in environmental governance in the West, one must engage the federal regulatory system. This federal system is itself contested, with the various federal departments – predominantly the Department of Agriculture (DOA) and the Department of the Interior (DOI) – and each with their own various agencies – predominantly the National Park Service (NPS), Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), United States Fish and Wildlife Service (USFWS) and the United States Forest Service (USFS) – operating with different missions and objectives, regulatory means and restrictions, and with varying levels of community and financial support. There is perhaps no more succinct description of this contestation than Michel Foucault's (2008) description of the relationship between various governmental rationalities:

> In the world we have known since the nineteenth century, a series of governmental rationalities overlap, lean on each other, challenge each other, and struggle with each other: art of government according to truth, art of government according to the rationality of the sovereign state, and art of government according to the rationality of economic agents, and more generally according to the rationality of the governed themselves. (p. 313)

Here, Foucault is describing four sorts of rationalities – discipline, sovereignty, neoliberalism, and truth – that operate varyingly in the broad scope of what he terms governmentality. Robert Fletcher (2010, p. 178) describes these four as:

- Discipline: Governance through encouraging internalization of norms and values

- Sovereignty[32]: Governance through top-down creation and enforcement of regulations
- Neoliberalism: Governance through manipulation of external incentive structures
- Truth: Governance in accordance with particular conceptions of the nature and order of the universe

These four, in varying degrees, can be found through the complexities of Western land governance. For instance, licenses for hunting wild game (a form of governance) are issued through various agencies, often requiring training that introduces students to hunters' or sportsmans' ethics – a clear attempt at discipline governance. The scientific management of natural resources is a common description of environmental governance in the West and telling – the phrase itself, "scientific management of natural resources" encapsulates sovereignty governance (management as top-down enforcement), neoliberalism governance (natural resources as incentivizing products), and truth governance (scientific). The meteoric rise of the Ecosystem Services framework, the prevalence of conservation easements and restoration credits, and the commodification of natural landscapes for ecotourism can all be described with varying degrees of these governmentalities. These governmentalities are effective because of the conditions they exist within (e.g. neoliberal environmental governance may be more effective in neoliberal economies) while also setting conditions for future governance possibilities such that if someone always experiences environmental governance as neoliberal governance, then their imaginaries codify the environment as mere resources used to incentivize behavior. This is not to say that any of these governmentalities is bad or ill-fitted to environmental governance – in fact, they will be best-fitted for environmental governance if they align with the imaginaries of those in the governance system. But this is suggestive – if there are multiple American and Indigenous

[32] It is important to recognize that this concept of sovereignty is not the same as that of Indigenous sovereignty which allows sovereign nations to pursue whichever governmentality they wish.

Wests and they have varying governmentality alignment, then there is no one-size-fits-all. We must imagine a governance practice that allows the just and equitable reflection of multiple governmentalities through the engagement of multiple imaginaries and, importantly, the experiencing bodies that hold those imaginaries.

That these Foucauldian governmentalities are prevalent in modern institutions is widely recognized, and Robert Fletcher has done well to show how they interact within environmental governance in a variety of contexts (c.f. Fletcher, 2010, 2017). But, as Fletcher recognizes, they appear to be insufficient to capture concerns of environmental and social justice – concerns that are increasingly being leveled against contemporary governmentalities. Following from the work of political ecology, Fletcher suggests a post-conservation "liberation environmentality" where the "dominant 'development discourse' in which a cadre of (white, western) 'experts' plan interventions on behalf of the world's poor," give way to "a 'post-development' era emphasizing genuinely participatory and collaborative processes for enhancing people's well-being within culturally-appropriate frames" (2010, p. 178). The recognition and development of a divergent governmentality can, as Fletcher hopes, improve both communication among governance practitioners and help to facilitate more just environmental collaborations (p. 180). Forgiving the call to collaboration (which, as argued, is often imagined as discursive collaboration), Fletcher's contribution lies both in the critique levelled at contemporary governance but also, and more important to this project, the space it carves out to imagine what this new governmentality must look like.

If we are to take seriously the call for a new governmentality and that the West is prime for this sort of non-discursive co-laborative governmentality, then critical work must be done to highlight the ways in which the federal regulatory system must adjust to accommodate a re-

imagined and genuinely western way of dealing with western issues. The scope of this work is well beyond this project and will require multi-disciplinary expertise, practitioner perseverance, and community support. However, without providing the conditions for a co-laborative place-based governance to emerge, it is unlikely that a new governmentality can enter the foray of existing governmentalities.

To do this, our environmental governance institutions must first re-imagine the thing that they are governing. The self-interested rational agent operating in an objective and predictable material world of spaces must be replaced by an experiencing, imaginative agent operating in and through their places. The mind/body, subject/object, and real/imagined dichotomies of contemporary governmentalities have – for reasons expressed throughout this project – the capacity (if not the necessity) to arrest and distort our future experiences in ways that do not allow us to recognize the plurality and diversity of our experiences, places, and imaginaries. Co-laborative place-based governance, however, requires more than the mere re-imagining of the subject of governance. It requires systematic, institutional re-tooling to transform current regulatory frameworks into ones that recognize place and experience.

What this means, in principle, is that current institutions treat the environment (the subject of governance) as the material and predictable background to human activity. Human activity is treated as impacting the environment, but not part of it. If, on the other hand, human experience cannot be understood apart from the human agent's subjectivity in combination with the material condition, then the environment (necessarily understood through human subjectivity) contains both the material conditions and human experience – expressed through human agent's imaginatively derived environmental conceptions. To govern either the human apart from their environment or treat the environment as distinct from human experience is to not

recognize the full constitution of the environment. Environmental governance, therefore, needs to take seriously the interdependence of environmental material conditions and human experience of those conditions as elaborated through our place, experience, and imaginations (among other fuzzy and non-fuzzy discursive and non-discursive phenomena).

Place, as described in this project, is the locus of this shifted environmental conception. Our places integrate the material conditions of the environment with the experience of them and the imaginative extensions they provide. Shifting the subject of environmental governance from either the human apart from their environment or the environment apart from the human experience to the places that we experience has the consequence of modifying our governance strategies – whatever they may be – to track other relevant features of human experienced environments. Recognizing the environment as place is, in Daniel Wildcat's (2001) words, to "actively acknowledge and engage the power that permeates the many persons of the earth in places recognized as sacred not by human proclamation or declaration, but by *experience in those places*" (p. 13, italics added). It is not by human proclamation or declaration that our environments matter – that they are deemed sacred – it is in the experience of those places. Governance that treats place seriously, especially places as events rather than meaning laden objects, must at the same time treat our experience of that place seriously.

People are always emplaced, but without the recognition of their emplacement – without recognizing their own experiences of their emplacement and how they are constituted by place – they operate as if they are continuously displaced. In context, Wildcat's words are describing the metaphysical background that conditions Indigenous Knowledge, knowledge that western science and society are increasingly looking to in order to better govern ourselves in relation to our environments. But this sort of knowledge is knowledge of place and the sort that takes

experience of place seriously. If we wish to more justly engage with this sort of knowledge, learn from it and incorporate its principle understandings into our governance, then we must first start by recognizing the power of place, re-conceptualizing the subject of our governance, understanding that places are entwined with human experience, and that this sort of emplacement allows a distinct form of knowledge to emerge. Importantly, we should make place for the people with this expertise to thrive and proliferate – instead of translating Indigenous Knowledge into Western paradigms, we must learn to act in accordance with Indigenous Knowledge. As Indigenous Peoples hold Indigenous Knowledge, we must thus make room for their knowledges and the experiences that come with it. This is not done discursively as in *saying* we want to make room, but instead done by *acting* to make room. We should be reminded that what we do speaks louder than what we say.

In practice, this acknowledgment will take many forms. Aside from the reorientation that must occur to integrate experience and place into our governance, we will need to reimagine the geospatial scope of western environmental governance. For example, Bureau of Land Management (BLM) governance applies to all BLM lands (although, admittedly, they are often interpreted locally to meet local conditions – but the constraints to this interpretation are concrete and substantial). We will have to figure out how to pluralize this governance in order to allow unique forms to emerge based on the varying constituents of local places (people, experience, material conditions, etc.). This idea is not new, but it has been forgotten or overlooked in western governance. John Wesley Powell, a geologist who explored the American West in the 19th century, admitted in his 1879 DOI commissioned *Report on the Lands of the Arid Region of the United States* that the West would not be amenable to eastern property divisions, instead proposing that western state lines should be based on watersheds. Powell recognized that the

western landscapes varied along their respective water drainages and water, itself, was all important in western environments. Daniel Kemmis (2013) extends this notion, describing current political and regulatory strategies such as interstate compacts between states and sovereign Indigenous tribes that would effectively place environmental governance at the scale of the western drainage with unique governance systems emerging from the varied basins in the West. To respect place, federal governance must grapple with the diversity of western landscapes and seek to re-tool governance in order to allow diverse governance structures to emerge from the multitude of places. I do not offer possible solutions to this issue of de-scaling western governance, only highlighting the necessity of it if we are to take the non-universal place seriously in our efforts.

Following from the de-scaling of western space into a landscape of diverse places, current governance will need to grapple with the sorts of epistemic justification that it currently requires. Simply, the priority placed on the scientific institution must be reckoned with. As argued previously, western science may be necessary but is not sufficient to recognize the epistemic plurality required for place-based environmental governance. However, it is institutionalized in legal procedures such as the "best available science" clause in the National Environmental Policy Act (which applies to all decision-making on federal lands, thus decision-making on western lands), in environmental practice, and in federal hiring and administration. Promoting diverse place-based governance will require the allowance of other community validated epistemic practices. Again, what this looks like is beyond the scope of this project, but we can minimally see this as a pluralizing of disciplinary knowledge in governance justification – perhaps a congressional modification of "best available science" to "best available knowledge" and the legal shifts that would follow this modification. Interdisciplinary teams comprised of the

natural sciences, the social sciences, and the humanities would be necessary for justification – not merely the natural sciences. The epistemic components of ceremony, story and narrative, art, and experience itself must be grappled with and allowed to influence place-based governance. It matters not if these considerations can be translated, interpreted, described, measured, or studied by western science; place-based governance must recognize epistemic plurality allowing justification to emerge from a diversity of epistemic experiences.

There is low-hanging fruit here: place-based governance will require the modification of federal agency hiring practices and funding priorities. Currently, students with environmental studies (importantly *not* environmental science) degrees do not meet minimum federal hiring requirements for resource management or conservation officer positions (among many others), even though environmental studies introduces students to the social and humanistic dimensions of the environment that is needed for place-based management. This is due to their lack of credit hours in the natural sciences as their credit hours are instead spread over the natural and social sciences, arts, and humanities. The multi-cultural empathy and understanding that emerges from these other disciplines will be necessary for place-based governance and should be actively integrated into environmental management positions. Funding priorities will need to be shifted, allowing resources to pursue varying forms of governance – from stream and wildlife studies to co-laborations and cultural remediation. With these shifts, plural expertise will be required to both direct and evaluate the shifting as well as facilitate the on-the-ground efforts. Proposed policy and regulatory changes will need plural expert evaluation to prevent the arresting/distorting effects that hinder place-based governance.

Current governance is founded on the ability of experts to predict and control environmental phenomena (itself a product of the sufficiency of science). Prediction and control

require a future-objective – we want to control in order to attain a certain sort of condition. Aside from the lack of acknowledgment that values play in deciding this condition, this sort of governance strategy makes it difficult to quickly adapt to changing conditions, whether they be social, cultural, or environmental. Without changing our future-objective, we instead change our current strategy when conditions change, regardless of the cost, difficulty, or impossibility of changing our strategy. A new governance paradigm would do well to re-conceptualize this stance, instead letting the objective emerge from current conditions as reflected in the burgeoning shift in livestock permits from static to adaptive. This requires constant engagement with our places, critical reflection of our practices, creative experimentation, and genuine humility. If we want to preserve our place experiences, although recognizing that they will shift with changing conditions, we must resist the urge to focus our energy into making a future-place that we wish to inhabit, instead focusing on the place we are in. Both emerging governance paradigms such as adaptive management and traditional paradigms such as Indigenous seasonal rounds diverge from this future-oriented approach, instead recommending governance practices that institutionalize adaptability and practicing in flux. Minimally, place-based governance must allow some forms of adaptive/flux/seasonal governance to emerge without placing undue institutional restraint on them.

If we wish to take place-based governance seriously, the institutions that emerge will be required to engage with diversity and plurality in ways that they are currently unable to. Much of the work to reimagine these institutions will be required of the people that serve the institution itself. As these institutions condition the experiences of their employees and the public that lives within the constraints of the institution, this work will not come easy. But these people are not born into the institution – they are trained. And they are trained in academic institutions.

Therefore, academic institutions have a responsibility to both study and instruct with a focus on diversity, plurality, and the embodied human experience. Much of the academic institution takes this seriously, although they face the same imaginative difficulties that those in governance institutions face. The emergence of interdisciplinary scholarship is promising as it requires significant reflection on the ways our institutions and deeply held convictions pose considerable challenges to integrating diverse imaginaries. But if we wish to imagine a new place-based governance paradigm, we need to also recognize that much of our academic study is itself not place-based. The search for universal truth shifts our focus from our and our communities' individual experiences and obscures the emplacement of our research projects. Much work needs to be done to collapse the artifice that render us displaced mental beings and recognize our emplaced, embodied, experiential realities. As academics, we condition the experiences of our students through our own activities as well as the force with which we hold onto mind/body, object/subject, fact/value, true/false, wild/civilized, culture/nature, etc. dualisms. The fuzziness of our experience, imaginations, and places (among others) must be allowed to impact our own imaginaries in order for us, as a society, to be able to reimagine governance (writ large) as something other than it is.

Our experiences are conditioned by our worlds. Reimagining our environmental governance strategies will require those governance institutions to relinquish some of their power to the communities that exist in place. We should not fear this. Through co-laboration and the celebration of human experience, we can engage with the diversity of communities and landscapes in the West. The multiple Wests share in the experiential possibilities afforded by public, commonly held lands. By taking our emplacement on these lands seriously, the West

stands to, as Daniel Kemmis asserts in the epigraph to this project, outgrow our political infancy and develop a genuinely western way of dealing with western issues.

Conclusion

Collaboration, generally, is increasingly recommended as the tonic for our social ills. Humans, as a social species, have always flourished by working together and so to demand collaboration is, in some sense, to demand remembering our human-ness. But the ways in which humans have been conceptualized as primarily ratio-cognitive discursive beings makes the problem of collaboration a very real problem indeed. And this is unlikely to change. However, by recognizing the experiential possibilities of our places and our commitments, we can begin to reform our imaginaries in ways that make co-laboration possible. In the American West, this begins with the recognition of the power of place or, as Joe L. Kincheloe and his colleagues (2006) suggest:

> …place is the construct that brings the particularistic into focus; a sense of place sharpens our understanding of the individual and the psychological and social forces that direct her. An appreciation of the interaction of place and feeling particularizes and exposes embedded social forces. (p. 145)

The multitude of western (environmental) places and our diverse experiences of them are, in this sense, exposing our embedded social forces. Given the tremendous conflict and complexity of environmental governance in the American West, studying our places – and the fuzziness of them – stands to help us better understand both our environments and ourselves. Studying our places exposes the social forces that hold the West together or, very possibly, tear it apart. Taking seriously place-based governance in the West radically reorients us to recognize our own and other's experience of the West. It is a genuinely western way of dealing with western issues.

OF CHEATGRASS AND BIODIVERSITY

I'm back in the Nevada desert in the summer of 2018, listening to a University of Nevada extension agent explain the spread of invasive annual grass species into native and non-native plant communities using the metaphor of colonization. The desert heat is harsh, but somehow comforting. I'm surrounded by local ranchers, state and federal agency officers and managers, and non-profit organization representatives. Everyone has a hat on, but the size and direction of the brim reflects just what community that person represents. Laced hiking shoes tread on the dry desert alongside pull-on leather boots. The extension agent is in discussion with a handful of differently-specialized scientists. This is like many of the collaborations I've participated in and learned from – at times it may be more aptly described as scientific dissemination. At a minimum, scientific description is the interpretative background that sets the conditions for our conversations.

The use of the colonization metaphor strikes me. In this collaboration, we are all colonizers. What does it mean that this is how we understand what the invasive cheat grass is doing to the native desert? And why is the cheat grass "invasive" and "colonizing," but the non-native plants are not? The answer lies in how these plants live together or, put differently, how they provide a place for the proliferation of other species of plants. Cheat grass is invasive because when it enters these arid ecosystems, it dominates to an extent that all other plants – native and non-native alike – cannot thrive (Knapp, 1996). Non-native plants, on the other hand, thrive in symbiosis with their native counterparts. And sometimes when an ecosystem is severely degraded, non-native plants can be seeded in order to hold at bay the invasive species while allowing the native communities to grow in the places between. The desert soil has a rich bed of

native plant seeds that, given the right conditions, will thrive and keep the invasive species at bay.

We can learn from these plants. What makes the cheat grass dangerous is that it disallows the proliferation of other plants – other plants that have their own modes of living, requiring different nutrients, soil types, and water regimes while providing different degrees of shade, nourishment for the desert wildlife, and germinating seasons. Altogether, the increased biodiversity promotes a more resilient system that can recover after wildfires and drought. It allows a wider variety of wildlife – some endangered and some not – to thrive in the desert, each taking from the system what they need and giving back what the system needs. The biodiversity thrives just because none of the species disallows the others from thriving.

But collaboration between diverse groups (akin to thriving biodiversity) is not often like this system. It is constrained by an imaginary that sets the conditions for future experiences and, critically, limits the expression of other imaginaries. This metaphor is apt – it is an invasive imaginary, colonizing the collaborative space and limiting the proliferation of diverse experiences. The West is fighting cheat grass in nearly every threatened ecosystem because we know just what is put at risk when the resilience of biodiversity is sacrificed for 100 million acres of invasive annual grasses.

This dissertation was borne out of my own curiosity to understand collaborative efforts in the American West. Just as diverse species co-laborate to enact resilient ecosystems, the West needs to co-laborate to enact diverse and resilient eco-social systems. When I began, I did not expect to find answers in my own imagination, experiences, and places. But I did. Our imaginations are spectacular and all-important to how we conceive of our worlds. The second chapter of this project attempts to collapse the mind-body dualisms that have rendered the

imagination as either subordinate or superordinate to other mental faculties, instead instilling it as both occurring in our bodies and our minds. The imagination, in this role, provides the organizing logic that sorts our experiences and metaphorically extends them to our concepts. The input to this imaginative process is our continuous, inchoate, forceful, embodied, sociocultural, non-discursive, and discursive experience. The output of this process is a rich conceptual tapestry that allows us to make sense of our worlds or, as I have used it, our imaginaries.

As our diverse experiences are necessarily particular to ourselves, we develop a multitude of imaginaries that converge and diverge in important ways. The third chapter began painting a picture of divergent environmental imaginaries in the American West, or, put differently, those sets of experiences that promote varying interpretations of western environments. The environment as machine, garden, community, and family imaginaries construct western environments so differently as to promote substantial conflict in western environmental governance – conflict that is often thought to reside in our discursive epistemic practices and not in our embodied and sociocultural experience of our places. Describing these imaginaries is a first attempt at taking seriously how our experiences of our places work to develop divergent imaginaries and how these divergent imaginaries themselves construct the multiple American and Indigenous Wests.

At the core of our imaginative capacities is our experience of our material worlds or, as argued in chapter four, our places. Our places are imbued with meaningful significance and whether we choose to recognize it, we are always emplaced. How we live in, recreate on, and ultimately experience the granite peaks of the Rocky Mountains, the hot and dry sun of the arid desert, or the lushness of river-bottom meadows is important to how we imagine the environment at large. How we experience the things in our environments – the naturally occurring objects and

the artifacts that require human intentionality – is important to how we imagine our own relation to the environment. The various fences used in the American West serve to illustrate both how our imaginaries – whatever they may be – are enacted through our material construction and also how our experiences of that materiality are taken up into our imaginations. Just as we can learn from the plant communities under our feet, we can learn from the fences we walk alongside.

The multitude of experiences and imaginative potential of the American West is far more than can be treated fairly in such a short space. However, the role of the scientific imaginary cannot be understated in the environmental governance of the American West. Chapter five begins describing the experience of science from the perspective of scientists acting and reacting to their environments. The experiences of measuring and grouping as they occur on the imagined background of realism were explored to help understand how they are taken up in the imaginary and extended to limit the expression of non-discursive phenomena. It is not that science is not necessary only that it is not sufficient – we risk cheat grass invasion if we do not take seriously that to diversify our eco-social systems, we need to provide an imaginative place to do so. We need experiences that, themselves, promote greater experiential and imaginative potential instead of limiting, arresting, or distorting it.

Our environmental experiences are conditioned, constrained, and encouraged in a large part by our environmental governance strategies. Collaboration in environmental governance is increasingly prescribed and for good reason – it promises more equitable, inclusive, and effectual governance. However, as I argue in chapter six, if it viewed as fundamentally discursive collaboration, then it disallows the roles of imagination, experience, and place to be taken up in collaborative governance. I argue for a shift to co-laboration which explicitly encourages and treats the non-discursive alongside the discursive where we see co-laboration as employing our

bodies and minds to work and experience together in place. The chapter and this dissertation ends with a brief description of systemic change in our governance and academic institutions that need to be considered in order to allow the imaginative and experiential potential of the American West and its communities to flourish.

As mentioned, this project has been a personal reflection on the obstacles and opportunities for collaboration in the American West. For many inter-related reasons (e.g. climate change, extractive development, rampant consumption, imperialism, social and political unrest), we are at a juncture where we must reimagine what our social practices, material realities, and environmental governance strategies look like. We must grapple with the complicated, challenging, astounding, and marvelous complexity of our world, ourselves, and our experiences of both.

REFERENCES

REFERENCES

Anderson, M. S., Ronning, E. A., Vries, R. D., & Martinson, B. C. (2010). Extending the Mertonian norms: Scientists' subscription to norms of research. *The Journal of Higher Education*, 81(3), 366-393.

Andzaldüa, G. (1987). *La Frontera/Borderlands*. The New Mestiza.

Ankeny, R. A., & Leonelli, S. (2016). Repertoires: A post-Kuhnian perspective on scientific change and collaborative research. *Studies in History and Philosophy of Science Part A*, 60, 18-28.

Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners*, 35(4), 216-224.

Asafu-Adjaye, J., Blomquist, L., Brand, S., Brook, B. W., DeFries, R., Ellis, E., ... & Nordhaus, T. (2015). *An Ecomodernist Manifesto*. Ecomodernism.org.

Augé, M. (1995). Non-places: Introduction to an Anthropology of Supermodernity. Verso.

Baviskar, A. (1999). *In the belly of the river: tribal conflicts over development in the Narmada Valley.* Oxford University Press.

Benton-Banai, E. (1979). *The Mishomis book: The voice of the Ojibway.*

Berry, W. (1977). *The unsettling of America: Culture and agriculture*. Counterpoint Press. Berkeley, CA.

Birch, T. H. (1993). Moral considerability and universal consideration. *Environmental Ethics*, 15(4), 313-332.

Bird, A. (2018). The metaphysics of natural kinds. *Synthese*, 195(4), 1397-1426.

BLM Planning 2.0 Fact Sheet. Accessed on 03 Mar 2020. https://www.blm.gov/sites/blm.gov/files/Planning2_0_Factsheet_FINAL.pdf

Bloor, D. (1991). *Knowledge and social imagery*. University of Chicago Press.

Boon, B., Stroebe, W., Schut, H., & IJntema, R. (2002). Ironic processes in the eating behaviour of restrained eaters. *British journal of health psychology*, 7(1), 1-10.

Borgmann, A. (1987). *Technology and the character of contemporary life: A philosophical inquiry.* University of Chicago Press.

Brady, E. (1998). Imagination and the aesthetic appreciation of nature. *The Journal of Aesthetics and Art Criticism*, 56(2), 139-147.

Brann, E. T. (1993). *The world of the imagination: Sum and substance*. Rowman and Littlefield Publishers.

Brazeau, R. J., & Gladwin, D. (2014). *Eco-Joyce: The Environmental Imagination of James Joyce.* Cork University Press.

Brister, E. (2016). Disciplinary capture and epistemological obstacles to interdisciplinary research: lessons from central African conservation disputes. *Studies in history and philosophy of science part C: studies in history and philosophy of biological and biomedical sciences*, 56, 82-91.

Bryson, J., & Wyckoff, W. (2010). Rural gentrification and nature in the Old and New Wests. *Journal of Cultural Geography*, 27(1), 53-75.

Buell, L. (1995). *The environmental imagination: Thoreau, nature writing, and the formation of American culture*. Harvard University Press.

Cajete, G. (2004). Philosophy of native science. In *American Indian Thought: Philosophical Essays.* Edited by Waters, A., 45-57.

Casey, E. S. (1976). *Imagining: A phenomenological study*. Indiana University Press.

Casey, E. S. (1993). *Getting back into place: Toward a renewed understanding of the place-world.* Indiana University Press.

Casey, E. S. (1997). *The fate of place: A philosophical history*. Berkeley: U of California P.

Castoriadis, C. (1997). The imaginary institution of society. Mit Press.

Chang, H. (2011). The philosophical grammar of scientific practice. *International Studies in the Philosophy of Science*, 25(3), 205-221.

Chang, H. (2015). The rising of chemical natural kinds through epistemic iteration. In *Natural Kinds and Classification in Scientific Practice* (pp. 53-66). Routledge.

Colvin, R. M., Witt, G. B., & Lacey, J. (2016). Approaches to identifying stakeholders in environmental management: Insights from practitioners to go beyond the 'usual suspects'. *Land Use Policy*, 52, 266-276.

Costanza, R., d'Arge, R., De Groot, R., Farber, S., Grasso, M., Hannon, B., ... & Raskin, R. G. (1997). The value of the world's ecosystem services and natural capital. *Nature*, 387(6630), 253-260.

Davies, S. R. (2014). Knowing and loving: Public engagement beyond discourse. *Science & Technology Studies*, 27(3), 90-110.

Davis, R., & Williams, E. (2008). Fences and between fences: Cultural, historical, and Smithsonian perspectives. *Journal of the Southwest*, 243-261.

Davis, S. (2018). *In defense of public lands: The case against privatization and transfer*. Temple University Press.

De Silva, L. (1987). The Buddhist attitude towards nature. *Buddhist perspectives on the ecocrisis*, 9-29.

DeLind, L. B., & Link, T. (2004). Place as the nexus of a sustainable future: A course for all of us. *Sustainability on campus: Stories and strategies for change*, 121-137.

Deloria, V. (1997). *Red earth, white lies: Native Americans and the myth of scientific fact*. Fulcrum Publishing.

Deloria, V., Deloria Jr, V., & Wildcat, D. (2001). *Power and place: Indian education in America*. Fulcrum Publishing.

Dennett, D. C. (1981). *Brainstorms: Philosophical essays on mind and psychology*. MIT Press.

Dewey, J. (1954). *The public and its problems.* 1927. Ed. Melvin L. Rogers. University Park.

Dewey, J. (1934). *Art as experience*. New York: Minton, Balch, and Company.

Dewey, J. (1938). *Experience and education*. Kappa Delta Pi.

Douglas, H., & Talley, J. L. (forthcoming). Which public? Normative considerations in the scientific engagement of the public. *Journal of Responsible Innovations*.

Drenthen, M. (2009). Ecological restoration and place attachment: emplacing non-places? *Environmental Values*, 285-312.

Dupré, J. (1983). The disunity of science. *Mind*, 92(367), 321-346.

Dupré, J. (1995). *The disorder of things: Metaphysical foundations of the disunity of science*. Harvard University Press.

Dupré, J. (1996). Promiscuous Realism: Reply to Wilson. *The British journal for the philosophy of science*, 47(3), 441-444.

Durnova, A., Fischer, F., & Zittoun, P. (2016). Discursive approaches to public policy: Politics, argumentation, and deliberation. *In Contemporary approaches to public policy* (pp. 35-56). Palgrave Macmillan, London.

Eigenbrode, S. D., O'rourke, M., Wulfhorst, J. D., Althoff, D. M., Goldberg, C. S., Merrill, K., ... & Bosque-Pérez, N. A. (2007). Employing philosophical dialogue in collaborative science. *BioScience*, 57(1), 55-64.

Elam, M., & Bertilsson, M. (2003). Consuming, engaging and confronting science: The emerging dimensions of scientific citizenship. *European Journal of Social Theory*, 6(2), 233-251.

Ellul, J., Wilkinson, J., & Merton, R. K. (1964). The technological society (Vol. 303). New York: Vintage books.

Emerson, R. W. (1875). *Letters and social aims* (Vol. 8). Houghton, Mifflin.

Farrell, J. (2020). *Billionaire wilderness: The ultra-wealthy and the remaking of the American West* (Vol. 83). Princeton University Press.

Faulkner, C. H. (1977). The winter house: An early southeast tradition. *Midcontinental Journal of Archaeology*, 141-159.

Federal Land Policy and Management Act of 1976, 43 U.S.C 1701

Feenberg, A. (1991). *Critical theory of technology* (Vol. 5). New York: Oxford University Press.

Fletcher, R. (2010). Neoliberal environmentality: towards a poststructuralist political ecology of the conservation debate. *Conservation and Society*, 8(3), 171-181.

Fletcher, R. (2017). Environmentality unbound: Multiple governmentalities in environmental politics. *Geoforum*, 85, 311-315.

Foucault, M., Davidson, A. I., & Burchell, G. (2008). *The birth of biopolitics: lectures at the Collège de France*, 1978-1979. Springer.

Freeman, R. E. (1983). Strategic management: A stakeholder approach. *Advances in Strategic Management*, 1(1), 31-60.

Funtowicz, S. O., & Ravetz, J. R. (1994). Uncertainty, complexity and post-normal science. *Environmental Toxicology and Chemistry: An International Journal*, 13(12), 1881-1885.

Gabriel, N. (2014). Urban political ecology: Environmental imaginary, governance, and the non-human. *Geography Compass*, 8(1), 38-48.

Gibbs Jr, R. W., Lima, P. L. C., & Francozo, E. (2004). Metaphor is grounded in embodied experience. *Journal of Pragmatics*, 36(7), 1189-1210.

Gibbs Jr, R. W. (Ed.). (2008). *The Cambridge handbook of metaphor and thought*. Cambridge University Press.

Glidden steel barb wire manufactured by I. L. Ellwood & Co., priJLC_AGR_002478, Jay T. Last Collection of Agriculture Prints and Ephemera, The Huntington Library, San Marino, California.

Glucksberg, S. (2008). How metaphors create categories–quickly. *The Cambridge Handbook of Metaphor and Thought*, 67-83.

Gregorić, P. (2005). Plato's and Aristotle's Explanation of Human Posture. *A Journal for Ancient Philosophy and Science*, 2(2), 183-196.

Gregory, D. (2016). Imagination and mental imagery. *The Routledge Handbook of Philosophy of Imagination*, 117-130.

Habermas, J. (1981*). The Theory of Communicative Action: Reason and the Rationalization of Society*. Translated by Thomas McCarthy.

Haraway, D. (2006). A cyborg manifesto: Science, technology, and socialist-feminism in the late 20th century. In *The international handbook of virtual learning environments* (pp. 117-158). Springer, Dordrecht.

Harvey, M. (2009). Drama, talk, and emotion: Omitted aspects of public participation. *Science, Technology, & Human Values*, 34(2), 139-161.

Hayter, E. W. (1939). Barbed wire fencing: A prairie invention: Its rise and influence in the Western States. *Agricultural History*, 13(4), 189-207.

Hickman, L. A. (2001). *Philosophical tools for technological culture: Putting pragmatism to work*. Indiana University Press.

Holbrook, J. B. (2013). What is interdisciplinary communication? Reflections on the very idea of disciplinary integration. *Synthese*, 190(11), 1865-1879.

Hunsaker, J. B. (2003). *Seeing the Elephant: The Many Voices of the Oregon Trail*. Texas Tech University Press.

Husserl, E. (1962). *Ideas: General introduction to pure phenomenology*. 1913. Trans. WR Boyce Gibson. New York: Collier.

Ihde, D. (1990). *Technology and the lifeworld: From garden to earth* (No. 560). Indiana University Press.

Ihde, D. (1999). Perceptual Reasoning—Hermeneutics and Perception. *In Hermeneutics and Science* (pp. 13-23). Springer, Dordrecht.

Jasanoff, S. (2015). Future imperfect: Science, technology, and the imaginations of modernity. *Dreamscapes of modernity: Sociotechnical imaginaries and the fabrication of power*, 1-47.

Jasanoff, S., & Kim, S. H. (2009). Containing the atom: Sociotechnical imaginaries and nuclear power in the United States and South Korea. *Minerva*, 47(2), 119.

Johnson, M. (1987). *The body in the mind: The bodily basis of meaning, imagination, and reason*. University of Chicago Press.

Jones, K., Abrams, J., Belote, T., Beltran, B. J., Brandt, J., Carter, N. H., ... & Wallen, K. E. (2019). *The American West as a social-ecological region: Drivers, dynamics and implications for nested social-ecological systems*. Environmental Research Letters.

Kemmis, D. (2013). *This sovereign land: A new vision for governing the West*. Island Press.

Kendig, C. (Ed.). (2015). *Natural kinds and classification in scientific practice*. Routledge.

Kimmerer, R. W. (2013). *Braiding sweetgrass: Indigenous wisdom, scientific knowledge and the teachings of plants.* Milkweed Editions.

Kincheloe, J. L., McKinley, E., Lim, M., & Barton, A. C. (2006). *A conversation on 'Sense of place' in science learning.* Cultural Studies of Science Education, 1(1), 143-160.

Kind, A. (2001*). Putting the image back in imagination. Philosophy and Phenomenological Research*, 62(1), 85-109.

King, B. J., & Council, J. R. (1998). Intentionality during hypnosis: An ironic process analysis. *International Journal of Clinical and Experimental Hypnosis*, 46(3), 295-313.

Knapp, P. A. (1996). Cheatgrass (Bromus tectorum L) dominance in the Great Basin Desert: history, persistence, and influences to human activities. *Global Environmental Change*, 6(1), 37-52.

Koontz, T. M., & Thomas, C. W. (2006). What do we know and need to know about the environmental outcomes of collaborative management?. *Public Administration Review*, 66, 111-121.

Kootenai Culture Committee. (2015). The Traditional Worldview of the Kootenai People. Montana; *The Magazine of Western History.* Autumn: 47, 73, 96.

Kuhn, E. (2016). Science and deference: The "Best Available Science" mandate is a fiction in the ninth circuit. *Environmental Law Review Syndicate*.

Kuhn, T. (1962). *The structure of scientific revolutions*. University of Chicago Press.

Kukla, A. (2000). *Social constructivism and the philosophy of science*. Psychology Press.

Lakoff, G. J., & Johnson, M. (1980). *Metaphors we live by*. Chicago: University of Chicago Press.

Latour, B. (2005). *Reassembling the social: An introduction to actor-network-theory*. Oxford university press.

Latour, B. (2012). *We have never been modern.* Harvard University Press.

Latulippe, N. (2015). Situating the work: A typology of traditional knowledge literature. *AlterNative: An International Journal of Indigenous Peoples*, 11(2), 118-131.

Leeuw, S. D., Cameron, E. S., & Greenwood, M. L. (2012). Participatory and community-based research, Indigenous geographies, and the spaces of friendship: A critical engagement. *The Canadian Geographer/Le Géographe Canadien*, 56(2), 180-194.

Lemos, M. C., & Agrawal, A. (2006). Environmental governance. *Annu. Rev. Environ. Resour.*, 31, 297-325.

Leopold, A. (1970). *A sand county almanac: With other essays on conservation from Round River*. Outdoor Essays & Reflections.

Little Bear, L. (2000). *Jagged worldviews colliding. Reclaiming Indigenous voice and vision*, 77-85.

Lorde, A. (1984). *Sister outsider: Essays and speeches*. Crossing Press.

Marcuse, H. (1968). *One-dimensional man: studies in the ideology of advanced industrial society.* Beacon Press.

Marx, L. (1919). *The machine in the garden: Technology and the pastoral ideal in America.* Oxford University Press, USA.

Maryboy, N. C., Begay, D. H., & Nichol, L. (2020). Paradox and transformation. *International Journal of Applied Science and Sustainable Development* (IJASSD), 2(1), 15-24.

Massey, D. (1994). *Space, place and gender*. Minneapolis: University of Minnesota.

McDowell, J. (2008). Avoiding the Myth of the Given. *John McDowell: Experience, norm, and nature*, 1-14.

McKinney, M., & Kemmis, D. (2011). Collaboration and the Ecology of Democracy. *Human Dimensions of Wildlife*, 16(4), 273-285.

Meinig, D. W. (1979). The beholding eye: Ten versions of the same scene. *The interpretation of ordinary landscapes: Geographical essays*, 33-48.

Merchant, C. (1981). *The Death of Nature: Women, Ecology, and Scientific Revolution*. Harper & Row.

Medak-Saltzman, D. (2017). Coming to You from the Indigenous Future: Native Women, Speculative Film Shorts, and the Art of the Possible. *Studies in American Indian Literatures*, 29(1), 139-171.

Merton, R. K. (1942). A note on science and democracy. *J. Legal & Pol. Soc.*, 1, 115.

Merton, R. K. (1973). *The sociology of science: Theoretical and empirical investigations*. University of Chicago Press.

Meyer, J. M. (2009). The concept of private property and the limits of the environmental imagination. *Political theory*, 37(1), 99-127.

Meyer, M. L. (1990). Signatures and Thumbprints: Ethnicity among the White Earth, Anishinaabeg, 1889–1920. *Social Science History*, 14(3), 305-345.

Michael, M. (2000). These boots are made for walking...: mundane technology, the body and human-environment relations. *Body & Society*, 6(3-4), 107-126.

Michell, J. (2004). History and philosophy of measurement: A realist view. In *Proceedings of the 10th International symposium on advances of measurement science*.

Mill, J. S. (1884). *A system of logic, ratiocinative and inductive: Being a connected view of the principles of evidence and the methods of scientific investigation.* Harper.

Million, D. (2013). *Therapeutic nations: Healing in an age of indigenous human rights*. University of Arizona Press.

Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review*, 22(4), 853-886.

Mitroff, I. I. (1974). Norms and counter-norms in a select group of the Apollo moon scientists: A case study of the ambivalence of scientists. *American Sociological Review*, 579-595.

Mumford, L. (1955). *Technics and civilization*. University of Chicago Press.

Naess, A. (1988). Deep Ecology and Ultimate Premises. *Ecologist,* 18, 128-31.

Nanay, B. (2010). Perception and imagination: amodal perception as mental imagery. *Philosophical Studies*, 150(2), 239-254.

Nerburn, K. (2010). *Neither wolf nor dog: On forgotten roads with an Indian elder*. New World Library.

Netz, R. (2004). *Barbed wire: An ecology of modernity*. Wesleyan University Press.

Nieto, C. C., & Durbin, P. T. (1995). Sustainable development and philosophies of technology. *Techné: Research in Philosophy and Technology*, 1(1/2), 44-57.

Norton, B. G. (2015). *Sustainable values, sustainable change: a guide to environmental decision making*. University of Chicago Press.

Oxford English Dictionary. (2020). "collaborate, v.", “collaboration, n.”, “collaborateur, n.”, “collaborator, n.”, “co-laborer, n.”. *OED Online*. Oxford University Press, June 2020. Accessed 23 July 2020.

Online Etymology Dictionary. (2020). Collaboration. *Online Etymology Dictionary*. Retrieved 23 July 2020 from https://www.etymonline.com/word/collaboration.

Pecher, D., Boot, I., & Van Dantzig, S. (2011). Abstract concepts: Sensory-motor grounding, metaphors, and beyond. *The Psychology of Learning and Motivation* (Vol. 54, pp. 217-248). Academic Press.

Pinxten, R. (1995). Comparing time and temporality in cultures. *Cultural Dynamics*, 7(2), 233-252.

Plato, & Hackforth, R. (1952). *Plato's Phaedrus: Translated with Introduction and Commentary by R. Hackforth.* Liberal Arts Press.

Powell, J. W. (1879). *Report on the Lands of the Arid Region of the United States: With a More Detailed Account of the Lands of Utah. With Maps.* US Government Printing Office.

Pritchard, E. T. (2002). No Word for Time: The Way of the Algonquin People. *Tribal College*, 13(3), 50.

Psillos, S. (2005). *Scientific realism: How science tracks truth*. Routledge.

Ralston, S. J. (2013). Taking experiential givenism seriously. *SAGE Open*, 3(3).

Rangeland Management Series 0454. (2020). Retrieved 17 July 2020, from https://www.opm.gov/policy-data-oversight/classification-qualifications/general-schedule-qualification-standards/0400/rangeland-management-series-0454/

Rasker, R. (2018). *Montana's Economy, Public Lands, and Competitive Advantage - Headwaters Economics.* Retrieved from https://headwaterseconomics.org/economic-development/trends-performance/montanas-economy-and-protected-lands/

Ravetz, I. R. (1999). What is post-normal science. *Futures-the Journal of Forecasting Planning and Policy*, 31(7), 647-654.

Reddy, M. (1979). The conduit metaphor. *Metaphor and Thought*, 2, 285-324.

Reed, M. S. (2008). Stakeholder participation for environmental management: a literature review. *Biological Conservation*, 141(10), 2417-2431.

Relph, E. (1976). Place and placelessness (Vol. 67). London: Pion.

Richards, M. V. (2000). The postmodern perspective on home economics history. *Journal of Family and Consumer Sciences*, 92(1), 81.

Richardson, D. C., Spivey, M. J., Barsalou, L. W., & McRae, K. (2003). Spatial representations activated during real-time comprehension of verbs. *Cognitive Science*, 27(5), 767-780.

Robinson, A., & Tout, D. (2012). Unsettling conceptions of wilderness and nature. *Arena Journal*, (37/38), 153.

Ruíz-Aho, E. (2011). Latin American philosophy at a crossroads. *Human Studies*, 34(3), 309.

Sack, R. D. (1997). *Homo geographicus a framework for action, awareness, and moral concern*. John Hopkins University Press.

Savage, C. W., & Ehrlich, P. (1992). A brief introduction to measurement theory and to the essays. *Philosophical and foundational issues in measurement theory*, 1-14. Psychology Press.

Seed, P. (1995). *Ceremonies of possession in Europe's conquest of the New World*, 1492-1640. Cambridge University Press.

Semken, S. (2005). Sense of place and place-based introductory geoscience teaching for American Indian and Alaska Native undergraduates. *Journal of Geoscience Education*, 53(2), 149-157.

Shannon, C. E. (1951). A mathematical theory of communication. *The Bell system technical journal*, 27(3), 379-423.

Shusterman, R. (1994). Dewey on experience: foundation or reconstruction? *In Philosophical Forum* (Vol. 26, pp. 127-127).

Skillen, J. R. (2009*). The nation's largest landlord: The Bureau of Land Management in the American West*. University Press of Kansas.

Smith, J. M., & Tidwell, A. S. (2016). The everyday lives of energy transitions: Contested sociotechnical imaginaries in the American West. *Social Studies of Science*, 46(3), 327-350.

Steeves, J. B. (2001). The virtual body: Merleau-Ponty's early philosophy of imagination. *Philosophy Today*, 45(4), 370-380.

Stegner, W. (1992). *Beyond the hundredth meridian: John Wesley Powell and the second opening of the West*. Penguin.

Steinberg, T. (2002). *Down to earth: nature's role in American history*. Oxford University Press.

Stevenson, L. (2003). Twelve conceptions of imagination. *The British Journal of Aesthetics*, 43(3), 238-259.

Strawson, P. F. (1974). *Imagination and perception. PF Strawson, Freedom and resentment and other essays.* Methuen.

Stringham, T. K., Novak-Echenique, P., Snyder, D. K., Peterson, S., & Snyder, K. A. (2016). *Disturbance response grouping of ecological sites increases utility of ecological sites and state-and-transition models for landscape scale planning in the Great Basin.* Rangelands, 38(6), 371-378.

Talley, J. L., Schneider, J., & Lindquist, E. (2016). A simplified approach to stakeholder engagement in natural resource management: the Five-Feature Framework. *Ecology and Society*, 21(4).

Taylor, C. (2004). *Modern social imaginaries*. Duke University Press.

Thomas, N. J. (1999). Are theories of imagery theories of imagination? An active perception approach to conscious mental content. *Cognitive Science*, 23(2), 207-245.

Thompson, P. B. (2017). *The spirit of the soil: Agriculture and environmental ethics*. Routledge.

Thompson, P. B., & Talley, J. L. (2019). *Resilience as a Systems Concept, with an Application to the American West. Pragmatist and American Philosophical Perspectives on Resilience*, 195.

Trout, J. D. (1998). *Measuring the intentional world: Realism, naturalism, and quantitative methods in the behavioral sciences*. Oxford University Press.

Tuan, Y. F. (1990). Topophilia: *A study of environmental perceptions, attitudes, and values.* Columbia University Press.

Tuck, E., McKenzie, M., & McCoy, K. (2014). Land education: Indigenous, post-colonial, and decolonizing perspectives on place and environmental education research. *Environmental Education Research*, 20(1), 1-23.

Tuck, E., & Yang, K. W. (2012). Decolonization is not a metaphor. *Decolonization: Indigeneity, Education and Society*, 1(1).

Turner, J. (1996). *The abstract wild*. University of Arizona Press.

U.S. Census Bureau. (2017). Idaho is Nation's Fastest-Growing State, Census Bureau Reports. Retrieved from https://www.census.gov/newsroom/press-releases/2017/estimates-idaho.html

Vakili, M. (2018). Systems Philosophy. Cosmos and History: *The Journal of Natural and Social Philosophy*, 14(2), 278-291.

Von Soest, C. (2015). Democracy prevention: The international collaboration of authoritarian regimes. *European Journal of Political Research*, 54(4), 623-638.

Vukomanovic, J., & Orr, B. J. (2014). Landscape aesthetics and the scenic drivers of amenity migration in the new west: Naturalness, visual scale, and complexity. *Land*, 3(2), 390-413.

Warde, P., Robin, L., & Sörlin, S. (2018). *The Environment: A History of the Idea*. JHU Press.

Watts, V. (2013). Indigenous place-thought and agency amongst humans and non humans (First Woman and Sky Woman go on a European world tour!). *Decolonization: Indigeneity, Education & Society*, 2(1).

Wegner, D. M., Schneider, D. J., Carter, S. R., & White, T. L. (1987). Paradoxical effects of thought suppression. *Journal of Personality and Social Psychology*, 53(1), 5.

West, E. (1988). Shots in the Dark: Television and the Western Myth. *Montana: The Magazine of Western History*, 38(2), 72-76.

White, L. (1967). The historical roots of our ecologic crisis. *Science*, 155(3767), 1203-1207.

Wilkinson, C. F. (1993). *Crossing the next meridian: Land, water, and the future of the West*. Island Press.

Winkler, R., Field, D. R., Luloff, A. E., Krannich, R. S., & Williams, T. (2007). Social landscapes of the inter-mountain West: A comparison of 'old West'and 'new West'communities. *Rural Sociology*, 72(3), 478-501.

Winner, L. (2010). *The whale and the reactor: A search for limits in an age of high technology*. University of Chicago Press.

Wolfe, C. (1998). *Critical Environments: Postmodern Theory and the Pragmatics of the "outside"* (Vol. 13). U of Minnesota Press.

Wuerthner, G. Matteson, M. (2002). *Welfare Ranching: The Subsidized Destruction of the American West. Sausalito, Calif*.: Foundation for Deep Ecology.

Zambrano, A. J. G. (2012). *Transference of Primordial Threshold Crossings onto the Geomorphology of Mesoamerican Foundational Landscapes. Mesoamerican Memory: Enduring Systems of Remembrance*. Wood, S., & Megged, A. (Eds.). University of Oklahoma Press.