THE RHETORIC OF ECOLOGICAL RESTORATION: ETHNOGRAHY IN THE COOK COUNTY FOREST PRESERVES

BY

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THESIS

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ABSTRACT

This research is an exploration of how people socially construct nature through the work of natural resource management. Using participant observation, interviews, and content analysis, I explored the experiences of staff and volunteers in the Cook County Forest Preserves to understand how they experienced and acted upon nature. In the first part, I look at how participants talked about naturalness and the contexts in which these definitions were invoked. My conclusions were that although ecological restoration requires massive human involvement in nature, it does not necessarily remove the nature-culture divide, and that naturalness is a political term applied to desirable pieces of material nature to serve desired ends. In the second part, I looked at knowledge production and the unique ways practitioners in the Cook County Forest Preserves engaged in both scientific and experiential forms of knowledge production. Practitioners used notions of science to gain validity while also disavowing the constraints of scientific methods when managing sites. I theorized that this was in part due to the incompatibility between science which seeks general principles and management which seeks site-specific solutions. I argue for a situated and reflexive natural resource management practice which makes use of both experiential and scientific modes of knowledge production in decision making.

INDEX WORDS: Social construction of nature, Cook County Forest Preserves, Natural Resource Management, Ethnographic Methods, Human Dimensions of Natural Resource Management, Social Construction of Knowledge

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TABLE OF CONTENTS

CHAPTER 1: SITUATING THE PROJECT

Introduction

By applying theories of social constructionism to ethnographic research in the Cook County Forest Preserves, I hope to shed light on what naturalness means and how people come to know it in a way that can be directly applied to land management decision-making. In qualitative research, sense making and representation are accomplished through the lens of the researcher (Denzin 2011, 501). Qualitative researchers can avoid obfuscation of the findings by taking a reflexive approach, seeking to situate the position of the researcher within research (Denzin 2011). In this way, the objectivity of the research comes in the verisimilitude of the subjective experience of the researcher. In order to help the reader evaluate the legitimacy of my findings, I will begin with five short vignettes which should give a sense of my subjective angle. Long before I became involved in the Cook County Forest Preserves, I was primed to think about nature, power, nostalgia, and purity.

Situating the Researcher

Illinois: Learning and Letting Go of "Purity"

Beginning about the time I was 6, my family took a nearly two-decade foray into fundamentalist religion, during which time I absorbed the church's assertion that there was always *one* right answer to every dilemma. The church provided absolute certainties about how a person should pray, proselytize, and present oneself. Praying without enough sincerity was a sin, sleeveless tops for women were absolutely off limits, and music with a heavy beat was corrupting. I was often plagued by the worry that people around me had gotten it wrong, or that I too had gotten it wrong despite my best attempts. About the time I was 15, I didn't want the

stress of trying to get it "right" and so I gave up on the religion. Many factors led me in this direction, but being an avid reader from the time I was small and later going to college were profound influences.

Things are often functional in one context and dysfunctional in another. What had worked to ground my parents, fundamentalist religion, did not serve my anxiety-prone constitution very well. For me moving away from fundamentalist religion was realizing that the world is not black-and-white. This did not scare me, in fact, I found it profoundly liberating. I didn't have to be all "good" or all "bad," I was free to be a complex multi-faceted human being and the world was free to be messy and mixed. In growing comfortable with the gray, I found that I had the opportunity to consciously choose my own "right," one which served my individual constitution better. I suspect this is part of growing up for many people. When we are kids, we are given value systems, but as adults, we have the freedom to take ownership of our lives and to consciously reflect on and create our own values. I had let go of thinking in terms of religious purity. I developed a love for difference and a feminist's eye for tolerance. In college, I majored in anthropology and sociology and became interested cultural anthropology and the social construction of purity.

Utah: Science, Interpretation, and Power

We walked over the ochre earth, around patches of redolent sagebrush, a smell that I would eventually come to associate with the American West. We were a group of six Bureau of Land Management staff, interns, and volunteers traveling across Beef Basin looking for the structures and objects left behind by the people who lived there sometime around 700-1300 A.D.

There were no trees to block out the sun, and I was very glad that I had worn my wide brimmed hat. I rationed my water as I walked through this dry environment. Being from the hydric Midwest, I had never felt the importance of water so deeply. I had also never considered what it would be like to spend an extended amount of time in a landscape with only shrubs and no trees. In this absolutely phantasmagorical landscape of red mesas and canyons sprinkled with reminders of the people who had inhabited this landscape before, the Anasazi, I surprised myself by missing trees and the greenness of home.

As we walked through the open land, we approached an aggregate of mesas. Upon approaching even closer, it became a landscape of boulders and bulbous mesa walls, smoothed by long-gone water. Each time that I thought about the long time span of each horizontal color stripe in the rocks, I felt a renewed sense of awe. The past could literally be seen and read by geologists. As a budding archaeologist, I was learning to read people's pasts through the artifacts they had left behind. I set my sights on a dark red, relatively flat rock wall. I began to see areas of lighter color in the rock, which, upon getting closer, the group and I realized were petroglyphs, carvings in the rock wall. We all experienced the tunnel vision of people who have found what they are looking for, and we increased speed to approach this huge panel of petroglyphs. Barely taking my eyes off the site, I climbed over large boulders and onto a flat raised surface of rock where pre-ancestral Puebloans had likely stood as they carved pictures into the rock.

There on the rock were at least twenty separate carvings. Incomprehensible geometric figures reminded me of Penrose's impossible stairs. Large ungulates and comparatively minuscule humans seemed to say something about the importance of ungulates. The wall was filled with anthropomorphic figures and highly stylized faces. I felt moved to come into contact

with such unmediated art. It was a wholly different experience than visiting a museum. I completed my tasks to take pictures and update government records on the panel's condition, and when I finished, I tried my hand at drawing some of the art. The whole time, my mind was busy with guesses at what the originators had in mind as they carved.

That night back at our base camp, a group of us sat around the fire, discussing findings from the day and sharing stories. I posed a question which, perhaps indicating my inexperience at the time, I had thought would have a straightforward answer. 'What do the carvings mean?'

The head archaeologist on the project spoke with a thick Mormon accent, 'Well it depends. Archaeologists say the figures were carved over the course of many years by the Anasazi. The theory is that a holy man would go to the site and carve one or two of the figures based on spiritual visions. But they also carved practical information such as indicating the presence of water.'

A woman who was also seated by the campfire added, 'The Ute tribe says this was all carved in recent history by their direct ancestors. They have very specific myths associated with each glyph.'

'Well, which is right?' I asked.

'Our research is right, but who are we to tell the Ute what these symbols mean,' she said. 'Sometimes indigenous people dislike working with us because they think we don't take their interpretations seriously. We take them seriously, but sometimes they're just wrong. We can't change what the science says.'

I pondered these words. I certainly didn't want to surmise that the Ute were wrong about their interpretations, but I also was uncomfortable with throwing away hard science that had

suggested a competing story. I didn't have a lot of conceptual tools when I first began this journey, but at that point, I became interested in the power dynamics at play in using science to interpret the life of the "other."

Montana: Nostalgic Storytelling

I stood in front of a floor to ceiling window which overlooked miles of soft golden grasses broken by the height of a large rocky sandstone cliff. I addressed a group of visitors in a 15-minute introduction to the park.

'You are standing in front of the largest buffalo jump in the world,' I began, gesturing to the cliff outside the window. 'Between 900 and 1500AD indigenous tribes, including Blackfeet, Assiniboine, and Salish, would drive entire herds of bison off this cliff. This was before they had horses and so the hunt was done entirely on foot.'

I sought to connect the audience to the place through storytelling. I launched into a detailed story of a brave young man from the Blackfoot tribe who risked his life to provide food for his community. There was a 10 to 12-year-old boy in the audience, and so I pointed to him, saying that it would have been a boy quite like this one who risked his life for his tribe. When I finished telling the story, I gestured to the cliff outside the window, bringing the narrative back to the current time and place. 'There are at least twelve feet of bison bone beneath the base of this cliff.'

'They used all the parts of every bison, right?' A concerned member of the audience asked.

'No. The twelve feet of bones here are bison that were never used. Bison they used were cut into pieces and dragged into camp.'

The visitor scrunched her eyebrows. 'That's terrible,' she said, 'I can't believe they could waste such a beautiful animal.'

The response was so far from where I had hoped to direct the conversation that I felt at a loss for words. However, this script between visitors and me happened over and over again through the course of my summer as a park ranger, and so I had plenty of opportunities to fumble and attempt a sensible response. The visitor always began by trying to assure themselves and others around that the Native Americans were conservationists, asking leading questions such as 'They only killed what they needed, right?' or even stopping me mid-talk to say, 'But they didn't waste anything?' In trying to pin the Native Americans as either conservation oriented or as greedy, they were trying to pin modern American categories onto people who relied on very different categories. When visitors' beliefs about the ecological sensibilities of Native Americans didn't fit into the reality of the situation, they would react with displeasure or even disgust at the actions of the past people. Early in my season as a park ranger, I did some research and crafted a response I would use in such situations:

'At the time that Native Americans drove herds off this cliff, the word "conservation" did not exist. There was a sense that the bison were a never-ending supply. The Blackfeet believed that the bones of bison came back and became more bison, and so killing more than was needed was not a problem. They also believed that if a member of the herd escaped, she would warn all the other bison herds about the buffalo jump. Another way to say all this is that they had their own ways of thinking about wise-use that can't be mapped onto ours. It was embedded in their understandings of the cycle of death and rebirth and beliefs about animal personhood that they would sometimes kill more bison than they could use.'

While I anticipated that I would learn about the past through my job, I was surprised at how much I learned from how visitors reacted to stories about the past. The dialogue between us put me into direct contact with the potentially pernicious nature of nostalgia. Romanticizing the past can flatten complex situations and people, and it can create a distorted narrative of history that leads to judgment. This experience fostered my curiosity about the causes and potential purposes of nostalgic thought. These quandaries weighed heavily on me as I began to learn about the "perfect" ecological past in ecological restoration upon returning home to Illinois.

Illinois: Relearning "Purity"

When I returned from Montana, I began for the first time to seriously learn the names of plants and the ecological communities in which they "belonged." This had a profound effect on how I experienced nature. No longer was it a homogenized backdrop. It was an expanse of individuated organisms arranged into patterns. Things that might have previously looked messy and unkempt now seemed ordered and logical. I felt quite thrilled each time I was able to recognize a species or pattern.

I began to see more beauty than I previously had in the prairie and forest landscapes of Illinois. Prior to becoming a Midwest naturalist of sorts, I had craved areas that seemed more "wild" than Illinois, and my many forays out west during my early 20s had strengthened that bond I felt with big scenery. Through awareness of difference, I began to appreciate the complexity of prairies. The mesas of Utah may have been beautiful, but they sure didn't have the diversity of vegetation that Illinois had. In some way, being awakened to the beauty of a prairie felt like a special talent, more cherished than appreciating what felt to me to be the obviously beautiful mountain scenery. It was like meditation, learning through conscious awareness to foster a healthy interest in small details. It was also a privilege.

In my experience, ecology became a practical tool to put species and places into categories. Some of these categories were pejorative, particularly the categories of "exotic,"and "invasive," and sometimes even "common". Walking outside became more complex. My appreciation of forest preserves was sometimes tainted by the unpleasant experience of worrying about the invader species I spotted. It felt harder to enjoy a walk down a city street filled with exotic species. Where I had once divided nature only into "wild" and "tame," nature was now highly differentiated and stratified. Only certain assemblages of species behaving in certain ways were truly "pristine." It wasn't until several years into my interest in ecology that I began to wonder whether I had reabsorbed the ideology of purity from my youth, but only with a new subject to graft it onto, nature itself. I became curious about whether this was the relationship I wished to have with nature. When I began working with the Cook County Forest Preserves, I was lucky enough to be inundated with many people and many ways of relating to nature.

Entry into the Cook County Forest Preserves

In December 2013, I began coordinating the creation of a natural and cultural resource management plan for the Cook County Forest Preserves. I worked for the Illinois Natural History Survey (INHS), whose goal is to "understand the biological processes and components that shape the Illinois environment…and disseminate information on the ecology and biodiversity of Illinois to the scientific community, state government, and the general public," ("About INHS" 2016). The INHS is part of a five-member institute called the Prairie Research Institute (PRI) owned by the University of Illinois. PRI includes the Illinois State Geological Survey, the Illinois State Water Survey, the Illinois Sustainable Technology Center, and the Illinois State Archaeological Survey. The Prairie Research Institute was tasked by Preserves staff with providing county-wide prioritization of ecological restoration and providing scientific

knowledge in support of management. We were to make science speak. I served as a primary point of contact between the Prairie Research Institute and the Cook County Forest Preserves. I met with Cook County Forest Preserve natural resource staff, ecological restoration volunteers, and members of constituent groups to obtain their input on the plan and to collect their site-based data. I shared these data with PRI staff, who were primarily Ph.D. level scientists, to assist in their prioritization of sites. Having a background in anthropology and sociology and being unlike any of the major parties involved, I found myself in an oddly comfortable position of moving between self-professed employee, citizen, and academic scientists who sometimes saw themselves in competition.

As I worked with constituents of the Cook County Forest Preserves, I became enamored with their stories. People engaged in personal narratives of "discovering" the Cook County Forest Preserves, of learning the language of nature, and of finding *good* in nature. They shared narratives of community resuscitation through ecological restoration and activist attitudes towards “saving” nature through management. My meeting notes were permeated with themes of the loss of a pre-European ecological balance and human heroism and redemption in the face of societal greed. In my life, some of these narratives rang more salient than others, yet all of these narratives felt important to capture to aid in natural resource management decision-making. They guide the people who dedicate their time and souls to the protection of the Cook County Forest Preserves and have very tangible effects on the landscape. I wanted to understand how these individual stories of people past and present had combined to form the fabric upon which the Cook County Forest Preserves exists. And in an organization with so many constructions, where were the hands that made cohesive decisions?

There are many ways to make science speak, but in this case, we decided to tell a story. Our narrative in the Natural and Cultural Resource Master Plan was quite intentionally constructed to serve a desired end result. We began with the few "forward thinking individuals" who predicted the urban expansion of Cook County at the beginning of the 20th century and understood the importance of natural scenery to relieve the stresses of urban and industrial life. We dedicated a chapter to tracing the pre-European settlement history of Cook County. We hoped that those who didn't value the natural resources might be captivated by the cultural resources. We were harnessing the power of plurality. Integrating both into the story was a strength and a way to capture the imaginations of many. For those who were inclined to appreciate natural wonders, we strategically placed large, color photographs and descriptions of extant species and ecosystems throughout the report. For those interested in the cultural aspect, we included pictures of artifacts and people engaging in ecological restoration and archaeological excavation.

Once we had built up the value of the Preserves in the minds of the readers, we revealed the existing threats to the natural and cultural resources of the Cook County Forest Preserves. The opening to this chapter is a full-page picture of a monoculture of brown, woody brush. This picture is a stark contrast to the green and brightly colored pictures in the first half of the report. We took readers on a journey through the threats of invasive species, stormwater runoff, habitat fragmentation, lack of fire, deer overabundance, poaching, altered water balance in wetland habitats, soil erosion, water pollution, development, recreation, and climate change. We wanted the readers to understand that the Cook County Forest Preserves could not persist without active management to counteract these threats. We then provided solutions to these problems. In the

remaining chapters, we outlined the process and challenges of preserving the Preserves. This plan had all the elements of a story; brave characters, threats from the outside, and solutions.

Stories are very real in the sense that they can be used to bring about very real results. Here, we used the power of storytelling to bring about a desired ending, public support of natural resource management. The stories of staff and volunteers in the Cook County Forest Preserves guided them in their management decisions, including how to make sense of and treat the non-human world. It is with these formative experiences forming the fabric of my own inquisitiveness that I applied to graduate school and embarked on this ethnography to understand the social construction of nature associated with the Cook County Forest Preserves.

Situating the Cook County Forest Preserves

The Cook County Forest Preserve District contains more threatened and endangered species than any other forest preserve district in Illinois (Prairie Research Institute 2015). Of the 1,200 native species in the county, 119 of them are listed as legally threatened or endangered ("Illinois Department of Natural Resources Natural Heritage Database" 2014). Federally listed endangered species include the Eastern massasauga rattlesnake (*Sistrurus catenatus*) and the Eastern prairie fringed orchid (*Platanthera leucophaea*). In addition to protecting these species, the District also contains natural communities which are endemic to Cook County, including depressions caused by glacial outwash from old Lake Chicago, known as upland morainic depressions (Prairie Research Institute 2015). Created before suburban sprawl began in Cook County, patches of land commonly called "remnants" remain, which have never been developed in recorded history. The Cook County Forest Preserve District works with federal, state, and local organizations to prevent the disappearance of these species, communities, and remnants.

The Cook County Forest Preserves holds the unique distinction of being both the largest and oldest forest preserve district in the country ("Forest Preserves of Cook County" 2015). The District, which was legally created in 1915, currently owns eleven percent of Cook County. Forest Preserve staff and constituents tenuously maintain these 69,000 acres of largely undeveloped land in an urban county of over five million residents as schools, businesses, and housing developments vie for space in the county. Since its inception, the District has been repeatedly called on by private and government organizations to give land to other uses and has had to fight off encroachment while also justifying to taxpayers the high cost of managing these spaces.

Millions of users come to the Preserves with millions of uses in mind. In order to persist, the organization must serve multiple and often conflicting purposes of preservation and recreation. Staff and volunteers protect species and ecosystems while also encouraging public valuation through use, resulting in a near constant negotiation of the acceptable uses for the Preserves between staff, constituents, and the public. While deciding the acceptable use for these groups, constituents are also constructing their sense of the ideal relationship between people and nature.

Problem Statement

Decision-makers in the Cook County Forest Preserves are inundated with complex and incalculable decisions, which often have ecological, economic, political, and social considerations. These decisions are confounded by the wide variety of symbolic meanings individuals attribute to nature, natural resource management, and the Preserves. No two people see the Cook County Forest Preserves in the same way. Staff and volunteers may entertain

disparate visions of nature, leading them to reach very different conclusions on managing the Preserves.

This plurality of meanings itself is not problematic. It is my hope to point out that, if understood, such a plurality can be a strength to natural resource management agencies by providing them with a large toolbox of possible ways to invoke connections between people and the Preserves. Lack of recognizing plurality is problematic. People may use the same words but mean very different things which, when unrecognized, obfuscates shared understandings. When this occurs, the opportunity for cooperation and for reaching the full potential of the Forest Preserve concept is diminished.

Objectives

My goal in this ethnography was to show that multiple constructions of nature exist among the staff and volunteers of one natural resource management organization and to explore how people engage these constructions to accomplish the work of natural resource management. I used ethnographic methods to explore how the Forest Preserves come to be imbued with meaning and how these meanings are embodied by natural resource management practitioners. In section one, I explored the history of environmental thought in America. Within this history, I included the history of the Cook County Forest Preserves so that the reader can explore the ways in which the general and the specific, as well as the ideological and the material, intersect. This provides one angle to explore how people construct meanings. In section two, I explored the meanings which Preserve staff and volunteers hold for naturalness. In the third section, I looked at boundary work, essentially how individuals and organizations seek to give prominence to particular ways of knowing nature.

Theoretical Framework: Social Construction

I am interested in the social construction of natural resource management. In social constructivism, people rely on their experiences to understand the world around them. These understandings become meanings which are directed towards objects and things (Creswell 2013). Humans give meaning to all objects and ideas (Scarce 1998). Individuals may maintain more than one meaning for any given object, depending on the context, and they may have both individual and shared meanings (Creswell 2013). Meanings are not inherent in things, though it often seems that way to people.

Peter Berger and Thomas Luckmann laid the groundwork for social constructivism in *The Social Construction of Reality* in 1967. According to them, micro-level social interaction and macro-level activities of social institutions give meaning (Berger and Luckmann 1967). As more recently summarized by Scarce, there exists both a cognitive dimension wherein meaning is constructed and a physical dimension wherein this meaning is further constructed and acted upon (Scarce 1997).

Groups work together to construct and define their reality through social interactions, or "negotiations," which both reinforce and change meanings (Paveglio, Carroll, Absher, and Robinson 2011). Deeper beliefs, often provided by larger society, provide people with an interpretive framework to which they orient themselves. Underlying these lasting beliefs, lie a structure of beliefs which are more prone to change (Berger and Luckmann 1967). Language is particularly important in the process of structuring these beliefs and creating meaning (Scarce 1998). Beliefs shared by members of a community are so taken-for-granted and obvious to the individual that it may be impossible to distinguish them from her or his identity (Greider and

Garkovich 1994). People forget their own authorship in a process called reification in which meanings appear "out there" as if embedded in the object rather than a construction of the perceiver (Berger and Luckmann 1967). Through this largely unconscious process, nature may come to seem like “common sense” (Geertz 1975).

Social constructionists do not all agree on the relationship between the ideal and the material world. A scholar who takes a strong approach to social constructivism would posit that reality is a mental construct. All categories in the world are social constructs that do not reflect an objective reality out there. A scholar who takes a middle ground approach would emphasize the dominance of culture in constructing people’s ideas of nature, and de-emphasize the role of the physical environment itself (Greider and Garkovich 1994). A scholar who takes the third approach to social construction, as I do, would emphasize the dialogue between the ideal and the material in constructing what we take for reality. This is because neither humans nor nature can be understood individually but only through the interaction between them (Bird 1987). As we interact with the material, it also interacts with us. The physical environment plays a role in the construction of meaning by either resisting or accommodating our testing (Bird 1987; Cronon 2009; Robbins 2012).

What we consider as knowledge is relative to society. What we "know" is through social contexts (Berger and Luckmann 1967). This view could also be considered a sociology of knowledge. Taking seriously Berger and Luckman’s approach, the researcher should consider the historical context upon which knowledge is created, which I will do in the literature review, and the micro and macro level forces of construction which I will do in chapters 2 and 3.

This social constructivist framework allows us a space from which to explore disagreements in the management of natural resources. Natural resource management is a

physical dimension where meanings are both constructed and acted out (Davenport and Anderson 2005). We create natural areas based on how we conceptualize nature. The removal of one tree could mean a loss of nature to one person while it means a benefit for nature to another. Greider and Garkovich write "Every river is more than just one river. Every rock is more than just one rock. Why does a real estate developer look across an open field and see comfortable suburban ranch homes nestled in quiet cul-de-sacs while a farmer envisions endless rows of waving wheat and a hunter sees a five-point buck cautiously grazing in preparation for the coming winter?" (1994,1). They suggest that the physical field has multiple symbolic meanings that come from the values through which people define themselves. In other words, definitions of nature say as much about us as they do about nature (1994).

A social construction perspective implies that nature is always problematized, for it can never be fully understood (Bird 1987). As Latour and Woolgar write, science is not about nature. Facts are created through social negotiation, and they are intimately tied to economic, professional, and political considerations (Latour and Woolgar 1979). With this in mind, I will not be seeking to understand the 'rightness' of any tenets of biological, ecological, or environmental sciences. I will work from an assumption that conservation and preservation efforts express uniquely American values (Nash 1967), and that value-laden decisions exist even within the realm of what could be considered objective science (Dietz and Stern 1998, Hull and Robertson 2000).

Research on the social construction of nature often focuses on understanding local knowledge, which can inadvertently pit these local "interpretations" against scientific "facts." By focusing research efforts on public perceptions, researchers may be tacitly advocating for the goals of natural resource staff and volunteers, but in doing so, they have created an imbalance of

power in which the perspectives of staff and volunteers may be interpreted as "facts" not open to interpretation. By contrast, this research situates science as an avenue for humans to socially construct meanings. Seeing the social construction of science does not mean that science is invalid or unable to guide decisions. Rather, understanding the social construction of science gives practitioners the ability to improve their decision-making processes. By deconstructing meaning, we can ask if we want the world these meanings will construct for us. Consciousness of our construction affords us the ability to consciously construct. As this thesis will explore, constructions of the natural, the human, and the scientific are in dialogue. According to a recent interpretation, Max Horkheimer, a twentieth century sociologist, suggests that the mastery of outer nature is also related to a mastery of inner nature (Leiss 1994). Consider how scientists must seek to extract reason from emotion. The inner, subjective realm must be overcome in order to "see" the objective world (Leiss 1994). Science says as much about people as it does about the world it purports to observe. Thus, in constructing science, we are also constructing ourselves.

Ethnographic Methods

To gain insight into nature as defined by staff and volunteers in the Cook County Forest Preserves, I used ethnographic methods. Ethnographic research legitimizes the lived experience of participants. Through this research, participants and I have engaged in an iterative process of obtaining shared understandings of their perceptions. A strength of ethnography lies in its ability to explore how the local and global intersect in specific places, times, and contexts. There is a chance of finding patterns that can be helpful in other contexts, but subjects involved in such a study will always represent only partial views of reality. Accordingly, the situation on the

ground in Cook County may not reflect how ideas about nature are reified in other places around the globe.

Ethnographers are in no way capable of providing a panoptic view of society, or acting as the all-knowing eye (Clifford 1983). Though often overtly privileged in society as "experts," they are merely another voice to add to the composite. Keeping in mind these theoretical factors, it must be acknowledged that this text in no way represents the final word on the complex issues I have tackled, but is a building block upon the work that has already been done and upon which I hope we can expand.

Literature Review

Constructing a history is also constructing a narrative (Cronon 1992). I have strategically chosen to highlight several histories in an effort to explore their interconnections. Here, I review the literature on the histories of Western thought about nature, culture, and science. To separate one from the other would lose the sense of boundedness between these ideas. The scope is wide, and so while reading this review, the reader may experience a sense of placelessness. Ideas are not always bound to locations or times. In order to provide some grounding and explore how these ideas emerge in place, I have also connected these with the history of the creation and development of the Cook County Forest Preserves in the second half of the literature review. In subsequent chapters, I will dig into the relationship between Western thought and the Cook County Forest Preserves in the twenty-first century through ethnographic examples.

Beginnings of "Nature" in Western Thought

The conceptualization of the heterogeneous world as a homogenous entity first began in the Western world about 4,000 years ago, when the Greeks invented the word *natura*. At the

time it meant “everything” (Scarce 1997). As will be explored in this literature review, people added many connaotations to this word over time, resulting in a word which serves as an organizing symbol for many concepts. Judeo-Christian representations of nature are the foundation from which many Western constructions of nature arose (Koger and Winter 2010). The Bible constructed multiple, somewhat paradoxical, visions of nature. In one frame, it constructed nature as inferior. Genesis 1:28 states “And God blessed them, and God said unto them, be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth” (King James Version). The Judeo-Christian creation story positions humans as being destined to dominate the earth, while also suggesting nature is pure until defiled by human avarice (Di Chiro 1996). In the biblical story of the Garden of Eden, Adam and Eve disturbed the order of nature by eating of the "Tree of Good and Evil" against the orders of God. As a result, all humans were cast from this orderly and profligate nature into a desolate wilderness (Cronon 1995). By painting nature as a place where humans underwent challenges, the Judeo-Christian religions also suggested that wilderness could be a proving ground. The 40 year wandering of Israelites in the wilderness set wilderness as a place where people could be free and achieve purification (Nash 1967). When Jesus was sent to the wilderness to be tested by the devil, he was also using wilderness as a purification grounds (Nash, 1967). Wilderness continued to be a place for spiritual purification throughout early Christianity. Monks retreated to the wilderness for meditation and prayer (Nash 1967). In short "nature" in the Judeo-Christian tradition is conceived as existing in the dominion of humans but also capable of being ungovernable. Humans must try to manage nature because it is necessary to provide material and spiritual well-being.

Scientific Revolution and the Enlightenment

Periods of "enlightenment" are primarily a “demythologization” of the world, a reaction against ideas that have ossified during earlier times (Leiss 1994). The Scientific Revolution and Enlightenment (1500-1780) in Europe marked a major transition from religious authority to the authority of observation, careful inquiry, and scientific rigor. Before the Scientific Revolution, knowledge came from the church, and scientific inquiry was aimed at expanding understandings on religion (Koger and Winter 2010). During the Enlightenment, science was constructed as a tool of technological progress. Continual forward movement was inevitable (Koger and Winter 2010). The Enlightenment split constructions of nature into two major realms: those which sought to explain nature scientifically as evidence for God and those who replaced God with scientific laws.

On one hand, scientists who revealed a harmonious nature reinforced the association between nature and God (Nash 1967). In essence, God created the universe to operate mechanistically without his further purposing or intervention. The universe was perfectly designed, and this was proof that God had created it. Scientific pursuit could even obtain divine purpose. According to Francis Bacon, an influential Revolution thinker, control of nature could serve as a way to understand nature. Humans could regain their status lost in the Garden of Eden by exerting this control (Koger and Winter 2010).

To others, the mechanical operation of the world served as proof of a godless universe. By turning a scientific lens on the world around, the revolution constructed nature as a series of natural and economic laws (Leiss 1994). When Nicolaus Copernicus proposed the geocentric model of the universe, namely that the earth moves around the sun, he was challenging the Aristotelian and Christian ideas that the universe was created by a god or that it revolved around

humankind (Koger and Winter 2010). When Sir Isaac Newton discovered the rules of force and motion, he confirmed nature as inert matter which is acted upon. Historian Carolyn Merchant calls this the “death of nature," as nature was reconstructed as mechanical rather than organismal (1979).

Regardless of school of thought, people in the Enlightenment often asserted that humans operated independently of nature. The philosopher Rene Descartes stated that everything operated mechanically in the world, except for the human mind (Koger and Winter 2010). The “mind-body dualism” envisioned by Descartes is the basis for a split between humans and nature that extends into modern constructions of nature and is commonly known as the Cartesian dualism (Gerber 1997).

Paradise Found in the "New" World

Before Europeans arrived in North America, they had long envisioned the "undiscovered" world as unspoiled and occupied by innocent people (Jordan 1992). America was constructed as a real Garden of Eden and proclaimed by early settlers as a place of abundant soil, game, and resources (Nash 1967). America was also conceived as offering a way to begin anew and European settlers framed themselves as the first protagonists of the New World, ignoring the existence of native populations (Patea, Eugenia, and Diaz 2001). As the self-proclaimed first protagonists, they saw "history" as beginning with their arrival and the past as an innocent and stable state.

It is important to note the link between social constructions of nature and actual early European treatment of the "new world." Europeans' social constructions of nature were largely Arcadian, meaning they believed that nature was best when pastoral (Worster 1994). As

Europeans settled North America and pushed west, their preference for bucolic nature joined with a political ideology of "manifest destiny." They were governed by a sense that as "settlers" Europeans were somehow mystically "destined" to settle America, thus creating more Edenic abundance through taming. "Manifest destiny" posited that freedom was found when individuals were given the ability to own and control their own piece of nature (Koger and Winter 2010). By contrast, wilderness was far less desirable and a very separate construct from Arcadian nature (Nash 1967).

Transcendentalism

As America became increasingly settled, the Edenic myth of nature shifted from one of hope in possibilities to one of lamentation over a lost paradise. Nature was a place uncontaminated by human influence and humans, particularly Westerners, were spiritually fallen (Di Chiro 1996). American painter Thomas Cole wrote in 1836, “We are still in Eden; the wall that shuts us out of the garden is our own ignorance and folly,” (Nash 1967, 97). Present day environmental discourse still contains the notion of a shameful separation from nature by Western people.

Seeing human ignorance as a source of human separation from nature, transcendental thinkers worked hard to locate and disprove the ignorant assumptions. According to ecological historian Donal Worster, when Ralph Waldo Emerson penned his famous essay “Nature”, he constructed a new relationship of humans to nature that laid the groundwork for ecological thought (Worster 1994). In his philosophy, the world was a reflection of the human mind, and the mind was the whole, not a part of the larger whole. He pointed to the boundedness between constructs of nature and humans like others had done. “The reason why the world lacks unity and lies broken in heaps is because man is disunited with himself,” (Worster 1994). Emerson

believed that nature could help people achieve higher ends than basic material gains. Material abundance was not the highest accomplishment for humankind. Emerson's contemporary, Henry David Thoreau provided a philosophic case for wilderness and moved idealization of nature from a pastoral agrarian scene to wilderness according to environmental historian Roderick Nash (1967).

Ideas about humans and nature were integrally dependent. Transcendentalist constructions of nature hold that a reality higher than the physical exists (Nash 1967). God was most often found in large landscapes where one might feel insignificant and so wilderness accordingly became sublime (Cronon 1995). Transcendentalists believed that the lawless wilderness did not pose a threat because they saw humans as essentially good (Nash 1967). This was not an entirely biocentric perspective, as nature was still valued for what it provided humans. Nature was seen as valuable for helping humans achieve their highest spiritual level (Worster 1994).

One common theme in transcendentalism is a tension between scientific and experiential ways of knowing nature (Worster 1994). They sought an ideal realm through reason and intuition. For them, knowing truth required sympathy towards the world, but this idea was in direct conflict with the growing scientific paradigm of the time, that suggested "facts" about the world should be detached and objective (Worster 1994). Thoreau was concerned with the loss of reverence for life that science could encourage. In specialization and separating nature into parts of study, practitioners lost track of a whole. Science had brought about the ideas of weeds, pests, and specimen collection, which was problematic if one wanted to consider all life valuable. There was a tension between objectivity and sympathy. In addition to his work as playwright and poet, Wolfgang von Goethe produced a unique style of scientific work. Seamon writes that

he emphasized an intimate, direct experience between nature and student (1998). Goethe emphasized a science of qualities over a science of quantities. He saw the importance of adding phenomenological experiences to the second-hand observations of science at the time (Seamon 1998). This sentiment inspired others who increasingly pushed for knowledge of nature through direct experiences in nature. Thoreau promoted the importance of direct experience in nature in order to understand it as he sought to live as a part of nature at Walden Pond, rather than study it from a distance (Thoreau 1854). A lingering discomfort between scientific and experiential ways of knowing can be seen in environmental discourse today.

An appreciation for wilderness planted the seeds of preserving specific kinds of nature and people. The painter, George Catlin was the first to move from regret to preservation (Nash 1967). In 1829 he began to travel across the West and sketched Native Americans. He sought to capture nature before civilization destroyed it. Catlin also noted the loss of Indians, bison, and wilderness. He envisioned the government preserving them in "a magnificent park," (Nash 1967). Preservation has long been oriented towards preserving the past.

Colonial Discourses of Nature and Culture

Colonial discourses of nature put people of color either as identical with nature or as anti-nature, impure, and toxic (Di Chiro 1996). Original constructions of indigenous people often related them with the menace of wilderness. Given the earlier distinctions I mentioned between wilderness and Edenic nature, it seems that early colonial depictions of Native Americans posited them alongside wilderness in a way that made either their assimilation or their eradication morally permissible. Along with the taming of nature came the taming of people.

The nineteenth-century Romantic shift in favor of wilderness led to a shift in attitudes towards Native Americans. Quixotic notions of nature as a sacred place for personal and spiritual fulfillment were constructed simultaneously with the myth of the ecologically-orientated native (Krech 2000). Primitivism, the idea that civilization decreases happiness, came along with the appreciation of wild nature. From this, the image of the "noble savage" arose (Nash 1967). Native Americans were seen as "pre-Lapsarian" people who had not transgressed against nature in the same ways that Europeans had.

Darwinian Ecology

While Romantics praised nature for its civilizing effects into the mid-nineteenth century, Charles Darwin was presenting a different conceptualization of nature. Nature was the product of blind physical laws that did not take human moral values into account (Worster 1994). Darwin's ideas placed humans as part of nature, susceptible to competitions and struggle like any other species. The world was not created for humankind's use as earlier Judeo-Christian thought had stated. However, Darwin saw humans as being still above nature because of their unique ability to use their sympathy towards competition and struggle in nature (Worster 1994).

Darwin took an organismal approach towards species. He envisioned a system in which death was as possible for whole orders of animals as it was for individual animals (Worster 1994). He also saw nature as a bound system of relations, with all members serving importance to the system (Worster 1994). This functionalist perspective still permeates ecological thought today. Humans in this model, however, were outside of the system. Darwins' construction as humans outside of the system was influenced by Charles Lyell, who introduced the idea of humans as a disturbing agent of natural balance. According to Worster, Lyell observed that humans everywhere reduced the number of species down to those useful to him (Worster 1994).

Darwin's theories became political by allowing people to naturalize inequality. During the late nineteenth and early twentieth century, philosophers and scientists alike began to apply Darwin's theory of natural selection to human society. Because the fittest "naturally" survived, class inequality was a part of the laws of nature. Social Darwinism was used to make the weakening of lower classes and limited government intervention morally permissible (Bannister 1997). Constructions of nature, human, and science were mutually bound.

Conservation Movement

Conservation means managing nature for the purpose of future use. George Perkins Marsh was one of the first American conservationists, arguing for the utilitarian value of wilderness and wise use (Nash 1967). In *Man and Nature: or, Physical Geography as Modified by Human Action,* published in 1864, Marsh had much to say about the human relationship to nature. Like Darwin and Lyell, he posited that humans are a "disturbing agent" but also that being of a "higher order," they had a moral obligation to repair that which they disturbed (1864). He sought to re-interpret Genesis 1:28, which states that humans should have dominion over the earth. In Marsh's view, man is not meant to waste the earth, but to enjoy its fruits carefully. One can see the foundations of restoration ecology in Marsh. He envisioned a time when technological capabilities would allow humans to repair the "ancient fertility of healthfulness" (1864). Humans are still conceived as existing above nature, but this power yields responsibility to be caretakers.

Conservation gained prominence during the Progressive era in America (1890-1920). (Nash 1990). Progressivism rejected Social Darwinism and the limited government idea it supported. The Progressive era included large-scale government projects, including the draining of wetlands and large government-sponsored irrigation projects. The conservation movement

was a response to the belief that the government should interfere and regulate nature in the public interest (Bates 1957). But the conservation movement was also a scientific movement and a debate over who should decide how to handle resources (Hays 1959). Since management was a technical matter, conservationists argued that scientists and scientifically educated professionals should be in control of decision-making. Through legislation, policy, and administrative operations, foresters, agronomists, hydrologists, biologists, and other technical experts were given control of managing public lands (Hays 1959). Rather than a democratized debate about public goals and values, conservation was framed as technical questions to be addressed through scientific management (Hays 1959). This debate continues today.

Gifford Pinchot, elected the first chief of the U.S. Forest Service in 1898, was one of the most influential promoters of the conservation concept. Although he did not create the conservation concept, he promoted it. Pinchot realized that the multiple government organizations for minerals, streams, forests and other resources were all serving a central purpose, managing the earth for humankind, conservation (Pinchot 1947). Echoing the ideas of utilitarian philosophers, Pinchot argued that nature should serve the greatest good for the greatest number of people (1910). As opposed to Romantic constructions, scientific land management and resource extraction were not viewed as degrading the natural landscape. "The first great fact about conservation is that it stands for development," (Pinchot 1910).

At the same time, others saw the unchecked growth of human society as an impetus to conserve nature. Benton MacKaye, one of America's first environmental engineers essentially flipped wilderness and civilization binary. In his view, civilization itself was wilderness with the "indigenous world" as its antipode (MacKaye 1928). MacKaye wrote that, because of its quick and uncontrollable growth, metropolitan development was more like a flood, than a flowing

river. He likened common public grounds to dams, which prevented the further flooding of metropolitan life (1928). Conservation was necessary to control humans.

Preservation Movement

While Pinchot's conservation model was gaining momentum, another counter movement was forming. Robert Johnson, John Muir, and other preservationists saw the US Forest Service's focus on efficient use as unenlightened. They railed against a utilitarian approach to nature conservation and argued for conserving nature for its non-material properties. They believed nature had an aesthetic appeal that was ignored in conservation rhetoric (Nash 1990). Beauty should be a principle of natural resource management (Johnson 1908). Pinchot pejoratively termed these people "nature lovers." (Swain 1963).

John Muir, one of the foremost American naturalists and environmental philosophers, led the preservation movement. Following the transcendental philosophy of Emerson and Thoreau, he believed that undisturbed nature provided a way to commune with God (Nash 1990). Because nature was a place to commune with God, any desecration of nature was on par with desecration of a church. Development was heresy. Muir was somewhat of a divisive character, surmising that natural beauty was being attacked by "gain-seekers and mischief-makers of every degree from Satan to Senators," (Muir 1912). When fighting against the damming of Hetch Hetchy Valley in Yosemite to create a reservoir, he likened the arguments for damming to arguments of the Devil (Muir 1912). Preservation and development were diametrically opposed.

Muir's ideal nature, a wilderness and not a garden, was a reaction against the increasing urbanization and industrialization of the time. Nature and humans were co-constructed yet again. Humans were over-civilized and nature was a necessity to correct this imbalance. Muir

believed that people were cut off from nature and didn't instinctively understand its importance. "Like Thoreau they see forests in orchards and patches of huckleberry brush, and oceans in ponds and drops of dew," (Muir 1901).

In 1832, the first natural object was set aside as a reservation, Arkansas Hot Springs. In 1864, the federal government made Yosemite Valley into a public state park. This was the first legal preservation of public domain for aesthetic and recreational use. It set a precedent for the preservation of wilderness and many started to suggest a nationwide system of preserves (Nash 1990). The National Park Service, the paragon of the preservation model, was officially created in 1916. Being created just a year after the Cook County Forest Preserves, the two organizations shared many similar constructions of nature.

Frederick Law Olmsted represented a middle ground between Muir's nature as temple and Pinchot's nature as resource (Spirn 1996). Olmstead was one of the first professional landscape architects in America, and his naturalistic park designs had a major influence on the founders of the National Park Service and the Cook County Forest Preserves. Olmsted integrated natural physical and biological processes into cultural places. He envisioned how plants would grow and the effects of water on the shorelines, and incorporated this into park settings that appeared natural. Olmsted was so effective in concealing the signs of creation that people were often unable to appreciate the work that went into making such landscapes (Spirn 1996). His naturalistic park design was so influential that many today would be surprised to learn that Central Park and Niagara Falls were heavily engineered (Spirn 1996).

Creation of the Cook County Forest Preserves

The legislature for the creation of a park district in Chicago was the same year as the Columbian Exposition of 1893. However, already by the beginning of the twentieth century, the Chicago Park District was unable to keep up with the growth of the population. As officials from other cities began to publish reports on their parks which extolled the necessity of having open space to provide a high quality of life in urban places, Chicago's politicians and city planners began to feel pressure to keep up (Hayes 1949). By the turn of the twentieth century, Chicago had become a major hub for railroad transportation (Cronon 2009). The ease of transporting goods in and out of the city allowed for rapid industrial growth. The rapid industrial growth allowed for mass immigration into the city. As the city became more crowded, those of economic and social means began to seek recreation in the forests, bluffs, and ravines that encircled the borders of the industrial city (Chew 2008).

In 1899, George Hooker first proposed the forest preserve idea to his fellow members of the Municipal Science Club (Moulton 1931). The club contained notable social and political figures in Chicago including a landscape artist named Jens Jensen and an architect named Dwight Perkins (Moulton 1931). The club changed its name to the Special Parks Commission and undertook a study of parks for the Chicago region, examining recreational facilities and making recommendations through reports (Hayes 1949). The authors found that Chicago was last of 19 major cities in the number of inhabitants to acre of park (Bradley 1905).

The original idea was a system of parks along the county's rapidly expanding but still largely undeveloped periphery. Imagined as a welcome addition to Chicago's extant park system, the preserves were a very different idea from the traditional park model. In 1905 Perkins wrote, "Instead of acquiring space only, the opportunity exists for reserving country naturally

beautiful…all these should be preserved for the benefit of the public in both the city and its suburbs, and for their own sake and scientific value, which, if ever lost, cannot be restored for generations" (Bradley 1905). City parks had been built on former prairie and marshlands of Chicago and supplanted with plantings of exotic species. Before Jens Jensen, most Chicagoans had never seen a native wildflower colony and many of the native flowers Jensen planted in city parks were considered weeds. Jensen, however, believed that native plants were superior because they had been placed there by God's work of natural selection (Grese 1998).

When Jens Jensen and other founders of the preserves began to encourage an appreciation for the long natural history of Cook County, they were also encouraging national and regional pride through the landscape itself. There was a fear that urbanization would run rampant and destroy the natural defining characteristics of Cook County (Bradley 1905). The push for native plants, which still exists today, is related to a sense of regional exceptionalism. The unique landscape represented the unique people. Nature was treated as an artifact, deliberately constructed and appreciated for its long connection to people in the region, but also naturalized as native plants were constructed as the God-chosen plants and animals unique to the region.

The Preserves were ideologically constructed as the antipode to city life. Echoing the earlier writings of Olmsted, Forest Preserve founders thought that city life led to increased nervousness and moral depravity which open spaces could relieve (Burnham and Bennett 1909). The 1905 report states that open areas can help solve many of the ills of society such as overcrowding, increased mortality, the spread of infectious disease, juvenile crime, and delinquency (Bradley 1905). In the original plan for the preserves, it was written that the poor overstimulated laborers of the city needed places to breathe and relax (Bradley 1905). The

presence of the city made preservation necessary. In 1910 Dwight Perkins wrote, “Forests in the country are independent and self-perpetuating but the encroachment of the smoky city makes them dependent upon man for preservation.”

Education was and continues to be used politically in the Preserves. To garner support for the forest preserve idea, the Municipal Science Club began to lead Saturday Afternoon Walking Trips in the wild lands around Chicago. In 1908, Jens Jensen began the Prairie Club (Chew 2008). The Prairie Club took trips to natural areas under threat of being developed. Scientists and artists educated club members and showed firsthand the impact of development on older landscapes. These excursions, known as Saturday Afternoon Walking Trips, included trips to many different lands which would later be acquired as part of the Forest Preserve District of Cook County (Chew 2008).

As the Preserve idea went through court, the political sphere determined which "nature" to preserve. Two acts, which included different kinds of natural areas, were created in an attempt to create the preserves. They were rejected in part because the courts believed their focus was too wide. Part of the problem was that the extant park system was largely made of prairies, and the preserve district needed to be different enough from the park system to count as a separate taxing body (Vena 2013). In order for the Forest Preserve Act to pass in courts, nature had to be assigned a hierarchy of importance.

Dominant constructions of nature were infused into the legal process. Common perceptions at the time favored forests as places of wilderness, and the idea of preserving the abundant and useful prairie landscape in Illinois was not popular. The 1909 act to create the Preserve system was partially rejected because the parks commission wanted to protect prairies. In rejecting the act, the court wrote, “a reading of the statute leaves it open to grave doubt

whether it does not authorize organizing a district in the prairie, without any forest whatever in it." (Vena 2013). The leaders of the special parks commission narrowed their focus to forests. The result was the 1913 Forest Preserve Act, which states that the district "hold lands containing one or more natural forests or parts thereof or lands connecting such forests or parts thereof, or lands capable of being forested" (Forest Preserve Act of 1913).

Early 20th Century Cook County Forest Preserves Management and the Great Depression

Management in the early history of the Cook County Forest Preserves was centered on tree planting and protection. In the prairie state, acquiring forests only quickly became limiting. Disregarding the laws which created it, the District acquired prairies and wetlands. In publicly available documents, the district often extolled the way wooded and open tracts of land complement one another (UIC Special Collections 2014). This may have been a way to justify the acquisition of non-forested lands. This justification, however, was not sufficient to some landowners who were displeased to have their private lands forcefully acquired by the district through condemnation. These people challenged the forest preserves in court. In 1927, the courts ruled that the Forest Preserve could not acquire a large chunk of land it wanted in Skokie (Washburn v Forest Preserve District 1927). The courts adhered to the original act and defined what counts as a forest: "a tract of land covered with trees, or a woodland of considerable extent, with or without enclosed intervals of open and uncultivated ground." They also defined what was not subject to acquisition "a tract of land over two thousand acres which is largely marsh land and only one-thirtieth of which has trees upon it is not a forest and its acquisition as a natural forest is not authorized by the Forest Preserve Act" (Washburn v Forest Preserve District 1927).

The Forest Preserve District worked around this problem by creating more forests. The word "reforestation" was used as early as 1920 in the fourth annual message of the board in reference to lands purchased that were not forested (UIC Special Collections 2014). Two years after the Washburn case declared the district could not have the lands they wanted in Skokie, the forest preserve advisory committee released a formalized reforestation plan. They argued that the Skokie lands could be reforested and also serve as a link between other forests. "We ask the court to consider whether beautification of a connecting link between forests by reforestation does not seem peculiarly appropriate…In the future, with reforestation, it will all look more or less alike," (Forest Preserve Advisory Committee 1929). Despite the "re" in reforestation, lands that were not historically known to contain forests became forested under district reforestation efforts (Vena 2013). The report stated that no tree should be removed without exceedingly careful study and urgent reason for removal.

The Great Dustbowl, centered in the western US, shaped the national research agenda. Scientists nationally pushed for soil research and conservation. The second wave of American conservationism arose (Dunlap and Mertig 2008). Known to some as the "Tree Army", the Civilian Conservation Corps, created by Franklin Roosevelt in response to the Great Depression, provided the Cook County Forest Preserve District with manpower to plant more trees (Mickie, *n.d.*). Though I have yet to locate records chronicling the early reforestation efforts of the CCC, in 1939 alone the Salt Creek Tree Nursery used a total of 3,133 work days and 1,869 WPA work days to grow and plant trees in the Cook County Forest Preserves. In 1940, the CCC and WPA planted 697,700 trees and 14,686 shrubs in the Forest Preserves of Cook County (Reforestation Records *n.d.*). Plantings included regionally extant species such as bur oak and white ash. Plantings also included honeysuckle and European buckthorn, two well-known invasive species

in the modern day Forest Preserve. Some of the District's restoration efforts, today, are removing the Civilian Conservation Corp's "re"-forestation work.

The Civilian Conservation Corps also developed the preserves. They constructed hiking trails, picnic facilities, swimming pools, toboggan slides, and golf courses. Southwest Cook County alone had five CCC camps (Mickie *n.d.*). Romeo Camp #2, stationed between Lockport and Lemont, housed men who developed the Illinois and Michigan Canal. At Camp Swallow Cliff, veterans of WWI created parking lots, picnic facilities, and trails through the preserves of the Palos Hills region. Where glaciers had created a large bluff in southwest Cook County, humans built a toboggan run and 125 limestone steps. Camp Chicago-Lemon created picnic and sports fields. Camp Hinsdale landscaped the region. At Camp Sag Forest, 168 men quarried stone which went to other construction projects. Perhaps the most impressive project was the creation of the Skokie Lagoons. The president of the Cook County Forest Preserves gave credit to the CCC for assuring the land's preservation: "Their single greatest contribution lies in the fact that it has ensured the preservation of native landscapes for the enjoyment not only of this generation but of this generation's children and their children's children" (Mickie *n.d.*). In developing the preserves, the District added value and created an impetus for further preservation.

The preserves were inundated with visitors while the policy makers were still in the planning phases. It surprised even those who had predicted public interest in these natural areas. Because the preserves were created for the citizens and relied on their support, the district was initially hesitant to restrict the activities of visitors. Camping, sometimes for months at a time, was not uncommon. Large picnics with thousands of people, cooking fires, dance floors, plane landing fields, and unrestricted access to drive through the preserves off-road added to the

degradation of natural areas ("Centennial History Series" 2015). In response to the heavy recreational use, the district released plans intended to ramp up preservation efforts and restrict access to higher quality areas.

A Land Ethic

Ideas expressed by the American author and scientist, Aldo Leopold, had a major impact in the Cook County Forest Preserves. Aldo came into national prominence during the 1940s. In his writings, he emphasized the importance of nature for its own sake (Nash 1990). The earth did not belong to humans, but because of human power they had a moral responsibility to maintain the earth (Nash 1990). In *A Land Ethic* Leopold argues that ethics evolve. Ethics initially dealt with the relation between individuals, but then became between individual and society. Thus, Leopold argued, it was time to expand humanity's sense of ethics to the land itself (1949). Creating what could be considered a new approach to Social Darwinism, Leopold saw better treatment of the land as the necessary evolution of society. With a background in forestry himself, he recognized that nature could be preserved, conserved, and restored (1949). This is the balance the modern Forest Preserves seeks. In addition to the study of ecology, Leopold saw education and an emotional attachment to the land as parts of a solution to environmental degradation, prompting the District to promote environmental education as a major preservation tool.

In 1938, Roberts Mann the Cook County Forest Preserves superintendent of maintenance began a series of visits with Aldo Leopold in Madison, Wisconsin ("Centennial History Series: Aldo Leopold and the Forest Preserves" 2014). Seeking a solution to the destruction caused by recreation, Mann and Aldo engaged in a series of discussion on creating value. Aldo argued that

public perception must be changed in order to protect the lands. The District should promote perception through wise recreational engineering. In 1944, the District began publishing Nature Bulletins and in 1945 the Department of Conservation was created, with Mann as the superintendent. This department released bulletins, school nature programs, and field trips ("Centennial History Series: Aldo Leopold and the Forest Preserves" 2014). Leopold also mentored Mann on scientific record keeping. He taught them to keep phenology records, records of the timing of blooms and arrival of migrant birds.

Post World War II Environmentalism

After World War II, undeveloped land, including the Cook County Forest Preserves, took on new meanings in America. Americans imposed their shifting values about home, community, and leisure onto the environment (Hays 1987). While conservation was an offshoot of production and efficiency, post-World War II environmentalism was about improving the quality of human life (Hays 1987). As people began to have more time and financial resources, outdoor recreation greatly increased, bringing more people into direct contact with environmental degradation (Dunlap and Mertig 2008). Nature became part of the good life while parents began to provide children with more creative arts and activities to foster self-development (Hays 1987). As material needs were fulfilled, concerns shifted toward quality of life (Dunlap and Mertig 2008). The new wave of environmentalism that arose in the 1950s had more focus on natural beauty and recreation (Dunlap and Mertig 2008). In 1965, a White House Conference on Natural Beauty was called by Lyndon B. Johnson (Nash 1990). This was the first time that natural beauty was heralded as an important issue by the government, reflecting an important shift from utility to aesthetics (Nash 1990). Many urban residents craved life on the edge of their

cities, though only those of financial means could do so. Land became valuable for being undeveloped (Hays 1987).

Shifting ideas about nature and culture were bound. World War II moved the scope of environmental problems from local to global (Nash 1990). Local problems were considered in the context of the planet. Headline news began to cover environmental disasters such as oil spills and pollution in the Great Lakes. Pollution was seen as a major problem, and many environmental issues were related to new technologies. They were also related to ecology and human's interconnection with the environment (Dunlap and Mertig 2008). William Vogt, an influential post-WWII writer, wrote that there is finite space on the planet and a limitation of resources. "By a lopsided use of applied science it has been living on promissory notes. Now, all over the world, the notes are falling due," (1948). Vogt included overpopulation as part of the problem, framing 'overpopulated' countries as being filled with people who "unhappily, cannot escape their fate as hostages to the forces of misery and disaster that lower upon the horizon of our future," (1948). Two decades after Vogt, Paul Ehrlich published *The Population Bomb*, bringing overpopulation back to public consciousness as an environmental problem. He linked environmental destruction and overpopulation and emphasized a carrying capacity, a maximum limit of humans the earth could hold. His solution was population control, which today many consider morally reprehensible. Nonetheless, these ideas are relevant to Cook County because they construct nature as limited and over-burdened specifically due to population size. This would have given Cook County a justification to increase preservation efforts and to shift conceptualizations of the growth of Cook County from progress to burden. American progress was no longer seen by the majority of Americans as an "unmixed blessing" (Stenger 1960).

Sounding much like a social constructionist, Wallace Stegner, a novelist and professor, wrote that if wilderness is destroyed "something will have gone out of us as people," (1960).

Scientific Ecology

Ideas in scientific ecology have a large influence on the how people today manage the Cook County Forest Preserves and for this reason will be treated in detail here. In America, ecology was largely conceptualized by people who witnessed rapid environmental change, and this may have had an impact on their conceptualization of nature as balanced before European settlement. In 1895, Danish professor Eugenius Warming published *The Oecology of Plants: An Introduction to the Study of Plant Communities*. Here, he introduced, among other things, a concept of succession, how plant communities transition. The ultimate goal of nature is, through succession, to achieve the most stable and self-perpetuating society, a climax society (Worster 1994). Henry Cowles, a pivotal figure in the development of ecology, applied Warming's model of succession and climax to the vegetation along the shores of the Indiana Dunes. Cowles saw that the climax formation could be held off by the beach and the dunes themselves (Worster 1994). Communities were stable and balanced until disturbed. There is a movement towards stability. Just as a child is programmed to grow into an adult, ecosystems are programmed to grow into climax communities.

Most previous ecologists had not considered the influence of humans in their research. Humans were outside the system. Clements drew his model from his home, the wide expanse of grassland in Kansas, which had been a place settlers considered to be "virgin land" (Worster 1994). Clements' idea of a climax community mirrored the idea of a virgin community. The land was virgin before the arrival of the white man, a disrupter to the natural system (Worster 1994). In Clements' view, a single climate has only one possible climax community (Barbour

1996). Even after disturbances, nature finds a way to get back and so once disturbed, the astute scientist could predict the route and rate of recovery (Barbour 1996). One could look for overstory species and know what other species would or should exist in a given place (Barbour 1996).

Ecological thought had a direct impact on restoration practice in the Cook County Forest Preserves. Cowles, based out of the nearby Indiana Dunes, had direct connections with people in the Cook County Forest Preserves and during his involvement in the Illinois government, he openly supported the creation of the District ("The University of Chicago Centennial Catalogues" year unknown). The idea that nature has a balance which can be known and re-inscribed by scientists underlies ecological restoration in Cook County. The conceptual possibility of disturbance paved the way for future ecological restorationists to seek to reinstate a formerly balanced state. Additionally, Clements' assertion that each place has only one 'right' climax community means restorationists do not choose ecological communities, they reinstate the naturally 'right' community.

Ideas about humans and ecosystems were linked. Clements was inspired by the work of Herbert Spencer; a biologist, and social Darwinist. Spencer wrote that society itself is a self-evolving organism. He linked organism and society, comparing railroads to the arteries of a society. Spencer saw society moving from homogeneity to heterogeneity and from differentiation to integration (Worster 1994). In the same way ecosystems move towards climax communities, Spenser saw tribal societies as representing less evolved types and moving towards civilization. Spencer extended these ideas into ecology writing that the increasing integration of plants and animals shows evolution.

Henry Allen Gleason, born in Illinois, challenged the Clementsian view of nature. While Clements encouraged a construction of nature as cooperative, Gleason saw nature as competitive. He was a proponent of the individualistic or continuum concept. Gleason saw that species spread out as an independent entity, not as an integrated assemblages of species (Barbour 1996). There was a strong element of chance in composition (Barbour 1996). Because chance was such a large part of the system, he saw associations, or ecological communities, as human constructs. Ecologists today are split on whether ecological communities are ontologically real or merely a convenient conceptual tool. In a study of ecologists who worked in the 1950s, many ecologists said that the two paradigms continue side by side. It is possible that there are different truths for different applications. Though ecologists may have individualistic views of nature, management may ask them to focus on dominant species and to map out communities, as if real (Barbour 1996). This problem could be called reification, the fallacious conversion of a theoretical concept into a concrete object (Barbour 1996). There are true stakes involved in asserting the realness of natural community types. In the Cook County Forest Preserves, restorationists justify removing species they say don't belong partly by asserting the realness and value of their ideal community types.

Ecological Restoration

In the 1960s and 70s, an American counterculture began to spread the "gospel of ecology" (Nash 1990). The dominant culture emphasized growth, competition, and wealth while the new counterculture focused on stability, community, and simplicity (Nash 1990). The rise of environmentalism in the 1960s was linked to social issues surrounding war, racism, and poverty (Nash 1990). The potential for nuclear war raised serious links between war and environment (Commoner 1970). Space exploration and the photos of planet earth awakened a new

consciousness among people of the fragility and beauty of planet Earth (Nash 1990). People also began to recognize the links between racism and exposure to environmental problems (Commoner 1970). The activist culture encouraged people to take direct action in their communities, and environmentalists began to draw more supporters from blue collar and minority communities, overcoming their earlier elitist image (Dunlap and Mertig 2008). The first Earth Day in 1970 was an inauguration of the environmental movement.

It was in this context that ecological restoration in the Cook County Forest Preserves arose. Two closely related, but different ecological restoration movements arose in Cook County. One was among staff and another among citizens. Staff working in the Cook County Forest Preserves have been luminaries in the field of restoration ecology. Floyd Swink, who wrote the influential *Plants of the Chicago Region*, got his start working at a nature center in the Cook County Forest Preserves. Swink, along with Bob Betz, a professor at Northwestern University, and Chuck Westctott, the director of the Little Red Schoolhouse Nature Center, began the search for remnant prairies in Cook County in 1960 (Vena 2014). They found these prairies in vacant lots, near railroad tracks, and in cemeteries. In the mid-1960s the district started a seed nursery for prairie plants and began to restore several prairies located in the District nature centers. The first large-scale prairie restorations in the Cook County preserves occurred at Sagawau, Crabtree, and Sand Ridge nature centers in 1966. Swink first published *Plants of the Chicago Region* in 1969. It was a catalogue of all the plants known to the Chicago region and their associated plant communities, imposing the Clementsian view of ecology into Cook County. The newest edition slated to come out is being written in coordination with a Cook County Forest Preserves wildlife biologist.

The citizen restoration movement also contained luminaries. In 1977, a man named Steve Packard started a grassroots restoration group known as the North Branch Restoration Project. He intended to "rescue several small remnants of native prairie that still survived in the Forest Preserves of Cook County along the North Branch of the Chicago River," (Stevens 1995). He had noticed that no one was managing all of the weedy species in the preserves and decided to do it himself. In 1988, Packard published a highly cited article titled "Just a Few Oddball Species: Restoration and the Rediscovery of the Tallgrass Savanna." In this article, he argued that the savanna is a separate ecosystem and not merely an ecotone (transition area) between prairie and woodland. His "discovery" of the savanna ecosystem provided the justification for large-scale restoration activities within Somme Preserves. As with Clementsian concepts of ecological communities, the argument that concepts are real and not mere constructs became important.

The Society for Ecological Restoration is a prominent organization for promoting ecological restoration in the United States. According to the Society for Ecological Restoration (SER) *International Primer on Ecological Restoration*, "Ecological restoration is an intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity and sustainability," (2004). Restoration may include attempts to maintain a current condition, to return land to a prior condition, or to create a new condition altogether. Alternatively, SER states that ecological restoration may seek to return land to a prior trajectory, rather than a prior condition. Embedded within this alternative, is the concept that ecosystems undergo a predictable pattern of changes through time (succession). Both the condition and the trajectory frames assert that human activity has negatively altered ecosystems, by either degrading conditions or knocking ecosystems off their trajectories. SER states that ecosystems

that require restoration typically have been degraded as "the direct and indirect result of human activities." Modern sources of degradation include development, invasive species encroachment, poaching, intensive recreation, fragmentation, pollution, and global warming.

Ecological restoration means different things in different places around the globe (Woodworth 2013). Wieren attempts to identify distinct types of ecological restoration but rather comes up with ways of understanding restoration. She identifies scientific, deep ecological-bioregional, anthropological, philosophical, and technological understandings of ecological restoration (2013). Between staff, volunteers, affiliated scientists, and citizens the Cook County Forest Preserves are likely a construction ground for all of these epistemological bases. Where in Illinois, rhetoric often centers on restoring the land to pre-European settlement conditions, in most of the world no such reference exists and may look very different. Constructions of ecological restoration are shaped by place, time, individual experiences, and societal systems.

1980s and 1990s Environmentalism

By the end of the 1980s, environmentalism meant many things to many people (Gottlieb 1990). Conservationists, preservationists, and restorationists all developed organizations to achieve their unique aims as the grassroots environmentalism of the 1970s became institutionalized. By threatening the environmental movement, the Regan administration unwittingly rekindled activism (Dunlap and Mertig 2008). The recognition of unanticipated environmental deterioration on a wide scale, including acid rain and ozone depletion added to the sense of urgency (Dunlap and Mertig 2008).

Through the 1980s and 1990s, hundreds of volunteers engaged in major restoration work in the Cook County Forest Preserves, specifically around the North Branch of the Chicago River. They girdled trees, used herbicides, and conducted controlled burns. The work spread to other areas and today, a robust stewardship program exists, including hundreds of stewards and dozens of restoration groups all around the county ("Forest Preserves of Cook County: Volunteer" 2015). In Chicagoland, the institutionalization of environmental organizations can be seen by the mass number of organizations that arose in the 1970s-90s, the largest one being the Chicago Wilderness, a consortium of hundreds of local organizations. The Cook County Forest Preserves website today lists 47 volunteer organizations that work on their lands ("Volunteer Opportunities" 2015). As problems became more complex, it called for more experts. In being expert-driven, the environmental movement framed certain people as advocates for nature. Volunteers in the Cook County Forest Preserves experienced greater pressure to increase their relationship with science and science was increasingly the final word on decisions (Helford 2000). Claims of scientism became a way to obtain the power to make decisions.

The Moratorium

What began as a local movement drastically changed the landscapes owned by the District and, in doing so, gained praise and criticism from Cook County and around the globe (Woodworth 2013). In the mid-1990s, long-lingering public concern over restoration practices in the Cook County Forest Preserves intensified. In 1995, William Stevens published *Miracle under the Oaks* about Steve Packard and the work of the North Branch stewards. Stevens sought to cast their efforts in a positive light, but certain deceptive actions mentioned in the book served as grounds for controversy. In the book, Stevens wrote that restorationists would girdle trees so that they died slowly, effectively seeming to die of natural causes to the public eye.

Restorationists also admitted to screening their activities behind dense brush in order to prevent the public from seeing removing vegetation and applying herbicide (Woodworth 2013; Gobster 2000). Citizens began to protest and form anti-restoration groups including ATLANTIC (Alliance to Let Nature Take Its Course) and Trees for Life. People felt upset that they were not being informed and were being deceived by volunteers and land managers (Shore 1997). Raymond Coffey, a columnist with the *Chicago Sun-Times,* gave voice to protesters in a series of articles. Coffey sparked outrage over the removal of trees to create prairies in Cook County and other neighboring counties writing, "Half Million Trees May Face the Ax" (Coffey 1996). In 1996, a ban on all restoration activities in the Cook County Forest Preserves, known as the moratorium, was enacted by the Cook County Forest Preserve Board (Horrie 2006). The countless volunteer hours and extensive financial resources that had went into restoration was overturned as invasive species such as buckthorn and honeysuckle re-invaded the preserves.

Social scientists following the moratorium focused on understanding how the public perceived ecological restoration. Paul Gobster was one of the first to respond. He surveyed publicly available documents to identify the arguments against restoration (Gobster 1997). He found that most critics did not oppose restoration as a whole, but rather specific practices and for reasons such as personal safety and a valuation of trees. Barro and Bopp (1999) surveyed undergraduate students at Columbia College to determine how people understood the terms "forest preserves," "natural areas," "ecological restoration," and "biodiversity." In finding that the concept of "forest preserves" was loosely defined by the public and that "ecological restoration" was usually associated with planting trees, not chopping them, the researchers began to frame the conflict as a product of divergent interpretations (Barro and Bopp 1999). Adding to this framework, Craig Miller of the Illinois Natural History Survey conducted a survey to

understand perceptions of fire in the Chicago region (Miller, Campbell, and Yeagle 2002). He found that people didn't oppose burns per se but rather what they perceived as "unnatural" management activities in natural areas. He also found that public perceptions differ when using the phrases "controlled burn" and "prescribed fire," two synonymous terms. Other research has found that attitudes towards restoration are related to perceptions of outcomes and benefits versus the cost of restoring land (Bright, Barro, and Burtz 2002; Gobster 2011).

Over the course of a decade, as the issue fell out of the public eye, tensions eased, and tentative solutions were worked out. Individual neighborhoods and regions held meetings to decide what restoration activities would be re-instituted. The final ban on restoration was lifted by 2006 (Horrie 2006). Though the moratorium is over, some of the public continues to question restoration practices in the Cook County Forest Preserves (McCoppin and Devore 2015). These experiences in the Cook County Forest Preserves have contributed to the global discussion on the proper ways to manage nature.

21st Century

The 21st century in the Cook County Forest Preserves is marked by extensive planning and prioritization. Between 2012 and 2015, the district released multiple plans including Land Acquisition Plan, Recreation Master Plan, Trails Master Plan, Gateway Master Plan, Camping Master Plan, Natural and Cultural Resource Management Plan, The Next Century Conservation Plan, and a slew of plans for individual sites. Education and outreach are ways for the District to increase support for ecological restoration and to promote their valuation of nature. Plans are an avenue through which the District can keep the public informed.

Little research exists to provide a cohesive overview of environmental thought in the 21st century. However, environmental psychologists following the shifts in environmental thought have come up with two paradigms to measure modern attitudes towards the environment. The Dominant Social Paradigm reflects a belief in abundance, progress, growth, science, and limited government planning. The New Environmental Paradigm, its antithesis, stresses the importance and reality of ecological views and questions the unlimited growth model (Koger and Winter 2010). According to psychologists, the New Environmental Paradigm is seeing remarkable growth (Koger and Winter 2010).

Because nature in the 21st century is often framed in terms of big problems, it is increasingly entwined with politics and globalization (Curran 2006). Environmental problems including climate change, toxic chemicals, and biodiversity loss put nature on a global scale. The mainstream green movement primarily lobbies for environmental change to be corrected through government intervention (Curran 2006). Sustainable development and ecological modernization are dominant discourses of environmentalism today (Curran 2006). Ecological modernization posits that the economy can benefit from sustainable and environmentally-friendly decisions (Bell and Ashwood 2015). This argument returns to arguing for nature for humans' sake. In Cook County, recent arguments to support the Preserves because of the ecosystem services they provide the community, primarily through flood control, reflect this trend.

Increasingly, ecology is being draw into social and moral debates (Bradshaw and Bekoff 2001). Echoing the ideas of Aldo Leopold, there exists a sense that the only way to overcome environmental degradation is to change values, though different schools identify different values as being the most important (Curran 2006). Science is expected to be an advocate. People who

work in the Cook County Forest Preserves today are situated in the uncomfortable position of both demonstrating the rigor of their scientific decision-making, while also demonstrating the morality laden in their decisions.

Pre-existing constructions of nature and culture are being challenged in light of globalization and increased scientific information. Current discourse around the Age of the Anthropocene, the age of humans, suggests that our climate is marked by an expanding sense of human saturation in the environment. Current writers reveal something of the way nature-culture ideologies are shifting. Recent publications urge people to re-situate naturalness away from its romantic constraints. For example, *Urban Wildscapes* explores the unplanned wildscapes that arise naturally in city environments (Jorgensen 2011). Similarly, popular environmental philosophers, such as William Jordan, encourage a move from the long-standing nature-culture dichotomy, which separates city and wilderness (Jordan 2012). In the Chicago region, this exploration can be seen in artifacts being produced such as the book, *City Creatures: Animal Encounters in the Chicago Wilderness* and the organization, *Center for Humans and Nature*, which brings together philosophers, ecologists, artists, political scientists and others to think about the relationship between people and nature (Van Horn and Aftandilian 2014; "Center for Humans and Nature" 2016). Just how these new ideas will interact with past nature-culture ideologies or romantic notions of pristine nature remains to be seen, though restoration ecology is an important ground for working of these constructions.

Conclusion

In this review, I have followed the path of a number of ideologies on the nature-human relationship. As I will demonstrate in the following chapters, these ideologies do not simply appear and become replaced as a Kuhnsian paradigm shifts might suggest. Rather, they have a

residual effect, permeating newer ideologies and blending with them in novel ways. It is my contention that a full range of environmental ideologies exists today, from the "Lapsarian" notions of nature to post-structuralist critiques of the nature-culture dichotomy. Although paradigm shifts do occur at times, there also exists a plurality of understandings of nature. In the following chapters, I explore the construction of nature as it exists in the Cook County Forest Preserves.

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CHAPTER 2: NATURALIZING NATURE: THE SOCIAL CONSTRUCTION OF NATURALNESS IN THE COOK COUNTY FOREST PRESERVES

Introduction

When people make natural-unnatural distinctions, they demonstrate how they believe things *should* be. To consider this point, reflect on the implications of the following two phrases: 'It was a *natural* choice' versus 'Their behavior was *unnatural*.' Naturalness is not inherent in actions but invoked by people to demarcate desirable actions and the moral good. I would like to argue that this function of the word *natural* is equally true when people talk about nature itself. Using examples gleaned from ethnographic research of staff and volunteers in an urban forest preserve district, I will argue that the word *natural* is far from concrete or obvious, even in natural resource management and that assigning naturalness is not a simple category distinction but rather a socio-cultural process of labeling that which is considered valuable as natural in order to justify its existence. Nature itself is naturalized.

People arrange elements of the heterogeneous world into homogenous concepts through language. Akin to the words 'city', 'country', and 'constellation', the word 'natural' allows people to connect disparate objects by virtue of their integration of purpose. How people carve up the world into the natural and unnatural are reflections of the purposes they see in the world. It is this very intractability that provides space for people to exercise agency in their engagement of the concept of naturalness. People can decide in what context to invoke the term to serve their particular decision or argument.

Many social scientists, historians, and philosophers have highlighted the importance of understanding the language we use to talk about nature (Cronon 1996; Callicott 2000; Plumwood

1998; Hull and Robertson 2000). Meanings give rise to behavior and so these meanings must be understood if we wish to improve our relations with the planet. Furthermore, because multiple meanings for one place exist, some people's meanings may get left out during decision making, particularly if decision-makers are not aware of them. The removal of one tree could signify either a loss or a benefit to nature depending on how individuals conceptualize naturalness. To extend this one step further, I believe that particularly understanding the language land management agencies use to talk about nature matters. Land management agencies are comprised of the people who most consciously change and protect our shared lands. They add and remove species, build and tear down structures, move and create waterways, and decide how lands should be used. They decide who can use public lands and for what purposes. Natural resource management is a physical dimension where meanings for nature are both constructed and acted out (Davenport and Anderson 2005; Jordan 2003). William Jordan III writes that ecological restoration is a ritual in which people confront and explore their relationship with the rest of nature. It is not only value-preserving but value-creating (2003). Natural resource management is also value-preserving and producing practice in which designated persons make decisions about what *should* be in the spaces they manage.

Theoretical Framework

By applying theories of social constructionism to ethnographic research in the Cook County Forest Preserves, I hope to shed light on what naturalness means in a way that can be directly applied to land management decision-making. This research is based on theories of social constructionism. Social constructionism posits that humans are meaning-making beings (Berger and Luckmann 1967; Cresswell 2013; Scarce 1998). We imbue meanings on everything we come into contact with, and we act towards the world based on those meanings (Cresswell

2013). People forget their own authorship in a process called reification in which meanings appear "out there" as if embedded in the object rather than being a construction of the perceiver (Berger and Luckmann 1967). Through this largely unconscious process, nature may come to seem like “common sense” (Geertz 1975). Groups work together to construct and define their reality through social interactions, called negotiations, which reinforce and change meanings (Paveglio, Carroll, Absher, and Robinson 2011). Because language is particularly important in the process of socially constructing meaning, this research will focus on how people talk about naturalness (Scarce 1998).

More people have sought to understand the social construction of nature than can be fully explored here (Gobster and Hull 2000; Cronon 1996; Nash 1967; Greider and Garkovich 1994; Eder and Ritter 1996; Bird 1987). Hull and Robertson surveyed the literature on the social construction of naturalness and asserted three broad definitions of naturalness: As a state of the environment that existed previously, as a state that exists in the absence of human modification, and as associated with a slow rate of change (2000). In my research, I am responding directly to these three constructions of naturalness, exploring whether the participants I engaged with used these constructions.

Societies create landscapes based on meanings that groups and individuals carry for nature and conceptualizations of ideal human-nature relationships (Greider and Garkovich 1994). Within the realms of natural resource management and science also exist socially constructed definitions of naturalness. However, I would not like to suggest that naturalness is entirely a product of human invention. Constructions of naturalness are a product of both the ideal and material. There is a tangible material nature with which we interact to construct our definitions of naturalness. The physical environment plays a role in the construction of meaning by either

resisting or accommodating our testing (Bird 1987; Cronon 2009; Robbins 2012; Stedman 2011). As we interact with the material, it also interacts with us. However, the way in which individuals respond to material nature is influenced by pre-existing notions, and the labels assigned to nature are more than just a reflection of the world *out there*. Our designations of naturalness are designations of value. For example, when a participant explained to me that oaks and hickory existed "naturally" together, I assumed there were likely many cases in which oak and hickory trees co-existed to allow the person to construct this notion. The construct reflected something real going on "out there." However, many people by contrast considered oaks and maples "unnatural" although oaks and maples also often co-existed in Preserves. Both oaks and hickory and oaks and maples physically exist, but people designate which ones are legitimate with how they label them. Our meaning-filled labels are more than just objective accounts of what exists "out there." In critiquing *naturalness*, I am not critiquing the places considered natural. I am an advocate and beneficiary of the important work done by land management agencies. As Callicott points out, critiquing a word is not the same as critiquing a place called by that word (2000). He gives the example of a feminist who scrutinizes derogatory labels such as “chicks” and “babes.” This feminist is not critiquing women but the labels themselves (2000).

Critiques of the American preservation model, which pits nature and culture as incompatible opposites, have arisen across many disciplines. At times, land management agencies have removed people who once used preserved spaces because natural areas cannot have humans (White 1996; Spence 2000; Poirier and Ostergren 2002). Preservation creates a nostalgic image of a past which did not exist quite as people try to "re"-create it. The myth of pristine wilderness is being challenged in light of increased scientific information about the impact of people on the planet. Even places once considered "pristine," including the Amazon

Rainforest and Antarctica, are being found to have large degrees of past and present human influence (Meggers 1971; van den Brink, et al. 2011). Our entire world is saturated by varying degrees of human influence, and some question whether a model which polarizes nature and culture can be beneficial in such a world (McKibben 1989; Wapner 2014; Cronon 1996).

As opposed to preservation which values nature for its lack of humanization, many have suggested that restoration sees value in human activity (Hettinger 2012; Callicott and Nelson 1998; Jordan 2003). According to the Society for Ecological Restoration (SER), a prominent organization for promoting ecological restoration in the United States, "Ecological restoration is an intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity and sustainability," (2004). Restoration may include attempts to maintain a current condition, to return land to a prior condition, or to create a new condition altogether. Alternatively, SER states that ecological restoration may seek to return land to a prior trajectory, rather than a prior condition. By allowing people to imagine healthy relationships with the environment, ecological restoration escapes some of the hopeless pessimism that is a hallmark of many environmental movements (Jordan 2003). Some have written that restorationists do not see the importance of minimizing human impacts on nature, or of having a world that is not of their own making (Hettinger 2012). Some criticizers of ecological restoration, however, believe that a philosophy which encourages human intervention through intense management destroys naturalness and perpetuates the problem of an increasingly human-saturated world (Elliot 1982; Katz 2009). If naturalness is defined as a place where humans are not, then restoration would indeed destroy naturalness. In order to make a compelling argument, the rhetoric of restoration then either has to rework the traditional concept of naturalness or reject the naturalness paradigm entirely. I hope to shed light on how these tensions between management and naturalness

interact by exploring what naturalness means in light of intense human management in the Cook County Forest Preserves.

Work that attempts to philosophize nature-culture in light of restoration often lumps disparate places and people together (Hettinger 2012; Jordan 2003; Light 2000). I believe this is an oversimplification of the meanings and uses of naturalness in ecological restoration. Place is important in part because meanings are specific to context (Stewart 2006; Krech 2000; De la Cadena 2010). Furthermore, they change over time and across cultures (Pagden 1987). Considerably less work exists which attempts to situate naturalness among land managers in specific contexts (Helford 2000, Spirn 1996, Tsing 2015). An ethnographic approach can strengthen current understandings of the relationship between nature-culture constructs and ecological restoration. This research is an attempt to understand what naturalness means in one specific place and context, the Cook County Forest Preserves in 2014-2016 as a way of expanding current understandings on naturalness, urban public lands, and ecological restoration.

Research Site

Situated in northeastern Illinois and encompassing Chicago, the Cook County Forest Preserves holds the unique distinction of being both the largest and oldest forest preserve district in the country ("Forest Preserves of Cook County" 2015). The District, which was legally created in 1915, currently owns eleven percent of Cook County. Forest Preserve staff and constituents tenuously maintain these 69,000 acres of largely undeveloped land in an urban county of over five million residents as schools, businesses, and housing developments vie for space in the county. The Cook County Forest Preserves contain more threatened and endangered species than any other county in Illinois (Prairie Research Institute 2015). Of the 1,200 native species in the Preserves, 119 of them are listed as legally threatened or endangered ("Illinois

Department of Natural Resources Natural Heritage Database" 2014). Federally endangered species include the Eastern massasauga rattlesnake (*Sistrurus catenatus*) and the Eastern prairie fringed orchid (*Platanthera leucophaea*). The District also contains natural communities endemic to Cook County, including depressions caused by glacial outwash from old Lake Chicago, known as upland morainic depressions (Prairie Research Institute 2015). Created before suburban sprawl began in Cook County, patches of land commonly called "remnants" remain, which have never been developed in recorded history. The Cook County Forest Preserve District works with federal, state, and local organizations to prevent the disappearance of these species, communities, and remnants.

Natural resource management in Cook County involves ecological restoration. The district has been practicing staff and volunteer-led restoration since the 1960s. Staff and volunteers working in the Cook County Forest Preserves have been luminaries in the development of ecological restoration. Restoration continues to be an integral part of natural resource management. To celebrate its hundredth anniversary, they released a slew of plans. Included within these plans was a goal to restore 30,000 acres to good ecological health (Next Century Conservation Plan 2014).

From a distance, the Forest Preserve District of Cook County may seem to be a homogenized group with a goal to protect nature, but there is a plurality of conceptualizations of nature and culture even within this one organization. I do not believe the plurality of meanings is problematic. It is my hope to point out that, if understood, such a plurality can be a strength to natural resource management agencies by providing them with a large toolbox of possible ways to invoke connections between people and the Preserves. However, failure to recognize plurality is problematic. People may use the same words but mean very different things which, when

unrecognized, obfuscates intersubjectivity. When shared knowledge- like a "group IQ"- is less than what a group thinks it is, then cooperation, teamwork, and in general reaching the full potential of the Forest Preserve concept are diminished.

Methods

Participant observation was a primary part of my research. I engaged in work days with staff in fisheries, ecology, wildlife, police, planning and development, resource management and volunteer resources, and ecological restoration workdays with ten volunteer groups around the county. To gain entry into the field, I told individuals that I was interested in knowing what they did and why it was important to them and let them decide from there what kind of day they wanted me to be a part of and what they found important to share. The observation days included active interviews, with me lightly directing the conversation when something relevant to my research arose. For example, while one participant was walking around spray painting Xs on trees, I asked clarification questions to understand why he was painting the Xs. He explained that these trees would not historically have been there, and so he was marking them for removal. I asked more questions about what "historically" means to him and tried to get a sense of how the past fits into his sense of what the present site should be. During all observation days, I took copious amounts of fieldnotes with a mixture of descriptions, exact quotes, paraphrasing, and personal reactions.

This project seeks to highlight the wide variety of perspectives, rather than digging into any one of them. For this reason, I tried to capture a cross sample of people who would have different perspectives based on their position within the organization. It was my assumption that people's perspectives on naturalness would be somewhat dependent on their role within the district, and so I met with people in many departments within the organization. I chose volunteer

groups from around the county and tried to include a sample of both well established and relatively new groups, perhaps representing different perspectives. Some sites I visited had never-before-developed remnants of old prairies, and other sites were recreations from former agricultural fields. It would have been a very different (and narrower) research project if I had included only staff ecologists or those who had a scientific background. Had I more time, I would have liked to have included staff involved in environmental education and marketing, people who volunteer in other capacities than ecological restoration, and more individuals in general within each group. All in all, I totaled 109 hours of observation between 21 separate visits.

Meeting notes and interview transcripts from meetings between 2013 and 2015 added depth to information obtained during participant observation. I conducted five formal interviews with staff in volunteer resources, police, and natural resource management during the summer of 2015. Some of these individuals spent more time at their computer than out in the Preserves, and so a formal interview seemed like the best way to understand their work and perspectives. I transcribed all interviews personally. In addition to the fieldwork conducted in 2015, I was able to use my notes and meeting transcripts from 2013 and 2014 when I was a research coordinator with the Illinois Natural History Survey on the development of a natural and cultural resource master plan for the Cook County Forest Preserves. During that time, I had been in attendance at meetings held with staff and volunteers to discuss the plan and had taken detailed notes. As a final data source, I collected content from the Cook County Forest Preserves' website and the ten volunteer groups' websites. I entered all fieldnotes, interview transcripts, and website text into NVIVO 10.

To analyze my data, I began with a line-by-line open coding. Given the amount of times the distinction between natural and unnatural was made, I surmised this was a relatively important distinction for participants. I narrowed my analysis for this article down to understanding the distinction. To create the themes, I tracked when people spoke about naturalness and the context in which it arose. Rather than position naturalness as a word with a solid meaning, I hoped to explore agency, how people utilize the slippery meaning of naturalness to achieve their desired ends. I see the language participants used as arising in part from their perceived stakes and senses of desirable outcomes. Meanings would often slip through effortlessly as we engaged in the work of natural resource management. Never did I directly ask a participant whether something was natural, but I would probe for further information when the idea of naturalness came up. At times people would, unprovoked, reference one of these distinctions I have proposed in order to oppose it. I saw discrediting as recognition of the presence of a particular meaning. For example, when multiple people told me they didn't like the idea that the past was more pristine, I took this as evidence that such a view was present among others. The themes I am proposing are not mutually exclusive and very few people entertained all five of these definitions at all times. People even switched back and forth, using multiple, and sometimes conflicting, meanings in different contexts.

A second level of analysis involved seeing how these different constructions of naturalness were operationalized in on-the-ground management. I created codes for all the work done by staff and volunteers in the district and looked for relationships between the work and the notion of naturalness. For example, one volunteer restoration workday involved removing a "native invasive" species. During the workday, I had asked for clarification on what "native invasive" meant and found out it had to do with a native species behaving "unnaturally" by

outcompeting other native species. By considering how people responded to the native invasive concept in the site, I was able to gain insight into how meanings impacted action. I also compared experiences on the ground of natural resource management and ecological restoration to websites and public statements about naturalness to explore the relationship between communication and practice.

Findings

Natural as Non-human

"The lakes are unnatural. They are human made." (Staff Member, August 2015)

Despite research which suggests ecological restoration can close the conceptual divide between humans and nature, I found naturalness in the Cook County Forest Preserves to be dominantly constructed as non-human. When walking sites, staff and volunteers would take particular care to point out things which may have appeared to be uninfluenced by humans at first glance but indeed were not. For example, while walking past a small depression full of growing plants, a participant pointed to it and said that it was not natural because it had been dug by a farmer. In this view, material nature could be considered unnatural if it was planted by humans or grew on human-influenced landscapes, such as the farmer's ditch one person pointed out. Multiple participants made it clear that gardens were not natural. Human influence was also capable of rendering whole species, such as common teasel (*Dipsacus sylvestris*) as unnatural.

There exists in Cook County both a relatively standard Cartesian division of nature and culture in which nature and culture are opposites on a dichotomy, as well as a continuum view in which some areas are more or less natural than others depending on the degree of human

influence. In both, nature is natural precisely for its lack of human influence. Nonetheless, these two constructions have very different uses and so I'd like to explore them separately.

In the continuum view, some nature is more natural. A continuum view of naturalness allows people to set up a hierarchy of importance, with the most natural sites being the most important. The value of remnants demonstrates this. Remnants are purported to have the least amount of human influence, having been touched only lightly, mostly by grazing and logging. Because of their pristineness, staff and volunteers in Cook County largely consider them to be the highest management priority. Agency exists within the continuum view in how people conceptualize the scale of the continuum. There is no consensus on how much human activity it takes to remove naturalness completely. Discussions over recreational development often implicitly negotiate this scale of naturalness. For example, the District was in the process of adding several campgrounds in the Preserves. People I spoke with were divided over whether the new campgrounds had given people a chance to be in nature or whether it had destroyed naturalness by imposing buildings and removing trees. Some participants debated whether altering woodlands to make space for the campgrounds was a violation of naturalness. In one case, I asked a participant who was explaining the camping discussions, "Isn't recreation in the mission statement?" He responded by saying "Yes, but in a natural setting and this is where the hang-up is," (Staff Member, August 2015). The District's mission is to preserve lands "in a natural state" and though some people might like to frame pro-development individuals as being against naturalness, no one I spoke with was vocally against naturalness, even when advocating for recreational development ("Mission and Vision" 2015). Rather, it seemed they had a different sense of how much the development was imposing on naturalness. In another example, in debating whether to remove logs, practitioners were also implicitly discussing how much this

removal infringed on naturalness. One participant explained that there are people who leave logs for natural habitat and others who remove because of aesthetics. Embedded within this discussion was a question of how much humans could alter land for aesthetic purposes without destroying the naturalness of the place.

A strict dichotomous nature-culture perspective erases the uncertainty that exists in negotiating degrees of naturalness. Every species aside from humans are natural regardless of context. Though this dichotomous representation of naturalness was utilized among some in the District, there existed a sense that this view was primarily held by a misguided public. Consider this quote: "A lot of people think we're a park district and sometimes people expect us to have park district landscaping. They're not used to the preserves. They're used to going to their local parks and so that's what they deem natural…Prairie grass instead of turf grass. That would be natural," (Staff Member, August 2015). This person was suggesting that a strict human-nature dichotomy is insufficient because not all material nature is natural. Environmental education was often framed as an important avenue to teach people about what is natural. Taking seriously the framework I have proposed, the goal of education was often to move people from a dichotomous perspective to a more nuanced hierarchy of naturalness achieved only in the continuum view.

Within the District, people could also rely on dichotomous conceptualizations of nature. Police were one example. The law is either followed or broken and everything non-human is natural and illegal to take. Several complaints surfaced about police charging people for removing teasel, an invasive species. When I asked police about this, I was told that they must protect all nature. Nature may have a hierarchy, but it was not their job to impose it. Because the dichotomous perspective puts all material nature as valuable, it was also useful in in pro-

Preserves rhetoric. It was used to argue for the value of the Preserves even by those who usually espoused a more hierarchical view in the field. One staff member explained, "I want to be clear about what is significant. Every part. We can prioritize, but it's all important," (Staff Member, February 2014).

The natural as non-human construct presented certain tensions for the District. One effect of the nature-culture distinction in Cook County is that people sometimes villainized the places where people live, "People have to get out of the city and into nature. People are too aggressive in the city," (Volunteer, August 2015). The District, like so many other land management agencies, is seeking to figure out how to forge connections between people and the Preserves, but I believe this becomes difficult in a framework in which people destroy naturalness by their very presence. Another effect was the devaluation of material nature that had been impacted by humans. For example, one participant referred to several common birds as "junk species" (Staff Member, September 2015). Though participants I spoke with did not generally seek to remove the human-nature division, some did express displeasure at how a hierarchical continuum could lead to throwing away what they saw as valuable nature. "People used to think that only untouched lands were worth saving, and that is not the case." (Staff Member, August 2015). A few people I worked with showed they appreciated lands they considered to be non-human as special places but also valued ecosystems which included humans. As markedly different from other groups whose members asserted that the city did not contain nature, one volunteer group consistently used their social media to post articles about the value of urban nature, even in low-quality patches on city sidewalks.

Natural as Native

"We want plants that are native and that belong." (Volunteer, August 2015)

After walking through a field of exotic teasel and mixed Eurasian grasses a participant and I came to a patch of mixed native prairie plants including wild bergamots (*Monarda fistulosa*) and Canada goldenrod (*Solidago Canadensis*). "This, you can see, is more natural," he said pointing at the native plants. Native species were considered by many I spoke with to be more natural than non-native species. For some, native species were considered the only species that were natural. When walking with an ecologist, she pointed out exotic narrowleaf cattail (*Typha angustifolia)* in a wetland. She explained that it was unnatural because it had been introduced in the last two hundred years. She told me about the native broadleaf cattail (*Typha latifolia)* which occurs naturally in the area. In this construct, material nature can be unnatural when a species is introduced to a region by humans or is out of its ecological community of origin.

Natural as native can be used by practitioners in somewhat perplexing ways. The logic of natural as native comes from the non-human construct. Humans transform the material stuff of nature into unnatural objects by introducing them to new places and making them exotic. However, in practice natural as native and as non-human can become decoupled. In one example, naturalness can be assigned to human-constructed places. If human intervention adds the right mix of native species, restoration preserves naturalness. When participants used natural to mean native, they were able to justify large-scale human-initiated changes in the landscape. On the other side, natural as native can lead an organism which no human has ever laid eyes upon to be labeled unnatural because it is a member of an exotic species. Assigning a label of unnatural involves a process of denaturalization in which species designated as such can be

removed without question. This functions when individuals view naturalness on a species level, but when they move to an organism-level things get messy. Specific organisms never directly touched by humans, such as a plant which arrived at a Preserve through wind dispersal, can be unnatural because people identify it as a member of a species that was introduced to the general region by humans in the past.

It is within these ambiguities that some agency exists to decide which parts of nature to naturalize. When a group of the public protested ecological restoration in the 1990s, they called themselves the Alliance to Let Nature Take Its Course (ATLANTIC). In doing so, they were arguing for naturalness to be conceptualized at the organismal level. Adding or removing organisms destroys naturalness. The district, in defending ecological restoration, was arguing for naturalness to be conceptualized on the species level. They could add or remove organisms because it was the naturalness of species they wished to protect.

Agency also exists in determining which behaviors count as natural. Staff and volunteers in Cook County demonstrated this in their ongoing debates about whether natives can be invasive. According to some I spoke with, because native plants exist in human-constructed situations, they can behave unnaturally, becoming too aggressive and wiping out other native species. One participant explained that they were clearing native trees because they grew aggressively due to human suppression of a natural fire regime. Others, however, did not believe native species could become invasive. For some, competition and aggression were natural to the system. One person stated boldly, "Some say things are native but too aggressive, but I say if it's native it should stay! It was here before us, and so it belongs," (Staff, August 2015).

Natural as an Identifiable Community

"Oaks and maples don't usually go together, and so progress means changes to fit community types." (Staff, September 2015)

Natural was often used to mean identifiable community types. This construction holds that assemblages of species group together into more or less predictable community types which can be known and identified by people. The notion of identifiable communities guides management planning in the Cook County Forest Preserves. *The Natural Communities of Cook County* is an unpublished document which identifies the assemblages of species ecologists believe should exist in the area. Management activities often include mapping out the proper community type for sites and adding and removing species to fit sites into the community types.

The community construct both relates to the non-human construct, in that it asserts the naturalness of non-human-caused communities, for example, a cornfield and its associated species would not be a natural community, and is in tension with the non-human construct because it is used to justify human-caused changes. Claiming the naturalness of certain community types justifies massive removal and addition of species in order to create what *should* be.

The community construct is also sometimes in tension with the native construct. According to participants, in the early nineteenth century, only oak-hickory forests or maple-elm-basswood forests existed in the Cook County area. In modern times, oaks and maples were sometimes found growing together at Forest Preserve sites, mostly attributed to a lack of fire. Fire used to destroy most maples, while the thick-barked oaks would thrive. Staff and volunteers that I worked alongside saw the growth of oaks and maples together as unnatural and often

removed the maples. These individual species are both native, but together they form an unnatural community type.

Science and constructs about communities intersect to inform management decisions. When Cook County restorationist, Stephen Packard, discovered the savanna community type, he had to do considerable work to assert the savanna as a unique community, with its own assemblage of species, and not as a transition area between forests and prairies. Once this was scientifically established, species which did not fit into the community type could be removed.

Some people I spoke with questioned the legitimacy of ecological communities. Embedded within the community view is a Clementsian assumption that nature is orderly enough that people can make predictions about nature based on how it behaved in the past. This is also an Enlightenment-inspired way of conceptualizing naturalness, in that it uses the idea of predictability understood through science to justify human-caused changes. When nature is framed as predictable, it means that if a species existed in the past in a particular assemblage, they would have assembled in the same pattern in the present if humans had not interfered. Some participants questioned the assumption that nature was so orderly. While walking a site with one participant, she asked rhetorically, "Do we keep this as a quasi-savanna with elms and walnut? It doesn't fit into a standard category. Nature is not cookie cutter," (Staff, September 2015). Other participants mourned the loss of beauty due to the community construct. "One time they cut a beautiful grove of walnuts because some steward said it doesn't belong," (Staff, August 2015).

Natural as a Process

"The key thing, of course, is the habitat fragmentation and the fact that we've eliminated a lot of natural processes while at the same time introducing a lot of non-natural processes like stormwater runoff and urbanization." (Staff Member, October 2015)

In a number of cases, staff and volunteers saw themselves as reintroducing natural processes. The end goal of restoration was to get the system to a point where it could go through these processes on its own. Natural as a process moves the emphasis from the material, behavioral, and time considerations of other constructions and into the interaction between parts. Because naturalness as a process is about interactions, it is a useful construction for connecting the Preserves to their urban surroundings. Presenting naturalness as a process provided space for participants to encourage the county to invest in the Preserves for the processes they could benefit from, such as producing clean water and air.

Natural as a process, like the other constructs, both arises from the non-human construct and is in tension with it. Human intervention is acceptable to maintain naturalness, but it must replace processes that they have disrupted, not create new processes. For example, when people told me about the arguments for and against seeding they often explained what would have happened "naturally," without human intervention. A hypothetical place where humans never existed is imagined and used as the standard determinant of what *should* occur. One person explained that in some sites, like sites with a road in between them, seeding is allowed to happen because it would have happened "naturally." Participants debated from how far away to collect seeds and how to spread them based on what would have happened "naturally." This hypothetical place is far from being settled. In arguing against the seed policy as it existed, one man told me that shortly after a tornado in Washington, Illinois, a town over one-hundred miles

away, he found mail from Washington in a Cook County preserve. He related this to the seed policy, exclaiming that seeds will travel much further than the current seed policy allows. Because the long distance travel of seeds was "natural" through tornados, he argued, humans should also be able to move seeds long distance.

Natural as Sustainable

"…that nature itself would be able to sustain itself, I think is something that everyone kind of agrees on." (Staff Member, August 2015)

Similar to Cowlesian climax communities, some participants suggested that purely natural places are sustainable. There is a balance of nature. This concept is related to the non-human construct because humans are usually purported to disrupt the "natural" balance. Many participants in Cook County indicated that restoring the Preserves to a sustainable state was a primary management goal. The District has a Sustainability Doctrine on their website which states, "Forest Preserve staff recognized the need to put sustainability at the heart of all operations and programs," (2010). This, however, is not typically shown as something new humans are introducing to the Preserves but something they are bringing back from the past. Like the other constructs, because humans do not create new forms in "reintroducing" sustainability, their activities do not impose upon naturalness.

The idea of naturalness as sustainable is used to justify acquiring more land. Most ecological restoration in Cook County exists within highly fragmented landscapes and cannot exist without a decent amount of human involvement to prevent the sites from slipping into degradation. Many participants suggested that sustainability was more of an ideal than a reality. "But nature in the midst of a busy metropolitan area needs some help to thrive. Through hands-on efforts, we work to reverse some of the negative effects of human activities," (Volunteer

website, 2015). It is important to note, however, that there exists an assumption of stability in the absence of human interference. The unsustainability of the Preserves was often attributed to its unnatural surroundings, not to an unsustainability of pure naturalness. The lands may not be very sustainable yet, but more land meant more sustainability.

Natural as the Past

"We looked at a dense cluster of trees which were all very straight. She said 'This is not a natural situation. It indicates that these trees are growing up in different conditions from 200 years ago.'" (Fieldnotes with Staff Member, August 2015)

Sometimes people invoked naturalness to talk about past conditions. The past guides management planning, though as will be discussed, the extent to which it should, is not agreed upon. Participants in Cook County often conceptualized restoration in their sites as seeking to return the land to pre-European settlement conditions. This could mean as close as possible to these conditions, or to a trajectory the land was on before the arrival of Europeans. In the 1990s, scientists at a local arboretum constructed maps of the conditions of the lands around 1838, when the Public Land Survey (PLS) came through the area and parceled out the land for oncoming settlers (Bowles and McBride 2002). For many, the arrival of Europeans was the end of naturalness.

People in Cook County often presented the past as better. They engaged in nostalgic representations of the cultural past, mourning the lack of time kids today spend in nature, the loss of darkness, the lack of connection to nature in the city, and the loss of tradition (Fieldnotes, 2015). They often suggested that the past was more stable. One volunteer website states, "The goal of restoration is to reverse – to the extent possible in the midst of a busy metropolis – the

unnatural effects of the past two hundred years and to restore the natural conditions that sustained our landscape for the last 10,000 years," (Volunteer Website, 2015). The changes of the last 200 years are compared to the more stable conditions of the last 10,000. Participants also suggested nature in the past was more abundant. They shared stories of ecological abundance that early explorers experienced. Websites shared similar stories:

> "Writings from early settlers speak of grassy, open woodlands where one could see 400 yards distant and could drive a buggy through the woods. They wrote glowingly of the profusion of wildflowers in the prairies; groves dotted with shrubs, wild grape and other berries; and an abundance of wildlife supported by the rich land. But things have changed in the last couple of hundred years." (Volunteer website, 2015)

Natural as the past leaves room for agency in deciding how closely people should attempt to make the present mimic the past. Some participants stressed the importance of planting native species in the exact places they would have existed in the past, for example removing trees from ditches because they would historically only have existed in uplands. Some expressed concern that planting seeds destroy one's ability to read a landscape, and so exceeding care and research must go into where seeds are placed. Others had no qualms about planting for aesthetics without a need for exact placement. While walking a site, one participant explained that because there wasn't much color in the area, he would put in more coneflowers. Another person explained that PLS information was about trees, and the rest of restoration was a "blank canvas," (Volunteer, September 2015). For some, natural as the past was a general guide, and for others, it was an exact rulebook.

Sometimes sites couldn't be both the sustainable and past constructs. Participants had differing notions of which of these constructs to work towards in these cases. Those who valued the past over all other constructs were comfortable with sites that would always need extensive management. Others who more highly valued sustainability believed past conditions were only

preferable when sustainable. One staff member stated plainly, "And where we advocate for pre-settlement is where sustainability is best for pre-settlement," (October 2015).

In returning landscapes to past conditions, people are returning the land to another group's cultural landscape. Constructing natural as the past could lead to the assertion that some humans produce natural landscapes while others produce unnatural landscapes. Because natural as the past is related to natural as non-human, returning to the past must either ignore or naturalize the actions of previous people. In the example given earlier, native maple trees were often cleared by participants because their modern presence was the result of fire removal. Many participants were aware that in the past fires were set by Native Americans to improve travel and hunting. Unprovoked, they shared this information with me, yet these same people could also present fire as a naturally occurring entity which had been suppressed by civilization. The Cook County Forest Preserve website states, "Prairies actually need fire. Without fire at least every few years, a prairie will gradually be taken over by shrubs and trees. Settlers wrote of giant prairie fires that swept across the region," (2015). The past construct leads to the assertion that for Native Americans to set fire is "natural" but for European Americans to suppress fire is "unnatural." Naturalness then comes to mean not a lack of influence from all humans, but a lack of influence from certain groups of humans behaving in certain ways.

In books and articles about the ethics of restoration, the role of the past in setting goals is mentioned often, and so I expected to see this as a dominant way naturalness was understood in Cook County. While I did see pre-European settlement rhetoric among participants in the District, I also saw many people who were formulating new ways of understanding the relationship between the past and naturalness. This is perhaps a direct result of a profusion of writings which have explored problems with the pre-European settlement discourse. Though

nearly all the people I spoke with emphasized the importance of knowing past conditions and using them as a guide, many participants did not espouse a strict view of returning the land to pre-settlement conditions. Some suggested that past conditions are used to understand what healthy looks like. "Restoration sounds a lot like returning to the past. Our only interest is healthy habitat, but the past gives us an idea of what that could be," (Volunteer, October 2015). Others offered that choosing a point in the past was arbitrary. And others yet argued that pre-settlement conditions were not always achievable. "We're not necessarily going to look and say well we're going to get back to pre-settlement time because that may be unattainable. But what can we do at this particular site that's going to be the best for it…" (Staff Member, October 2015). Though all agreed that the past was important, a variety of views existed on how to connect the past and the present.

Discussion

"In past times, the land was an uninterrupted expanse for thousands of miles. Seeds were blown about by the wind or carried in the coats of animals or the feet of birds. In today's fragmented landscapes, the ancient connections are broken. Now we are the wind and the buffalo, moving the seed from place to place." (Volunteer Website 2015)

Despite a growing body of research that suggests restoration provides an avenue to eliminate the nature-culture dualism, my research suggests that practitioners can maintain the dualism through a complicated process of naturalizing and denaturalizing the world to according to the stakes involved. As shown in the quote above, participants naturalized their own work. The restorationist is on the side of nature, acting as the wind and the buffalo. Through these moves, people in the Cook County Forest Preserves are able to assert the purity of non-human landscapes while also engaging in the massive restructuring of landscapes. Naturalness then in

restoration can be inclusive of humans as many proponents have suggested, but it is only inclusive of certain humans behaving in certain ways. By implying that only certain human behaviors can maintain naturalness, designations of naturalness then also structure human behaviors towards nature. Paul Gobster wrote that ecological restoration can lead to the "museumification" of nature, severely limiting how people can interact in "natural" areas to only certain activities (2007). My research supports this idea and expands upon it by revealing that the designation of "naturalness" itself is a specific avenue for social control. This can function both within the realm of ecological restoration and outside of it.

Naturalness is political. Because naturalness is generally a desirable quality in current American society, designations of naturalness become designations of *ought.* By naturalizing themselves, practitioners are providing a justification that restoration *should* occur. In aligning themselves on the side of nature, participants were able to assert that those who are against restoration were also against nature. It is unlikely that a group like the Alliance to Let Nature Take Its Course is against nature but rather operating with a different definition of nature. Rather than discuss the values behind each management decision, natural resource managers in Cook County and elsewhere may sometimes mask their values behind the conversation-stopping designation of naturalness. Furthermore, because the meaning of naturalness is in flux, the opportunity exists for people to exercise considerable power over managed lands by naturalizing their ideals.

Given the difficulty of maintaining the importance of naturalness in ecologically restored places, I would like to end by posing a question: is naturalness an appropriate paradigm for ecological restoration? This is not an original question. As others have suggested, perhaps it is better to consider health, integrity, sustainability or autonomy (Jordan 2005; Hull and Robertson

2000; Heyd 2005). Autonomy is powerful because it distinguishes restoration from gardening, which attempts to keep nature in a controlled environment, while also making space for human involvement (Jordan 2003).

Despite the importance of understanding naturalness, there is very little space in the practice of natural resource management where constituents can directly discuss and negotiate a workable definition for an organization. If an organization decided naturalness is an appropriate paradigm for their management, then perhaps like organizations create mission statements, they should also construct meaning statements, where the meanings of such terms are explored and understood. This work presents a case for the importance of such sharing and exploring platforms. By understanding the social construction of *naturalness*, land managers can embark upon an adaptive management practice that includes conscious awareness of plurality and new distinctions for improved communication.

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CHAPTER 3: LEGITIMIZING KNOWLEDGE: SCIENCE AND SUBJECTIVE KNOWLEDGE IN THE COOK COUNTY FOREST PRESERVES

Introduction

This chapter is an attempt to understand the roles of scientific knowledge, subjective knowledge, and boundary work in natural resource management through ethnographic research in the Cook County Forest Preserves. Knowledge is socially constructed. What we take for knowledge is relative to our society. What we know is through social contexts (Berger and Luckmann 1967). Social constructivism means that people act towards the world based upon meanings (Cresswell 2013). Humans give meaning to all objects and ideas (Scarce 1998). Meanings are not inherent in things, but are constructed through experiences and interactions with the world around. I do not wish to advance the claim that all the boundaries in the world are products of human social construction. The material world from which people create knowledge is very real. Nature exists and it plays a role in our construction of meaning by either resisting or accommodating our testing (Bird 1987; Cronon 2009; Robbins 2012; Stedman 2011). However, what we consider to be knowledge about the world is a product of what is valued by our society. Consider the values inherent in the idea that scientists must seek to extract reason from emotion, that the inner, subjective realm must be overcome in order to "see" the objective world (Leiss 1994). Detachment and objectification are valuable by this rationale. Science says as much about people conducting the science as it does about the world it purports to observe.

The culture of empiricism privileges certain perspectives over others. Michel Foucault poses the important question, "What types of knowledge do you want to disqualify in the very instant of your demand: 'Is it a science'? (1980, 85). In seeking universal and observable facts about the world, researchers exclude what Donna Haraway called *situated knowledge*,

knowledge which includes the "radical historical contingency" of production (1988, 579). Foucault points out that it is the very idea that valid research must be repeatable that leads local, contextualized knowledge to become discredited (1980). In claims of objectivity, repeatability, or universality, science privileges perspectives which claim to be panoptic.

Thomas Gieryn originally used the word boundary work to mean the efforts scientists undergo to distinguish their work from non-scientific work (Gieryn 1983). Boundary work makes it clear whose knowledge bears authority over a situation (Bell and Ashwood 2015). I will use this phrase to describe the work done by people involved in natural resource management to give authority to their knowledge. Though boundary work is frequently used to privilege science, I found that in Cook County people sometimes also engaged in boundary work to privilege subjective knowledge. They could laud their emotionally-connected subjective knowledge over detached scientific knowledge. The same phenomenon then, boundary work, was engaged to produce different end goals in different contexts. Some people sought to debase the value of non-scientific knowledge while others sought promote the value of non-scientific knowledge.

To be clear, despite the distinction I have proposed between scientific and subjective knowledge types, individual people produce multiple forms of knowledge. No one is all one or the other. Those who are not scientists may still use scientific principles or research to inform their work and those who are scientists still have a subjective experience of their work that colors their decisions. These themes are intended to reflect how participants function in the "field," more than the muddy reality that knowledge type aren't generally purely one or the other. If anything, this disconnect between the themes and the reality of knowledge production is of central importance to this research. Claiming the authority of scientific knowledge while

ignoring the reality that scientific knowledge is created and implemented by subjective beings is problematic.

Natural resource management in the United States is enmeshed in a scientific and expert-driven society. Since management is ostensibly operationalized as a technical matter, technicians such as foresters, agronomists, and ecologists are often given the right to make decisions on how to manage public lands. Some have pointed out that in emphasizing the importance of expertise, the conservation movement is not about democratization (Hays 1959). Land managers who may have extensive experience in restoration, may believe that the public does not have appropriate expertise to make decisions (Tipple and Wellman 1989). If the goal of natural resource management is to prioritize the protection of rare species and ecosystems, this may be the case. Yet, environmental psychologist Joanne Vining found that the public largely disagreed with the notion that restoration should be done despite opposition (1999). The problem of how to integrate local perspectives into natural resource management is a problem found in land management organizations around the world. People make claims for the right to make decisions on public lands on the basis of scientific and subjective knowledge. What I'd like to problematize, is neither subjective knowledge nor scientific knowledge but the processes through which these forms of production can come to be hegemonic. I believe an adaptive decision-making process should create grounds to nurture a dialectical relationship between these forms of knowledge production.

Blackboxing can obscure the fact that scientific thought is just one partial perspective among many. According to Bruno Latour, once scientific findings are accepted they become a black box, meaning we tend to forget all of the debates and assumptions that went into elevating a hypothesis into an accepted result (1999). Problematically, inside the black box may be biases

and the interests of certain power structures, but people don't see what happens in the box. They see only the output, the scientific fact or technological product (Latour 1999). Blackboxing is especially effective in an expert-driven society. With the modern influx of media and information, people are increasingly being asked to form meanings for distant places and act for places in which they will never have any direct experience (Berger and Luckmann 1967). Ever-increasing information and technology leads to a need and valuation for expertise. Experts help to define the global landscape (Greider and Garkovich 1994).

Opening the blackbox means seeing that even within the realm of science exist emotions, subjectivities, and historical contingencies. Donald Worster points out that Charles Darwin played and underplayed certain dimensions of the world as he developed his theory of natural selection. As a nervous man in nineteenth century London, it was quite possible that in creating his theory of evolution he was also trying to make sense of his own fear of the chaos of London (Worster 1994). Darwin could see himself, and his own struggles, in the science of ecology. Darwin's ideas carry some genuine truth about the world, but Darwin's truth is not the only truth. In another example, systems ecology arose from cybernetics, an approach to control systems that arose shortly after World War II in a time of technological optimism (Keulartz 2007; Kuletz 1998). Technological optimism and capitalistic ways of understanding energy production and consumption are embedded into the discipline.

Managed "natural" areas become their own sort of black box as we tend to forget all of the planning and work that make them. This can have devastating effects for land management agencies who ask for substantial amounts of financial support for their work. In a good ecological restoration, the area appears "natural" in the sense that it appears non-cultural, a non-artifact. This black box can be so effective that it leads visitors to exclaim that nature doesn't

need management, not realizing that the nature they are referring to was very deliberately maintained or created by practitioners. Anne Spirn demonstrates the problem of naturalistic park design with the case of Frederick Law Olmsted, an influential landscape architect who helped design Central Park, Yosemite, and Niagara Falls. At Niagara Falls, Olmsted sought to provide scenic vantage points by using naturalistic materials that would blend into the natural scenery. He sought to maximize the scenic beauty of the water by using rocks to control the flow of the water (Spirn 1996). Olmsted was so effective in concealing the signs of creation that people today are often unable to appreciate the work that went into making such landscapes and despite massive human influence Niagara Falls is largely heralded as a "natural" *(non-constructed)* wonder (Spirn 1996). In the case of restoration, I would say that opening the blackbox means seeing the impact of human systems within "natural" areas. This openness necessarily includes recognizing the function of humans' scientific and subjective knowledge on natural areas. I believe being open about human influence is not a threat to naturalness, but rather a promotion of the value and importance of investing in the work done by land management agencies.

Research Site

Situated in northeastern Illinois and encompassing Chicago, the Cook County Forest Preserves holds the unique distinction of being both the largest and oldest forest preserve district in the country (“Forest Preserves of Cook County” 2015). The District, which was legally created in 1915, currently owns eleven percent of Cook County. Forest Preserve staff and constituents tenuously maintain these 69,000 acres of largely undeveloped land in an urban county of over five million residents as schools, businesses, and housing developments vie for space in the county.

The Cook County Forest Preserves contain more threatened and endangered species than any other county in Illinois (Prairie Research Institute 2015). Of the 1,200 native species in the Preserves, 119 of them are listed as legally threatened or endangered ("Illinois Department of Natural Resources Natural Heritage Database" 2014). Federally endangered species include the Eastern massasauga rattlesnake (*Sistrurus catenatus*) and the Eastern prairie fringed orchid (*Platanthera leucophaea*). The District also contains natural communities endemic to Cook County, including depressions caused by glacial outwash from old Lake Chicago, known as upland morainic depressions (Prairie Research Institute, 2015). Created before suburban sprawl began in Cook County, patches of land commonly called "remnants" remain, which have never been developed in recorded history. The Cook County Forest Preserve District works with federal, state, and local organizations to prevent the disappearance of these species, communities, and remnants.

Ecological restoration is a large part of natural resource management in Cook County. Staff and volunteers working in the Cook County Forest Preserves have been luminaries in the development of ecological restoration. The district has been practicing staff and volunteer-led restoration since the 1960s and restoration continues to be an integral part of natural resource management. To celebrate its hundredth anniversary, they released a slew of plans. Included within these plans was a goal to restore 30,000 acres to good ecological health (Next Century Conservation Plan 2014). Given the scope of the work, vibrant volunteer community, breadth of staff expertise, and multi-cultural urban surroundings, Cook County is an insightful place to explore knowledge production in natural resource management.

The Cook County Forest Preserves is enmeshed in both scientific and subjective knowledge production. Staff working and volunteers in the Cook County Forest Preserves have

been luminaries in the field of restoration ecology. Floyd Swink, who wrote the influential *Plants of the Chicago Region,* got his start working at a nature center in the Cook County Forest Preserves. Swink, along with Bob Betz, a professor at Northwestern University, and Charles Westcott, the director of the Little Red Schoolhouse Nature Center, began the search for remnant prairies in Cook County in 1960 (Vena 2014). They found these prairies in vacant lots, near railroad tracks, and in cemeteries. In the mid-1960s the district started a seed nursery for prairie plants and began to restore several prairies located in the District nature centers. The first large scale prairie restorations in the Cook County preserves occurred at Sagawau, Crabtree, and Sand Ridge nature centers in 1966. Swink first published *Plants of the Chicago Region* in 1969. It was a catalogue of all the plants known to the Chicago region and their associated plant communities, imposing the Clementsian view of ecology into Cook County. The newest edition slated to come out is being written in coordination with a Cook County Forest Preserves wildlife biologist. The citizen restoration movement also contained scientific luminaries. In 1977, a man named Steve Packard started a grassroots restoration group known as the North Branch Restoration Project. He intended to "rescue several small remnants of native prairie that still survived in the Forest Preserves of Cook County along the North Branch of the Chicago River," (Stevens 1995). He had noticed that no one was managing all of the weedy species in the preserves and decided to do it himself. In 1988, Packard published an article titled "Just a Few Oddball Species: Restoration and the Rediscovery of the Tallgrass Savanna." In this article he argued that the savanna is a separate ecosystem, and not merely an ecotone (transition area) between prairie and woodland.

The largest study to date to include Cook County Forest Preserves resource management staff and volunteers is part of a project called RESTORE (Rethinking Ecological and Social

Theories of Restoration Ecology), implemented by the US Forest Service and the US Department of Agriculture. RESTORE seeks to "understand the links between organizational type, decision making processes, and biodiversity outcomes in the context of ecological restoration of oak woodlands in the Chicago metropolitan area," (Westphal et al. 2014). Researchers involved in this initiative found that restorationists think in qualitative over quantitative terms. Management activities are often relative and inexact. For example, a restorationist may say a person should 'wait and see what is in the seedbank before they seed.' The lack of precision in ecological restoration means that practitioners must "listen" to the land in order to decide how to manage it. RESTORE researchers have found that the knowledge of restorationists is created in the same way that traditional ecological knowledge is created (Watkins et al. 2015).

Methods

Participant observation was a primary part of my research. I engaged in work days with staff in fisheries, ecology, wildlife, police, planning and development, resource management and volunteer resources, and ecological restoration workdays with ten volunteer groups around the county. To gain entry into the field, I told individuals that I was interested in knowing what they did and why it was important to them and let them decide from there what kind of day they wanted me to be a part of and what they found important to share. The observation days included active interviews, with me lightly directing the conversation when something relevant to my research arose. For example, when one participant brought up the phrase "listen to the land" I asked for clarification of what she meant. How does one "listen" to the land? I tried to see how this fit into her management decisions. During all observation days, I took copious amounts of fieldnotes with a mixture of descriptions, exact quotes, paraphrasing, and personal reactions.

This project seeks to highlight the wide variety of perspectives, rather than digging into any one of them. For this reason, I tried to capture a cross sample of people who would have different perspectives based on their position within the organization. It was my assumption that people's perspectives on naturalness would be somewhat dependent on their role within the district and so I met with people in many departments within the organization. I chose volunteer groups from around the county and tried to include a sample of both well established and relatively new groups, perhaps representing different perspectives. Some sites I visited had never-before-developed remnants of old prairies and other sites were recreations from former agricultural fields. It would have been a very different (narrower) research project if I had included only staff ecologists or those who had a scientific background. Had I had more time, I would have liked to have included staff involved in environmental education and marketing, people who volunteer in other capacities than ecological restoration, and more individuals in general within each group. All in all, I totaled 109 hours of observation between 21 separate visits.

Meeting notes and interview transcripts from meetings between 2013 and 2015 added depth to information obtained during participant observation. I conducted five formal interviews with staff in volunteer resources, police, and natural resource management during the summer of 2015. Some of these individuals spent more time at their computer than out in the Preserves and so a formal interview seemed like the best way to understand their work and perspectives. I transcribed all interviews personally. In addition to the fieldwork conducted in 2015, I was able to use my notes and meeting transcripts from 2013 and 2014 when I was a research coordinator with the Illinois Natural History Survey on the development of a natural and cultural resource master plan for the Cook County Forest Preserves. During that time, I had been in attendance at

meetings held with staff and volunteers to discuss the plan and had taken detailed notes. As a final data source, I collected content from the Cook County Forest Preserves' website and the ten volunteer groups' websites. I entered all fieldnotes, interview transcripts, and website text into NVIVO 10.

To analyze my data, I began with a line-by-line coding. Following this, I went through and compiled the codes into themes based on my research questions. For this paper, I looked at the types of knowledge staff and volunteers produced, how they applied knowledge to management, and how they legitimized their management decisions. I also looked for times when participants sought to invalidate others' knowledge. Essentially, I tried to follow the logic that led from producing knowledge to acting on it. From this, I found the broad themes of scientific and subjective knowledge. I will explore the role of both these forms of knowledge in the Cook County Forest Preserves.

Findings

1. The Role of Science

"We are not just people who love birds. We are using science. This is scientific proof that all things are necessary to the system." (Staff Member, September 2015)

Using Science

Science in Cook County often moved from a statement of fact to a statement of value, from an *is* to an *ought*. At the most basic level, people used scientific knowledge to validate their management decisions, such as deciding when to add and remove species from sites. For example, staff and volunteers used plant competition science to decide when to collect and plant seeds, and research on past conditions to decide what the site "should" be. It is typical across

land management agencies, and not necessarily problematic that science would be used to advocate for management decisions. However, in doing so, values can easily be glossed over in discussions about science. It is as if science is making a decision, not humans and their values. For example, one person told me about current debates about whether to chop a certain grove of trees down. He explained that anti-restorationists believed before European settlement there were forests on the east side of the river and that the trees should be left. He said he knew there were not forests on the east side of the river. He could tell because of how expansive the old trees were, indicating they grew under open conditions. In making this a discussion about the science, he never had to discuss the value-laden considerations that underpinned the discussion. Should humans alter this specific, extant grove of trees based upon information about the past? That a savanna used to exist does not imply a savanna should exist.

In Cook County, science and values are visibly enmeshed in the rhetoric of naturalness. Naturalness is an intractable construct, yet practitioners relied on the practice of science to help settle what counts as natural. For example, people often structured their management on the premise that native species are most natural. This is bound up in cultural constructions of humans as unnatural, in categorizing pre-European settlement species as native, and in techno-scientific methods which allow people to identify past conditions with relative accuracy. There is a dialectical relationship. The scientific perspective adds value to the idea of naturalness, and the assumed *ought* of naturalness adds value to the scientific data. In describing the work of a scientist, one person explained, "No one knew what a prairie was. He *(scientist Robert Betz)* explained why it was going away, because of brush. Everyone thought it *(the brush)* was nature, and it wasn't, and he explained what to do about it," (Volunteer, September 2015).

In Cook County, restoration experiments often eschewed fitting into traditional conceptualizations of empirical science. Both staff and volunteers conducted monitoring and descriptive studies of the presence and abundance of species in Preserves. Volunteer stewards had a lot of autonomy in deciding how rigorous to be about their monitoring. Staff and volunteers were familiar with the scientific literature on restoration ecology. However, when individuals wanted to make site predictions, they most often emphasized the importance of site-based trial-and-error over strictly controlled experimentation:

> "Volunteer: So we have to find out what can live there, not necessarily what used to; what can live there now and what parts of the hydrology can we repair, and what we cannot repair.
> Me: How do you figure that stuff out?
> Volunteer: Trial and error; Educated guesses and trial error." (Fieldnotes, August 2015)

Participants mentioned several reasons site-based-trial-and-error works well in the Preserves. Many participants stressed that scientific precision takes time and in that time, species are blinking out of existence. There is an urgency to the work. One of the founding stewards of Cook County wrote an article in *Restoration and Management Notes*. He stated, "We learned by a trial-and-error process using hundreds of varying uncontrolled restoration experiments. If we had proceeded systematically, we would by now either have spent a small fortune, or, using those resources available to us, we would only now be getting the results of the first few experiments, all of which were failures," (Packard 1988). There existed a sense that the slow processes of scientific research are incompatible with the fast pace of environmental degradation and politics.

Science is limited in its ability to inform practitioners how to determine when a place changes to the point that a previous scientific prescription no longer applies. These limitations proved to be problematic for the Cook County Forest Preserves. Some participants believed

restoration should return the land to the condition it existed in before European settlement. This quote is an example: "The goal of restoration is to reverse – to the extent possible in the midst of a busy metropolis – the unnatural effects of the past two hundred years and to restore the natural conditions that sustained our landscape for the last 10,000 years," (Volunteer Website 2015). Others participants believed they had to use their best judgment to decide when enough change had occurred that a past prescription could no longer be applied. Pre-settlement conditions were not always possible. "You have to look at what used to be there, but you have to be realistic. If you're planting it and it's dying year after year, then it obviously doesn't want to be there anymore," (Volunteer, August 2015). Ecologically restoring lands in the face of rapid environmental change can take the form of trying to imitate the past in some areas while the surrounding areas become increasingly urbanized. Because the preserves are natural places wrapped in urban places, ecosystems which were in any sense "balanced", "complete" or "healthy" in the past may function quite differently with the present surroundings. Practitioners are faced every day with the frustrating fact that every day is novel, and new forms may have emerged to the point that the old ones can no longer be replicated in the same way. Through natural resource management, people can create an intimate, and perhaps painful, relationship to time. Though it was by no means a popular discussion, several participants hinted that community types as defined by science might be shifting to the point that new community types need to be imagined. Tomorrow is not exactly like today, nor is it like yesterday. Scientific rationale is limited in its ability to tell us what ecosystems of tomorrow will, or should, look like.

In part, trial-and-error is preferred to controlled experiments because each site is so unique. What would result from "proper" experimentation on one site would be unlikely to be generalizable to another site. There are too many variables and differences between each site for

the scientific rationale of repeatability to be useful. Conditions in the Preserves cannot be entirely controlled, and sites cannot be isolated from their surroundings. There is no control group aside from perhaps remnants, but even these are largely affected by their urban surroundings. It is overall difficult for people to draw assured or direct cause-effect relationships that are required for findings to be scientifically valid. In essence, restoration ecology reveals the limits of scientific rationale to solve environmental problems. Anything that could be considered 'findings' in Cook County are situational, site specific, often cannot be linked directly to closed cause-effect chains, and are changing even as the findings are being written up. This is not to say that practitioners have failed to use science, but perhaps scientific rationality is limited in applicability because environmental degradation and restoration take on radically different forms in every place where it occurs, even within one county. This quote from an interview with a staff member may help provide a sense of the District's situated management practice:

> "This is all site specific, so it's different for every site, based on everything that's associated with that particular parcel. So what's surrounding it? Is there a buffer? Is there not? Is it roads? Or what is negatively impacting the site from offsite? You know, what can we do onsite from a standpoint of what's already there, um, and then you've got to look at all the site from top to bottom so your above ground, below ground stuff. What can we do that's going to be best for that particular parcel?... I mean that list is a mile long and I'm sure we're still missing things that other people would look at and say 'How did you not think about this?'" (Staff, October 2015)

Scientism

Though many times people didn't see scientific methods as applicable to their work, the culture of scientism could provide legitimacy to decision-makers. Scientism, as distinguished from the actual practice of science, is a perspective that knowledge can be validated by claiming to be scientific. Many people used scientific authority to justify their management decisions.

That practitioners could both disavow the constraints of science at times and proclaim the authority of science at other times provides a window into the complicated climate in which the modern Cook County Forest Preserves exists. One staff member described a tension between the need to present certainty to politicians and the public and the uncertain methods of restoration. In her opinion, the district has to put on a face of certainty in order to garner support. People want scientific assurances, and somewhat ironically, those who have the least scientific background are most likely to believe science is capable of providing neat answers. Those who practice science know that science is messy and certainty is nearly impossible.

Scientism in Cook County was useful for mobilizing politicians and the public. Several participants mentioned that having scientific reports from the organization I was employed with, the Illinois Natural History Survey (INHS), was an effective way to add validity to their decisions because INHS was seen as a scientifically-based institution. However, friends and volunteer groups could also write reports which propelled politicians into action. In talking about a particular report, one staff member pointed out that the statistics were flawed, but the report was effective because it got the politicians alarmed. Part of what makes science a privileged perspective is that many people, politicians included, are not well-versed enough in the specifics to enter the discussion, and they must take it on the authority of it being "scientific" alone. Rather than discuss the values behind each management decision, the values of natural resource managers in Cook County and elsewhere may easily be hidden behind conversation-stopping designations of science. Even if the results are not quite valid, the idea of scientifically backed information is powerful enough to influence political decisions in Cook County. Science sells.

There existed a sense among staff and volunteers that science was powerful enough to settle opposition to management decisions. Several times, I asked participants how they would engage with people who opposed restoration. One person said she would tell those opposed that "these systems are fire dependent. There is data to support the work we're doing. This is science-based restoration," (Staff Member, August 2015). There was a sense that people opposed restoration because they didn't understand the science. "A lot of it has to do with people not knowing about the ecosystem and what happens when we destroy it or alter it in any way," (Staff Member, August 2015). People suggested that once people knew the science, the descriptive *is*, they would be on board for the management decision, the prescriptive *ought*. Participants recognized the need to be inclusive of other perspectives, but entering the discussion often took the form of learning others' value-laden interpretations of the science or of being given factoids through environmental education. This is a superficial way of entering a discussion because those who learn such factoids are still relatively unable to enter discussions about methods or legitimacy of findings. The science is still in a black box.

There is considerable power in knowing, or even claiming to know, what others do not. In Cook County, one or two individuals on a site often were trusted by the rest as the keepers of scientific knowledge. The authority of scientific knowledge was corroborated among those who didn't identify as scientific. "I think our role is to not second guess the decisions of resource management. They are the science people. They get to decide," (Staff Member, August 2015). At many sites, when I asked a volunteer about the work, they would direct me to someone else who knew the science. Some people intentionally kept scientific information about the presence and abundance of rare species to themselves. While this may have served other purposes, it also

served the purpose of providing power to the person who held the scientific knowledge. They got to make decisions based on their carefully guarded knowledge.

I was sometimes able to see the importance of the culture of scientism through those who didn't have a scientific background. Many of these people engaged in additional script work to gain validity. One staff member said, "Ecology is not my background, but I learn," (Staff Member, August 2015). Another individual, upon asking about his background said, "I have an environmental science degree. I didn't have a natural resource science degree. I was interested in other things and being more rounded," (Staff Member, September 2015). Another individual reflected on the importance of being familiar with the language. "I don't know the science, but I'm comfortable in a room that other people are talking about the science. I think you have to have at least that. It can't sound like a foreign language," (Staff Member, August 2015). When people did not know the specifics behind the science, they sometimes still invoked it to provide validity. During a discussion of a new burning method, one individual claimed that he did not know how it worked but, "…it is on the website. There's science," (Volunteer, August 2015). The following statement reveals the way people can invalidate emotions through scientific hegemony:

> "They cut a beautiful grove of walnuts because some steward said it doesn't belong. How could you cut something so beautiful, and waste all that wood worth so much money? Some say things are native but too aggressive, but I say if it's native it should stay! It was here before us, and so it belongs. But I'm uneducated. What do I know?" (Fieldnotes with staff, August 2015)

2. The Role of Subjective Knowledge

"I remove the non-native species and watch to see what happens. The land tells you what it needs to be. It will probably be a savanna, but we will have to remove the brush and monitor it to see what happens." (Staff, September 2015)

"I take my inspiration from the trees of the forest." (Staff, September 2015)

Experience and the Production of Subjective Knowledge

Subjective knowledge is that which candidly recognizes and draws strength from the experience of the practitioner. I do not wish to imply that scientific research is not subjective, nor that people can't rely on both types of knowledge at the same time, but I want to mark scientific knowledge as fundamentally different from subjective knowledge in its admission of closeness between the subject and object. Consider the difference between implementing information from an article about the needs of a particular wildflower versus following a feeling-based management style as revealed by this quote: "Watch a wildflower and it will tell you what it needs. If the flower is small, there is not enough light. The plants will tell you. Get a feeling for how it will grow." (Volunteer, October 2015). Natural resource management in the Cook County Forest Preserves could be considered a kind of art, which indelibly requires artists. It requires feel, or "intuition" as some described it. As one participant explained, "It's a way of life. You become in tune with nature and seasons," (Staff, August 2015). There is power in claiming inner subjective knowledge as opposed to an external science. The power of this type of knowledge is recognized by those who contain it, and they seek to validate this form of

knowing among others. "There has to be communication and respect for our knowledge," (Volunteer, March 2014).

To understand the role of subjective knowledge, it helps to understand something about how the district is structured. This is not a comprehensive overview, but can hopefully demonstrate that multiple scales of site-interactions and means of knowledge production are embedded into the organizational structure. In its current incarnation, a chief ecologist oversees four ecologists, each responsible for guiding management on one-quarter of the District lands. These individuals create site-based goals and management plans. They also maintain records of species and management activities. Ecologists spend a considerable amount of their time in office settings. Their time in the preserves is typically spent walking sites to assess site conditions and work done by volunteers and contractors. The ecologists I spoke with all had master's degrees in ecology or a closely related discipline. The district also employs a team of wildlife specialists and a team of fisheries specialists. These groups spend a great deal of time out at the sites tracking, catching, and otherwise studying wildlife. Compared to the ecologists, they are less bogged down with bureaucratic duties, and they rove the entire district. They are not separated into regions. They typically had master's degrees in biology or a related discipline. Project managers help oversee some of the larger projects in the district. They deal with general problem solving with contractors and can come from a range of backgrounds. The volunteer resources department deals with human resource-related volunteer issues and capacity building. Their educational backgrounds include economics and business. Project managers and volunteer resource staff, like ecologists, spend a good deal of time in office settings. They go to sites to meet with contractors and volunteers. Resource management crews and maintenance crews prepare sites for contract work, such as marking trees for removal. They mow large areas, clean

sites, and remove some trees themselves. Crews are out in the Preserves nearly every day. They are divided into eight divisions and had a wide range of backgrounds from arboriculture to construction.

The stewards tend to have the most sustained and hands-on contact with individual sites. Stewards are seen as the primary caretakers for individual sites. There are stewards at over one hundred of the Preserves, and many have been volunteering for a decade or longer. Stewards are given a considerable amount of autonomy to decide what to do on their sites on a daily basis and many times the ecologists collaborate with the stewards to write management plans. They also lead workdays and recruit volunteers. Stewardship is a major commitment. The process of becoming a steward involves district training and oversight by mentor stewards. This is a relatively new process, however, and many of the current stewards were ushered in when self-selection and personal connections were the primary methods. Stewards tend to become attached to particular sites because they live by them or visit them often, and solicit the district to allow them to become stewards of the site. They come from a wide variety of backgrounds, and though there is a handful academically trained in ecology, most come from backgrounds outside the discipline. Most often, they learn through hands-on experience. They bring their situated knowledge, gained through direct experience working the land, to the table as a plethora of Preserve players make decisions.

Gendered Subjectivity

People can create different kinds of knowledge through their culturally-gendered lenses. Consider the gendered subjective experiences in this example: While we were out snipping the heads off teasel, a female volunteer mentioned that nature was "good for kids." I asked her to elaborate on what she meant by "good." She explained that nature "takes kids' attention off

themselves" and "teaches them to be aware." A male volunteer responded that nature "toughens" kids up and teaches them to be "alert." I do not want to imply that participants fit neatly into categories based on gender, but that gendered scripts guided participants' subjective experiences. In addition, people could seek legitimacy by appealing to gendered qualities typically considered good in the current culture. Some of the legitimacy garnered was through qualities typically associated with masculinity, such as toughness and bravery. Others were garnered through qualities typically associated with femininity such as sensitivity and emotional attachment.

Some people exhibited an adventurer's pride in the hardships they endured while working sites. People described with enthusiasm working in zero degrees, crawling on hands and knees, and burning brush in the heat of summer. When comparing his work to others, one participant stated fondly, "I'd rather be out sucking dust," (Staff, September 2015). They used "foot soldiers", "saving nature", "rescuing", "special forces", and other metaphors to describe the work they did. Bravery, as well as toughness, were ways of increasing respect. One manager explained that his staff really respected his judgment because he had spent considerable time doing physical labor in the Preserves (Staff, October 2015).

Certain roles in the Preserves may be biased towards those who have a penchant for adventure and a strong sense of justice. Ecological restoration is hard labor. It requires thick skin as weeds are pulled and regrow over and over and as less committed volunteers come and go. Without strong convictions, it is hard to imagine a steward staying motivated. They bring these attitudes with them to their sites, earnestly seeking to make a positive impact on the planet, and they do, but sometimes they are faced with the reality that they are saving the planet weed by weed. Some participants suggested that others have such a penchant for affecting landscape change that they sometimes make overzealous changes on their sites. One participant described

it as a "cowboy attitude" (Staff, August 2015). In her opinion these changes could lead to degradation rather than restoration.

Experiences could also be filtered through feminine lenses. Listening to the land, asks people to engender sensitivity and openness. It asks the opposite of scientific detachment and reductionism. Connection and context are value-adding qualities in this approach. People I spoke with seemed to develop real relationships with the lands they worked. Restoration in the Cook County Forest Preserves is a perfect example of the premise suggested by Greider and Garkovich that we see ourselves in landscapes (1994). Those with experiential, situated knowledge of the Preserves are as unique as the sites which they construct. They are the opposite of globalized or decontextualized. They represent a specific place. In the same way, that native landscapes cannot be simply replaced by species from other places, experienced natural resource practitioners cannot be simply replaced by formally trained others. "Intuition," a word many participants used, is a provocative quality to claim, for it suggest an inner source of knowledge rather than external science.

Subjective knowledge includes emotional attachment. Stewards I worked with took considerable pride in their work, to the point that they sometimes conflated themselves with their sites. Treatment towards the site was also treatment towards the self and stewarding a high quality area provided confidence. When speaking about how his site was on top of the priority list one steward stated, "It's nice to be loved," (September 2015). Staff members who were responsible for prioritizing felt this. One staff member explained that stewards often pressure the district to consider their sites as high quality. "You spend so much time at one site. You don't want to tell them their site is garbage sometimes, but it is," (Staff, August 2015). Another staff member explained how she had avoided critiquing one of the steward's activities because

the steward was going through some life issues. It was better, she had reasoned, to let her continue doing what the staff member may have considered poor restoration. However scientifically founded management decisions may be, when dealing person to person, decisions are also socially founded.

Subjective Experientialism

What I have called subjective experientialism, is the way participants would go about situating their subjective knowledge as more legitimate. People would engage in boundary work to mark their subjective experiences from scientific knowledge and other people's experiences. Sometimes, people claimed to be the most attuned to one's surroundings. While explaining why a project she was involved in worked better than similar projects, one person stated, "We let them lead. We do it on the animal's terms. We move when the animals are moving," (Staff, August 2015). In claiming a special ability to commune with nature, through intuition and listening to the land, I believe participants were seeking a validity which, if not above science, was irreplaceable by science. "There is a saying, it takes 20 years to make one (*an ecologist*) and 20 years more to make a good one," (Volunteer, March 2014). There is a certain power in being able to keep knowledge as qualitative and somewhat esoteric.

People could at times become hegemonic about the validity of their subjective experiences. Participants would sometimes claim the superiority of their own experiences. The sensitivity encouraged through experience, was something which was only acquired through particular kinds of experience. "You can't appreciate nature as well in your yard," (Volunteer, August 2015). "The mountain bikers just go round and round," said one volunteer (March 2014). Restoration and natural resource management, in general, provided a special understanding of nature's processes that couldn't be obtained through uses more typically

engaged in by the public. Though this may be true, it seems that it could be equally true in reverse. The public may have subjective knowledge that is useful and complementary to knowledge produced by practitioners. During a walk through a Preserve with a staff member, a neighbor walked over and told us about the many changes she had witnessed on the site during her time living next to it. With relative accuracy, she told us about vegetation, wildlife, and how large contractor work initiated by the District had impacted the site. This tendency to devalue the validity of the public's subjective knowledge may be a residual effect of the 1990s moratorium in which members of the public with years of experience in ecological restoration had to validate their right to make decisions on the land over other members of the public.

Discussion

Though I have separated out scientific and subjective knowledge in order to explore how they function in natural resource management in the Cook County Forest Preserves, the reality is people rely on a mix of scientific and subjective knowledge. No one has entirely one form of knowledge or the other. Here is an example. One staff member walked me through a site where she was planning to thin trees. She explained trees were thinned because, in the past, frequent fires would have kept trees from taking hold. She also explained how she would decide which trees to thin. After explaining that she would remove many small trees she told me, “The other option is to remove the big canopy trees, but on a human level it feels wrong,” (Staff, August 2015). In this example, this person's attachment to big old trees directed her final decision in an otherwise scientific management approach.

From Thoreau's experiences at Walden Pond to the impassioned land ethic of Leopold, modern land managers are informed by writers who believed land management should be both scientific and experiential. Henry David Thoreau, a paragon of the transcendental appreciation

of nature, saw a tension between scientific objectivity and experiential sympathy (Worster 1994). He believed that all knowledge is ethical and that knowing truth required sympathy towards the world. This idea was in direct conflict with the growing scientific paradigm of the time that science could be detached and objective. He was also concerned that in specialization and separating nature into parts of study, practitioners lost track of a whole. In his diary, he wrote, "I have become sadly scientific." His views were being "narrowed down to the microscope. I see details, not wholes nor the shadow of the whole," (Worster 1994, 97). Aldo Leopold, another influential environmental thinker, rejected pursuing a doctoral degree so that he could get out and experience nature as a forester. Leopold wrote, “Let no man jump to the conclusion that the Babbitt must take his Ph.D. in ecology before he can 'see' his country. On the contrary, the Ph.D. may become as callous as an undertaker to the mysteries at which he officiates…Perception, in short, cannot be purchased with either learned degrees or dollars; it grows at home as well as abroad…” (1949, 174).

Balancing scientific and experiential knowledge is a good ideal for land managers, but it is important to remain cognizant that even this is an ideal and that all knowledge production is partial. Decisions of inclusion and exclusion must always be made. By analyzing histories of the Dustbowl, William Cronon demonstrated that the same story could be told in a variety of frames, including a declensionist perspective where humans destroyed nature and a progressive path where humans used wit and ingenuity to tackle environmental problems (Cronon 1992). In Valerie Kuletz' book on nuclear wastelands in the American West, she demonstrates how cartographers left out the important places where indigenous people worshiped and lived in the maps they created which perpetuated the view of the west as a desolate wasteland (1998). A history cannot include everything that ever happened to everyone, and a map cannot readily

include every feature of the landscape from the atom to the atmosphere. I do not hope to imply that science or experience is invalid or unable to guide decisions in natural resource management, nor do I want to assess the 'rightness' of any forms of knowledge. Rather, I am advocating for an awareness of the inclusion and exclusion processes of every form of knowledge production. The partial perspective is a problem when certain means of knowledge production claim not to be partial. I agree with Reid Helford, who wrote in his sociological study of the Cook County Forest Preserves that natural resource management needs a more reflexive approach (2000). I recommend natural resource managers understand the role of subjectivity and contingency in research and management decisions. The fallacy that subjectivity and objectivity can be separated doesn't remove our subjectivity but instead runs the risk of rendering us unconscious of it.

When we accept that all knowledge is partial, we can begin to understand the need for a holistic approach to land management which doesn't discredit alternative forms of knowledge production, but makes use of the extant diversity of knowledge production to make the most resilient sites possible. We should not strive for biological diversity on our sites while advocating for a monoculture of perspectives about our sites. Land management agencies can actually strengthen their outcomes by embracing the plurality of situated knowledge that exists on their lands. In Cook County, I saw this in the delicate relationships between the stewards and the organization. The majority of the district employees oversee tens of thousands of acres, but the volunteer stewards typically remain stationary at one or two sites. The knowledge obtained from these multiple scales can complement one another. While stewards may know the ebb and flow of their sites with impressive detail, staff who are more mobile may have a bigger picture perspective which can also inform practices on the ground. Different forms of knowledge

production follow different logics and when we learn to follow such logics rather than drawing boundaries between 'us' and 'them,' we often find we have more common ground than we originally expected.

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CHAPTER 4: CONCLUSIONS

Communicating Complexity

This research has sought to explore the complexity of natural resource management from a sociocultural perspective. Particularly, by engaging in ethnographic research, I hoped to produce interpretive research which could be mobilized for practical application in land management agencies. While doing fieldwork, I came to realize that many of the individuals I spoke with recognized to varying degrees the same problems with naturalness and knowledge production that I did. Participants spoke of the way that the search for pristine nature leads people to devalue non-pristine landscapes. Many saw themselves as advocates for these trodden, weed-filled places. I believe the hope of restoration is its ability to add value to these less-than-pristine places. However, there are multiple ways one could add value, and if practitioners seek to add value by shaping lands into romantic notions of pristineness, then restoration is still bound to the idealism of the quest for nature unsullied by humans. Though there is great hope in the work of restoration, I'm not confident the rhetoric of restoration has yet broken away from the Cartesian dualism and fully allowed humans into the ecosystem.

Naturalness is complex and political. In my work, I have not attempted to suggest how much of my participants' words represent firmly held beliefs and how much are rhetorical techniques. This is a tricky thing to provide answers for, particularly as an outsider. I could surmise that because most of the time we were engaged in work and not in high-stakes situations, participants were sharing their true beliefs, but in my work I have mostly functioned with the assumption that the most appropriate thing I can do is to point out the way words are being used to serve certain ends. Though I won't attempt to divide rhetoric from true belief at this time,

environmental education is an insightful final place to consider the relationship between belief and communication. In public communications, including websites and environmental education programs, the complexities I have described, and which participants acknowledged, were largely absent. Consider this example from a volunteer-led school fieldtrip:

> "Has anyone heard of invasives? (Pause) They are from somewhere else. Probably because there are no competitors, they spread here. Bugs don't use them. Birds don't use them. The plants are taking over and killing other plants off in the forest preserve. It is an epidemic and dangerous for the forest preserves. We are taking out the weeds that don't belong so the ones that do can grow." (Fieldnotes, August 2015)

This person knew that desirable species of birds sometimes lived in buckthorn, but she essentialized buckthorn in order to achieve a desired end, getting her audience to understand the problem of invasive species. Polarization often happens in social movements where people wish to mobilize the public (Hirsch 2007). If I attempt to explain that an object is good sometimes and bad other times, I have not laid a very mobilizing argument for why you should support the removal of said object. When our communication is rhetoric, intended to educate others to seeing what we see, it is tempting to represent black and white over gray. Another reason it is difficult to separate rhetoric from firmly held beliefs is because sometimes rhetoric becomes "reality." When we construct stories and repeat them over and over again, we are also forming our own understandings. Through each telling, we are validating and entrenching our beliefs, our understandings of how things really went.

I believe a reflexive land management approach carefully considers what gets lost when our complex understandings get boiled down to the bare bones for communication. During the necessary process of distilling complexity into digestible communication, we may inadvertently lose important details. We choose what to include and exclude based on our values. I believe natural resource managers should exercise conscientiousness of how they

condense naturalness because these group meanings affect how people will act towards nature and are the basis from which people will form individual meanings.

It is quite likely that simplified representations at times prevent natural resource management agencies from being able to explain their work. How do you explain the cutting of native trees when every webpage and communication outlet has given the impression that native species are natural (often read as *good)*? It requires a major backtracking that can make the organization appear untrustworthy. Multiple people in Cook County stated that the public backed restoration when it came to invasive species but had a harder time when it came to thinning native species. Is there a way to communicate complexity so that it is mobilizing? This is an important question that must be explored if natural resource management is to continue growing increasingly technologically and socially complex and also increasingly in need of public support.

Multi-Perspectivism

An additional question gleaned from this work is this: How is nature managed when plural? The struggle of post-structuralist critiques of nature, such as I have presented here, is that after we recognize naturalness as socioculturally constructed, we still have to figure out how to manage material nature (Cronon 1992). If there are multiple natures, which natures should we choose for our public lands? Indelibly, we will have to make choices. However, I believe once we are aware of the multiple meanings people have for nature, we can make choices that make space for plurality. Rather than an either/or perspective, we can embrace a wide range of meanings. This, however, requires first that we acknowledge the realness and legitimacy of others' perspectives.

Post-structuralist land management can be a strength in culturally diverse places. One participant I met with described the Preserves as needing to act like Velcro with many hooks. Not everyone wants the same experience, she explained, and not everyone will be drawn to the preserves for the same reasons. These 'hooks' she spoke about are one way to conceptualize what it means to embrace plurality. One site can have many hooks suited to many value systems. One site can be many things to many people. Users of each 'hook' can generate new, situated information about the same objective land. Through these paths, users may produce radically different knowledge, each true in their own respective logics. Before managers make changes on the land, they should understand what the changes mean from multiple perspectives. This could be through social impact assessments.

A reflexive land manager asks whether some definitions are given more credence than others and why. All knowledge is partial but what we choose to count as knowledge reveals something about values. We should attend to it. If land managers want to make public lands for the public, they must be sensitive to the fact that the creation of one person's nature is sometimes the destruction of another's and they must look for solutions that seek maximum gain for all perspectives. Once again, I would stress the role of awareness.

Managers can make adaptive policies designed to allow for multiple perspectives. This means policies which are not strict prescriptions, but general guides that can be adapted to individual contexts. This takes a tremendous amount of trust among practitioners. As I have demonstrated with naturalness, the openness of language can be an avenue through which to exercise power. Similarly, open policies can leave room for power moves. In order to thrive with open, adaptive policies, practitioners must open to recognize when they have disadvantaged others or made power moves. I believe turning the anthropological lens onto the practice of land

management itself is a useful source of information to aid in crafting a natural resource management ethic, but it will take active imagination and an openness to self-reflection from land managers to consider how to move forward and embrace plurality of people and nature.

If we are to have a reflexive engagement with the natural world, one question we might ask is this: What is this un-spoken for landscape that we call 'unnatural'? What does its imbued unnaturalness reveal about human values? In Cook County, participants I spoke with would actively engage in devaluing some species. For example, one person continually called common birds "junk species." (Fieldnotes, September 2015). To be open about my own stance, I support ecological restoration and natural resource management. I have seen the difference between a weedy thicket and a restored savanna. I believe biodiversity is beautiful and I regularly use and appreciate ecologically restored places. However, I do not support denaturalizing the rest. In a world of such ecological devastation, I truly don't think we can afford to see any species as "junk species" or city landscapes as depraved. When we take a big step back, it's somewhat ironic that we would devalue the species which are most prolific, resilient in the face of massive human impact, and grow best alongside human spaces. There are four thousand miles of roadway in Chicago (Edwards 2015). Just think of what this means if we were to see all landscapes as equally capable of producing naturalness. Finally, if we want to make natural resource management a community endeavor, we must value the things which are part of peoples' experiences. The scarlet tanager is beautiful, but it is the robin that pervades our daily experience.

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