The Ecology of Possession:
A Kin Study of Elk Island National Park

by

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Abstract

This thesis introduces the theory of possessive ecologies, offering a critical alternative to the dominant paradigms of knowledge integration in environmental science, grounded in Moreton-Robinson's ontology of possession and Whyte's Indigenous ecologies. I argue that the field of environmental science plays a crucial role in shaping our understanding of race and property in the colonial context, especially in how landscapes extensively managed by Indigenous peoples have been depicted as untouched or natural. This narrative distortion, along with physical changes made to ecosystems during colonial times, has effectively hidden the rich history and current practices of Indigenous management of these lands.

I challenge the widely accepted split that places Indigenous knowledge on one side and scientific knowledge on the other as largely separate. Instead, I argue that these forms of knowledge as they exist today are deeply intertwined within the colonial context. I stress the significance of Indigenous governance and futurity to critique the way Indigenous knowledge is often oversimplified and romanticized, a result of a knowledge integration approach that keeps Indigenous and scientific knowledge in separate spheres. The knowledge integration approach often avoids questioning or altering either body of knowledge and also limits Indigenous influence to areas deemed cultural or spiritual, thereby limiting their potential material impact on land stewardship and governance.

I delve into case studies in the field of Science and Technology Studies (STS), advocating for what Todd calls "kin study" as a methodology for Indigenous STS. By

incorporating Cree ideas, as well as Indigenous and feminist theories, I examine how landscapes and Indigenous roles are portrayed in the environmental plans and interpretative frameworks at Elk Island National Park, viewing these documents as narratives with historical depth. I compare how relationships with soil and fire are understood through Indigenous viewpoints of kinship versus the dominant ecological narratives of cultivation and disturbance/succession. Through stories and research on Indigenous connections with soil and fire, I confront the inaccuracies in how Indigenous roles are depicted in management plans, uncovering the overlooked stories of Indigenous environmental care.

The thesis wraps up with thoughts on how Indigenous peoples might use the language of science strategically to strengthen Indigenous governance in managing the environment. I advocate for a reshaping of environmental science that truly appreciates Indigenous systems of knowledge and governance, and which tackles the often implicit narratives about race and property rights by addressing the impacts of colonialism on how we talk about the environment.

Acknowledgements

Contents

1. Introduction

> "The buffalo spirit comes to me when I sing and drum and smudge with sweetgrass. It says, 'I ask the Creator to become many so that I can feed the people once again and meet their needs,'" he says slowly. As he stares out the window and silence fills the space between us, I ponder what the buffalo spirit means in its communication with the old man. Finally, Albert gives me a clue.
> "I believe the earth will renew herself and things will go back to the old way of the Indian. You will not see it. But I will." (Meili 1991, 84)

> Fortunately, resource exploitation was not the only legacy of European culture. With the white man's technology also came science, the foresight of a few individuals and the laws to prevent the total destruction of the former natural order. (Elk Island National Park 1976, 29)

The first quotation above is from an interview with nicâpân (my great grandfather), Albert Lightning. Albert was a spiritual leader from Ermineskin reserve and the uncle[1] of nohkôm (my grandmother), Elizabeth Lightning. Albert, whose Cree name was Paskwâw Mostos Awâsis (Buffalo Child), is a prominent figure in my family, and nohkôm speaks powerfully about his influence in her life. In the profile of him in Alberta's Native Elders, Dianne Meili writes that "Albert talked a lot about natural law. He said that humans' inner natures are an exact copy of the nature of the universe, and deep knowledge of the self comes from nature" (1991, 83). This family history, spiritual relationship, and intellectual tradition shape my approach to ecology as a nehiyaw person.

As an undergraduate in Indigenous Environmental Studies/Science,[2] I was affected by the lack of agentic Indigenous presence in my environmental science classes. It's not that Indigenous people were erased, but Indigeneity was either an incidental factor to

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[1] As far as I understand, even though in Western terms Albert would be my great uncle, in nehiyawewin, all of your direct great-grandparents' siblings are also your câpânak. See Vowel (2011) for more details on nehiyaw kinship.

[2] At Trent University in Peterborough, Ontario

consider in the long-gone history of environments or a factor to consider in consultations and assessments. As Indigenous people, we were not the agents or acting subjects of environmental science. So much of environmental science is about imagining the past and the future of the world we live in. In these classes, Indigenous people were a historical object or a future obstacle. Understanding that "agency is to be able to have dreams and visions and to have the means to carry them out" (E. Lightning 1997, 12), how could I contribute, as a nehiyaw, to environmental science's dreams and visions of the future– a future where there was no place for nehiyawak agency? I struggled to stay engaged in these classes, to relate abstracted ecological concepts to the world I wanted to envision, a world where my nehiyaw relations and I were living creative, dynamic, nehiyaw lives.

I remember one late night, sitting at the tiny thrifted wooden desk in my bedroom, conflicted with questions about my place in the world and what the point of it all might be in the face of colonialism, climate change, and the overall sense of impending doom that our generation has inherited. My eye caught the blue-green cover of a book on the shelf by Diane Meilli. I had read this interview with câpân Albert before, but that night, when I picked it up, I flipped the book open straight to that passage. As I read it, some comfort washed over me. I felt less alone. I was reminded that my relations are always present in ways I may not perceive or fully understand. I was reassured that we are not of the past, and neither are our relations to the buffalo[3]. I was reminded of the living agency in our people and in the buffalo. At that moment, I realized that although I could not personally undo colonialism or climate change, I could try to play some small role in restoring our relations to buffalo on the landscape. I say I realized it, but this felt more like a directive than my own thought. To listen to it was an act of faith, in the belief that "if a person exercises appropriate discretion in the things that a person has discretion over, the things that a person cannot control will fall into the appropriate phase or place" (W. Lightning 1992, 25). That faith brought me to this research.

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[3] I choose not to be particularly loyal to the use of either bison or buffalo.

I often return to that interview passage and the memory of that directive when I need to be centred and reassured of a sense of purpose and a vision of Indigenous futurity. Many kêhtê-ayak (Elders) tell us about the buffalo coming back, as Albert did. Jim Kâ-Nîpitêhtêw from Onion Lake also taught that "the buffalo... will still go on into another generation... This earth is about to be changed... and our Creeness is about to come back" (Kâ-Nîpitêhtêw 1998, 97, translated from nehiyawewin). In both of these quotations, the return of the buffalo is necessarily related to Cree-ness and livelihood. Not only are bison required for us to be nehiyawak (Cree people), but the return of bison– and environmental change– means the return of nehiyawatisiwin (Cree way of life). They are the same process. Rather than static and unchanging, Cree-ness here is inherently related to change and renewal. This is a nehiyaw ontology, where the buffalo, the earth, and nehiyawak are all subjects, possessing a spirit, thought, agency, and intersubjectivity.

Albert's words about the future helped me to hold on to a sense of Indigenous agency as I was buffeted by an environmental science education where the foreclosure of Indigenous futurity is an unspoken assumption. To be able to see ourselves as agentic and sovereign Indigenous nations present on the landscape, in both our histories and our future, is a matter of survival. The concept of ecology implies "human agency within ecosystems," which "facilitate[s] a society's capacity to survive and flourish in a particular landscape and watershed" (Whyte, Caldwell, and Schaefer 2018, 159). To have a sense of purpose, we need to experience that our efforts contribute to a future for coming generations. If we do not witness our relationships and histories in the physical manifestations of ecologies in the present (Whyte, Caldwell, and Schaefer 2018), it is increasingly difficult to maintain belief in a future to contribute to.

Canada is founded on a denial of Indigenous futurity expressed in the construction of Indigenous bodies as being terminal (Moreton-Robinson 2015, 37). Constructions of Indigenous deficiency and disappearance have quite openly shaped the development of colonial science and politics (Mosby 2013; Daschuk 2013; Reardon and TallBear 2012). This denial is also manifested physically in our everyday landscapes and ecologies. To non-

Indigenous people, Canada's sovereignty and jurisdiction are so naturalized as to be invisible, but "for Indigenous people, white possession is not unmarked, unnamed, or invisible; it is hypervisible… These cities signify with every building and every street that this land is now possessed by others; signs of white possession are embedded everywhere in the landscape" (Moreton-Robinson 2015, xiii). Indigenous sovereignties are here as well in our continued presence, embodied ontologies, and legal orders, but they are continually disavowed by material significations "which are perceived as evidence of ownership by those who have taken possession" (xiii). It is not only built environments like cities that signify Indigenous dispossession. National identity is informed by a socially constructed wilderness ideal that imagines the most natural state of the landscape as free of human beings (Cronon 1996). Where non-Indigenous Canada sees a pristine landscape (Denevan 1992), we see ghosts of the nations who lived there: quiet violence, the overgrown aftermath of genocide.

The violence of dispossession is simultaneously hidden and justified by racist ideologies holding that Indigenous people were/are not capable of ownership. In the construction of race, subjectivity and knowledge production, whiteness acts as the invisible norm against which other peoples are judged (Moreton-Robinson 2015). Property rights in the colonial legal system developed in tandem with racial ideology so that whiteness was the marker of which people could be rational agents capable of possessing materials and turning them into value for the state (Reardon and TallBear 2012). Thus, whiteness and property were so strongly linked that whiteness itself became a form of property that accords those who possess it rights and privileges that the state defends (Harris 1993).

Still, the myth of Canadian sovereignty and white possession is not as closed as it seems; it takes a great deal of work to maintain and defend (Moreton-Robinson 2015). The ongoing work of denial and disavowal to maintain a virtuous national identity and defend against "the claims that we make on their house" (TallBear 2017a) continuously shapes the formations that colonial state governance takes. Environmental management is

deployed to shape ecologies for the development of the Canadian state, and "whether the settler state wants to farm, build a mine or a city, pump oil, or cordon off a national park, the 'resources' used to build these nation-states include the lands, water, and other-than-human beings with whom Indigenous peoples are co-constituted" (TallBear 2019, 24). Because the defence of white possession operates as a regime of truth in environmental sciences, the sciences, as they are taught, do not provide the tools to dream of sovereign Indigenous futures. Indigenous ontologies see other-than-human beings as animate, "full of thought, desire, contemplation and will" (Watts 2013, 23). Our intersubjectivity with other beings is co-constitutive with our being (collectively and individually), and so our ontologies inhere in our bodies. Such Indigenous embodied ontologies exist outside the logic of capital and pose an inherent, ongoing challenge to white possession. Indigenous presence stands as an uncomfortable reminder of the unfinished business of colonization (Moreton-Robinson 2015).

In today's information economy, knowledge is regarded as a source of wealth (Jasanoff 2004), and so knowledge production is a critical area to study the contemporary dynamics of race and property. Moreton-Robinson (2015) outlines a research agenda for critical Indigenous studies, which should trace how white possession manifests as a mode of rationality in academic disciplines– specifically, in the "human" sciences such as history, law, and anthropology (131-132). The natural sciences are not mentioned in this research agenda. Reardon and TallBear (2012) observe that little is known about the relations between whiteness, property, and technoscience (S235) and suggest that the life sciences, particularly genomic sciences, play an important role in contemporary constructions of race. In the study of race and property, theft of land and resources is frequently referenced as a material touch point used to understand the legal and social manifestations of white possession. Yet, this concept is rarely applied to understanding how white possession is manifested through the scientific production of knowledge that is used to manage those stolen resources today.[4]

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[4] The only exception to this that I've come across is the recently published Todd (2022), which brilliantly draws on Moreton-Robinson to theorize how settler narratives construct kin as resources.

Both anthropologists (human sciences) and ecologists (natural sciences) have resisted researchers who have attempted to understand Indigenous peoples as a significant influence on ecologies.[5] In 1954, anthropologist Omer C. Stewart presented evidence of Indigenous burning practices. He tried to convince his peers of the significance of these practices, arguing that anthropologists have been mistaken in assuming Indigenous peoples only adjusted to rather than changed their environments (H. T. Lewis 1982, 3; see also Stewart 2002). Stewart was convinced that human's use of fire was the deciding factor in determining at least a fourth of the globe's vegetation (Stewart 2014, 8). Anthropologists largely ignored his work. The dean of American anthropology at that time, Alfred L. Kroeber, even wrote a commentary dismissing the subject: "Stewart has well made his point about the Indian custom of burning and its effect upon the landscape, and this, in turn, leads to an interesting consideration of general principle. For which we shall all be grateful and leave it there" (Kroeber 1954, quoted in H. T. Lewis 1982, 3–4). Stewart himself commented, "Both anthropologists and ecologists look down their academic noses at me and they fail miserably in their intentions to hide their disgust at my efforts" (Stewart 2014, 8).

I suggest that environmental science is under-examined as a site of knowledge production that shapes contemporary relations between race and property and how race and property are employed in governing resources. Not only does environmental science play a critical role in governing natural resources, it has played a key role in defining what is considered real knowledge. Science is used as a tool to shore up colonial authority as rational and observational, dismissing Indigenous governance, rooted in Indigenous ontologies, as mere ritual and belief. Over the years, Indigenous leaders globally have worked to intervene in science's claim to exclusive knowledge of nature and establish a growing presence for Indigenous knowledge systems within academia and government (Whyte 2013). This has been taken up in academia, most often under a "knowledge integration" paradigm (Clapperton 2016). Race and property are rarely engaged in these

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[5] Reardon and TallBear (2012) have discussed how cultural evolutionism forwarded by anthropologists is taken up in the ways biologists understand and study Indigeneity. Anthropology has similarly influenced the development of ecology.

discourses, even though environmental management has directly taken up the task of governing stolen resources on stolen lands. Instead of returning land or resources, Indigenous knowledge is given a seat at the table to provide information to the state's decisions (Nadasdy 2005). The project of 'braiding' together Indigenous knowledge and 'Western science' has made its way into the mainstream and become comfortable enough to be an extremely popular interest for non-Indigenous Canadians, and this is because we have neglected to challenge the formative ontologies of possession in environmental science as it stands today.

For all of my critique of science, I am not anti-science. Environmental science has the potential to contribute to struggles for Indigenous rights. The interplay between environmental science and the construction of race and property can be seen in the landmark ruling Tsilhqot'in v. British Columbia, where ethnobotanist Nancy J. Turner was an influential key expert, using extensive documentation of traditional management to convince the court that the Tsilhquo'tin had longstanding rights and title to their lands (Armstrong and Brown 2019, 16). The landscape is an archive (Whyte, Caldwell, and Schaefer 2018), and environmental science has the potential to contribute to upholding Indigenous rights and supporting Indigenous ontologies and lifeways (Kolopenuk 2020b).

Working from the field of Indigenous Science, Technology and Society (Indigenous STS), a subfield of Indigenous Studies, my research engages with environmental science for the continuance of nehiyawak life– along with the lives of other Plains Indigenous peoples and other beings we are in relationship with, like mostos (bison)[6] This is an intervention into scientific frameworks that essentially assume and, in turn, actively facilitate our disappearance (TallBear 2017a).

This research project engages with narratives of the Beaver Hills, a homeland of the Nehiyawak, as the land is represented in environmental management documents of Elk Island National Park, particularly management plans since 1978. In the next chapter, I

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[6] Bison is usually translated as paskwâwi-mostos (literal translation: prairie cow), but my nehiyawewin teachers have stated that bison is the original mostos, because it would not make sense for us to call bison a prairie cow before we had cows. Therefore, I will be referring to bison as mostos. Some people might disagree.

begin developing a theory of possessive ecology by applying Moreton-Robinson's ontology of white possession to Whyte's concept of Indigenous ecology. In the third chapter, I develop a methodology of kin study to apply to this concept. In the fourth chapter, I ground myself in concepts relating to Nehiyaw ontology/ecology. In the fifth chapter, as a kin study of soil, I discuss the logic of cultivation in representations of the pre-park history of Elk Island National Park. In the sixth chapter, as a kin study of fire, I discuss the logic of exclusion in representations of fire history and landscape classification in the park. In the concluding chapter, I come back to the kinship with bison and how their future continues to be intertwined with ours.

2. Theorizing an Ecology of Possession

> The dichotomy between the scientific world view and the holistic world view is a problem for all people, whether they are Native or non-Native. The issue is that it may not ever be resolved, but agency is to be able to have dreams and visions and to have the means to carry them out, and the theme of this dissertation is that Native people have been prevented from exercising this type of agency.
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> Within this framework the concept "means" is defined as having the right tools, i.e., academic tools for Native struggle in a world dominated by ideas and ideology. Dreams and visions do not mean only the sacred but they also mean the mundane, the ability to struggle for your right to have visions and dreams, and to strategize and to have discussions…
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> (E. Lightning 1997, 12)

I aim here to apply Indigenous STS theory to ecology and environmental management. I do this by developing a theory of possessive ecology to understand how scientific visions of the environment justify white possession of Indigenous lands. I bring into conversation insights from Indigenous studies and STS thinkers to create a theoretical framework to support a critical Indigenous STS examination of ecology and place.

I will start by situating my research within the project of Indigenous STS and discussing how concepts in Indigenous STS can be applied to environmental science. Then, I will discuss a theory of ecology as related to the logics of white possession and collateral realities.

2.1 Dis/Entangling Knowledge

The Knowledge Integration Paradigm

Conceptual metaphors such as braiding (Kimmerer 2013) or weaving knowledge (Kassi et al. 2022), two-eyed seeing (Bartlett, Marshall, and Marshall 2012), and walking on two legs (Dickson-Hoyle et al. 2022) have been employed to articulate what Clapperton

(2016) calls the "knowledge integration" (11-12) paradigm. The notion of knowledge integration, along with its myriad metaphors, describes a process whereby Western academic knowledge, often of scientific disciplines, is intertwined with Indigenous knowledges to create a more comprehensive and holistic understanding of a given subject. This approach is predominantly employed within various realms of environmental research, as exemplified in the previously mentioned studies, and it also serves as the governing paradigm in co-management agreements in Canada (Nadasdy 1999, 2005). This paradigm and its associated language have recently made their way out of research communities and into broader popular discourse (a few examples: Raygorodetsky 2017; Narine 2022; Schlote 2022).

Just as Tuck and Yang (2012) observed the too-easy uptake and embrace of decolonization discourse in education, the notion of knowledge systems has increasingly permeated the realms of government and NGOs, becoming the default approach to any collaborative efforts between Indigenous and non-Indigenous communities in the domains of science and the environment. Much of the literature that considers Indigenous peoples and knowledges in relation to environmental sciences has approached this matter as a challenge concerning knowledge systems. For instance, Simpson (2002) recommends that Indigenous environmental curriculum "acknowledges science as one knowledge system, not the only system" (22). In this perspective, Indigenous knowledge and science are depicted as distinct and separate entities, each constituting its own knowledge system. However, Simpson goes on to say, "It must also acknowledge explicitly and implicitly that Aboriginal Peoples have been employing complex technologies, engineering knowledge, mathematics, and methods of experimentation for thousands of years, that both knowledge systems have their benefits and weaknesses" (22). This subsequent aspect leaves me wondering: if we acknowledge the extensive practices and knowledge in areas such as engineering, mathematics, experimentation, medicine, and technology that Indigenous peoples have long possessed... what truly sets Western science apart as a separate knowledge system?

Of course, the proliferation of Indigenous knowledge discourse results from the efforts of Indigenous community members who have fought for years to establish a presence within areas of academic research that have historically been hostile to Indigenous peoples. However, the ease with which this discourse is adopted, the romanticized portrayal it receives in popular discourse, and the lack of material changes as a result leads me to ask what is missing in this paradigm. To refer again to Tuck and Yang (2012), the knowledge integration paradigm aligns conveniently with one of their identified 'settler moves to innocence': "Free your mind and the rest will follow" (19). They go on to clarify that this is not meant to discourage the valuable work people undertake in teaching and engaging with social justice education. However, they urge us to "consider how the pursuit of critical consciousness, the pursuit of social justice through a critical enlightenment, can also be settler moves to innocence — diversions, distractions, which relieve the settler of feelings of guilt or responsibility, and conceal the need to give up land or power or privilege" (21). While knowledge integration, as a prevailing trend in research, can offer more resources for Indigenous-led research and for Indigenous communities to benefit from collaborative research, it more often benefits non-Indigenous academic careers. More insidiously, it serves to shore up settler innocence and sidestep the need to give back land and power. When Indigenous knowledge and science are represented as distinct and separate knowledge systems, this conveniently means that neither system can or should be fundamentally changed by their interaction. I will elaborate on this argument further in the conclusion of this chapter.

Indigenous Belonging and Settler Fantasies

The knowledge integration paradigm also plays into another settler move to innocence- settler adoption fantasies. Tuck and Yang (2012) describe this as a narrative wherein the Native "hands over his land, his claim to the land, his very Indian-ness to the settler for safe-keeping" (14). Robin Wall Kimmerer's book Braiding Sweetgrass (2013) brought knowledge integration into the mainstream and has had a considerable influence on its growing popularity. The book's revered status among non-Indigenous people may

partly stem from its implicit, and at times even explicit, encouragement that by fostering a connection with the environment, they too can attain Indigenous identity and acquire Indigenous environmental knowledge.

Kimmerer presents Indigeneity as an individual's connection to the environment and Indigenous knowledge as a way of knowing that emanates from this individual, experiential and spiritual bond to place. In the introductory chapter, Kimmerer states, "For all of us, becoming Indigenous to a place means living as if your children's future mattered, to take care of the land as if our lives, both material and spiritual, depended on it" (9). Consequently, it follows that settlers, too, have the potential to become Indigenous and learn to perceive the world through Indigenous knowledge systems. She then asks, "Can a nation of immigrants once again follow [Sky Woman's] example to become native, to make a home?" (9). Kimmerer, much later in the book, concludes that no, "Immigrants cannot by definition be Indigenous. Indigenous is a birth right word" (213), encouraging non-Indigenous people to strive instead to become "naturalized" (215). However, the damage has already been done in the introduction— many non-Indigenous readers come away with this phrase, reflecting on Kimmerer's advice to 'become Indigenous.' To appeal to liberal formulations of inclusion, Indigenous peoplehoods must be translated into narrow and commensurable categories of identity (Kolopenuk 2020a). In Braiding Sweetgrass, the incommensurability of Indigenous ontologies is collapsed into an environmental morality that anyone can access.

In this narrative, all it takes for settlers to become Indigenous is to care for the land. Kimmerer invites settler societies to "set aside the ways of the colonist and become Indigenous to place... [to] finally make a home" (207). Kimmerer believes this is the solution to environmental problems since non-Indigenous people are disconnected from the land because they still identify as immigrants. This is a critical misunderstanding of the dynamics of settler colonialism. Settler societies violently reshape the landscape to make Indigenous homelands into settler homelands (Whyte 2018), managing landscapes in ways that support their forms of economy, signify white possession, and hide signs of

Indigenous presence. The denial of this ongoing violence necessitates a constant anxious defence of white possession against Indigenous belonging. White subjects are disciplined to different degrees to invest in the nation as their possession (Moreton-Robinson 2015). It's true that the settler state and its subjects act out of an anxiety that is linked to their migrancy, as Kimmerer observes, but her response to that is misguided in that she encourages and validates further what they've been doing all along. It's no surprise that this book has become so popular. Possessive claims to Indigenous identity and kinship ("settler self-indigenization") go hand in hand with justifying the ongoing theft of Indigenous lands and resources (TallBear 2019). Citizens of the settler state are all too happy to 'naturalize' and soothe the guilt of knowing the violent nature of their arrival and possession.

An individualistic conceptualization of Indigeneity as a personal feeling of attachment or investment in place works to displace the political nature of Indigeneity and 'naturalize' whiteness. Such conceptions of belonging that privilege personal sentiment deny the "racialized structural power relations that have produced the legal conditions in which this sentiment is possible, enabled, and inscribed" (Moreton-Robinson 2015, 7). To escape such power relations, settlers often invoke narratives of universal human migrancy, like the Bering land bridge theory, to position Indigenous people as relative newcomers as well (Deloria 1997). In a strange twist, Kimmerer manages to make the same argument using our[7] own creation stories, describing the Anishinaabe creation story of Sky Woman as a story of the first immigrant (9), thereby equalizing Indigenous peoples as a part of this "nation of immigrants." The narrative that Indigenous people originate elsewhere has had significant implications in legal cases against Indigenous land claims: "By making us immigrants to North America they are able to deny the fact that we were the full, complete, and total owners of this continent" (Deloria 1997, 70).

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[7] I'm using "Our" loosely here, as the version of the story she uses is Anishinaabe, but since she is already applying the Anishinaabe story to all Indigenous people... Nehiyaw and many other peoples' creation stories could also be framed as immigration stories under her interpretation.

Indigenous identity is based on coming into being as collectives in relationship to landscapes. It is necessarily political, and Indigenous people's "ontological relation to land constitutes a subject position that we do not share, cannot be shared, with the postcolonial subject, whose sense of belonging in this place is tied to migrancy" (Moreton-Robinson 2015, 11).

Purified Knowledge Systems

These attempts to articulate Indigenous knowledge as a distinct system of knowledge from Western science have led writers such as Kimmerer to try to define aspects of Indigenous knowledge systems. They have sought to define Indigenous knowledge based on its constituent parts, such as experiential learning and ceremonial practices while sidestepping a substantial articulation of what truly sets these knowledge systems apart: the governance systems that employ them and towards whose livelihoods they are employed. In this, knowledge has been abstracted out of its material practice as informing governance and separated from the dynamics of power. Latour (1993) describes this as "purification," a process by which entangled phenomena are isolated and purged of their complexity and reduced to separate entities that can be more easily managed. Latour refers explicitly to this process as implicated in colonization: "Native Americans were not mistaken when they accused the Whites of having forked tongues… By separating the relations of political power from the relations of scientific reasoning while continuing to shore up power with reason and reason with power" (38). In the knowledge integration paradigm, we've accepted these terms of engagement and applied such "ceaseless, even maniacal purification" (112) to Indigenous knowledge. We have taken complex and inherently intertwined, historically co-constituted relationships and disentangled them into purified 'knowledge systems.'

2.2 Ecologies and Ontologies

Ecology as Human Agency

Environmental disciplines have much to do with envisioning the past and the future. They seek to understand a place's current and historical landscape and then to understand the impacts and outcomes of human activity on that landscape. Environmental science education might acknowledge the Indigenous presence in an area as a historical aside but then move on to discuss the ecology of a place as though it were naturally lacking any human influence. When talking about the future of the environment, the absence of Indigenous people and lifeways is an unspoken assumption taken for granted. John Law argues that such assumptions, which are not explicitly argued and so are beyond contestability, operate most powerfully to enact "collateral realities" and "turn what is being done in practice into what necessarily has to be" (Law 2011, 174, emphasis in text).[8]

Aileen Moreton-Robinson places such assumptions in a colonial context when she describes "white possessive logics" as a logic engaged in discourses that "circulate sets of meanings about ownership of the nation, as part of common sense knowledge, decision making, and socially produced conventions" (Moreton-Robinson 2015, xii). Moreton-Robinson suggests a research agenda that should "trace how white possession manifests as a mode of rationality in a variety of disciplines" (Moreton-Robinson 2015, 131).

To look at ecology in the context of critical Indigenous theory, I look toward Kyle Whyte's (2018) concept of Indigenous ecology. Environmental sciences are not just systems of knowledge; they inform systems of landscape governance: "Settler ecologies have to be inscribed so settlers can exercise their own governance systems," and so, "settlers systematically seek to erase the ecologies required for Indigenous governance systems" (Whyte, Caldwell, and Schaefer 2018, 158, emphasis in text). Here, the word

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[8] Andersen (2016) refers similarly to Bourdieuvian symbolic power: "rather than perceiving it as a form of imposed power, we instead understand it as 'just the way things are,' an understanding that often renders it remarkable only to outsiders (largely unremarkable to insiders)" (39)

ecologies "denote[s] human agency within those ecosystems, whether that agency is the Indigenous knowledge of seasonal rounds… or the settler desires to shape the same lands and waters" (Whyte, Caldwell, and Schaefer 2018, 159). This use of 'ecologies' "suggests not only ecosystems but also the calculated stewardship of them" (Whyte 2018, 136). Indigenous ecologies refer to the ecosystems co-created by Indigenous governance, while settler ecologies refer to ecosystems co-created by settler colonial governance.

Indigenous lifeways are not simply passive survival techniques but active systems of resource management, including nation-specific practices such as landscape burning, clearing and weeding, habitat creation, extension or alteration, tilling soil, propagation and dissemination, transplanting, pruning, selective or rotational harvesting, and fertilization and mulching (Turner, Deur, and Lepofsky 2013). The biodiverse and resource-rich landscapes encountered by settlers in North America were lush because of Indigenous peoples. When Menominee wild rice beds are cleared to make way for cottages on a lake, this is the enactment of settler ecology. The wild rice bed, perhaps a natural feature in the settler imagination, is part of a Menominee ecology governed through seasonal rice camps and community-distributed roles and responsibilities (Whyte, Caldwell, and Schaefer 2018). Clearing the wild rice bed removes more than a natural feature: "The lack of visibility of wild rice beds and the Indigenous communities who monitor and protect them, when settlers drive along highways, go on hikes, mine, or grow foods, among other activities, further solidifies the presumption that Indigenous peoples are absent" (Whyte 2018, 14).

Several works in ethnoecology corroborate this theory and show that Indigenous management makes a difference. Armstrong et al. (2021) showed that forest gardens in the Pacific Northwest exhibit greater plant and functional trait diversity than surrounding forests even more than 150 years after Indigenous management was interrupted.

In this way, Indigenous and settler ecologies are material-semiotic systems of practice. Similar to how TallBear describes the material semiotics of Native American DNA, ecologies are also "supported by and [thread] back into the social-historical fabric to

(re)constitute the categories and narratives by which we order life" (TallBear 2013, 7). This is a recognition that the material (physical reality) and semiotic (symbolic representations of reality) are mutually constitutive- they shape each other. John Law refers to this as performativity, the idea in linguistic philosophy that words are sometimes also actions– meaning that representations of reality (as in scientific study) also 'do' or enact realities (Law 2016). For example, the ecological classification of a place determines how it is managed in practice, potentially altering the physical reality of the place over time. Or, as in the example above, the clearing of wild rice beds physically and symbolically enacts the absence of Indigenous governance. This creates a feedback loop whereby semiotic representations of the environment shape human actions, influencing the materiality of the environment, and the resulting materiality of the environment acts as proof of the originating semiotic representation. As this feedback loop repeats, collateral realities are created, where the semiotics are taken for granted, and the material is taken as "what necessarily has to be" (Law 2011, 174, emphasis in text).

Whereas "common-sense realism"(Law 2011) dictates that there is a singular reality, coherent and definite in form, that "precedes our actions or attempts to know it" (Law 2011, 156), performativity challenges this: "If, performatively, representations do realities in practice, then those realities might have been done differently. We find ourselves in the realm of politics" (Law 2011, 161). This is an ontological politics, where observing the multiplicity of realities, showing that reality is not destiny, is an entry point to making change (Law 2011).

Settler ecologies are enacted and represented as an inevitable reality, anchored by the assumption that the natural, healthy state of the land is what it reaches without human influence.[9] Unsustainable lifestyles continue unabetted while some privileged lands are set aside as wilderness because human presence inevitably contaminates natural places. Studying Indigenous ecologies illuminates how this reality can be done differently.

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[9] Stoneberg Holt (2018) reflects on this: "I worry I may have subconsciously viewed the Leave-It-Alone assumption pervading our culture's foundations as my 'get out of jail free' card... deep inside a little voice whispers, 'If you really mess up and don't understand anything, step away and all-knowing Nature can heal it.'" (112)

If we understand that Indigenous peoples actually shaped these lands, which had been imagined as untouched wilderness, if humans are not inherently harmful, then we are responsible for how we live and the realities we choose to enact with our practices.

Constitutive Entanglements

I want to return to my earlier criticism, drawing on Clapperton (2016), that much scholarship on the relationship between Indigenous knowledge and Western science has reinforced rigid boundaries between the two. The analytic of indigeneity may help better understand how these knowledges can instead be seen as inherently co-constituted and "constitutively muddled" (Kolopenuk 2020a, S26).

Kauanui (2016) writes that settler colonialism is a structure that is itself shaped by its opposition to enduring indigeneity and suggests "a discussion of indigeneity as a counterpoint analytic to settler colonialism" (1-2). Kauanui argues that indigeneity, like race, is a socially constructed category rather than a biological one, and so "taking up indigeneity as a category of analysis is not one and the same as the study of Indigenous peoples" (4). TallBear (2013) writes of this in the context of genetic science: "Native American DNA could not have emerged as an object of scientific research and genealogical desire until individuals and groups emerged as 'Native American' in the course of colonial history. Without 'settlers,' we could not have 'Indians' or 'Native Americans'– a pan-racial group defined strictly in opposition to the settlers who encountered them. Instead, we would have many thousands of smaller groups or peoples defined within and according to their own languages" (5).

Moreton-Robinson (2004) explains, "The existence of those who can be defined as truly human requires the presence of others who are considered less human. The development of a white person's identity requires that they be defined against other 'less than human' beings whose presence enables and reinforces their superiority" (76). Haraway (1988) describes something similar when she maps out aspects of gender and science: "Each term contains and obscures a structuring hierarchicalized binary

opposition, sex/gender and nature/science... Both poles of the opposition are constructed and structure each other dialectically" (26).

Just as Indigeneity has been constituted by colonialism and itself shapes the form that colonialism takes, "Indigenous knowledge" would not be defined as "Indigenous" if it were not being constituted in a colonial context and in defence against the gaze of white knowledge. Moreton-Robinson (2004) observes that Indigeneity is constructed by whiteness as a representation of what it is not (82). Descriptions and discussions of Indigenous knowledge emphasize spirituality, belief, art, storytelling, and language– aspects of knowledge which are associated with 'culture.' On the other hand, elements of Indigenous knowledge, which involve observation, data, and records, as well as the uptake of scientific practice for Indigenous governance, are de-emphasized (Clapperton 2016). We have been told by colonial discourse that we were unable to have knowledge because we were different, and we have taken that to heart and staked our claim to knowledge as rooted in that difference.

At the same time, science has been defined as evidence-based and authoritative against an implicit Other whose knowledge is not based on evidence. This is not to say that it always necessarily defines itself against Indigenous knowledge. Still, we can see how that implicit Other can become explicit when colonial authority requires it. For example, Vinyeta (2022) has shown how the U.S. Forest Service defined and legitimized their ideas of fire management against racialized descriptions of Indigenous fire management to assert their knowledge as scientific and evidence-based– even when it was not. Indigenous peoples were not the only ones using controlled burns during early settlement, and part of the effect of racializing such practices as unscientific and careless was to discourage settlers from burning to clear lands. Myers (2015) has shown how plant scientists are averse to recognizing the agency and consciousness of plants even as they study it. Many conversations I have had in my collaborative work with non-Indigenous scientists have shown me that their work is also driven by a social or spiritual feeling of

connection to the beings they study, whether that is plants, birds, water, wind, or mountains.

2.3 Conclusion: Ecology of Possession

The perceived conflict between Indigenous ways of knowing and scientific practice leads to assumptions that to be an Indigenous person working in science means to be stuck moving between two fundamentally incompatible worldviews. TallBear's (2014) study with Native American scientists found that rather than being impeded by incompatible knowledge forms, the scientists studied were more often challenged by the social differences in the relationship Indigenous communities and scientific communities have to knowledge. TallBear describes the unease these Indigenous scientists felt with the "right-to-know ethos" (184) of science, where all pursuit of knowledge is taken for granted as inherently virtuous. This ethos is often not socially or ethically acceptable in communities where "some knowledges are reserved for some social actors, and not others" (184) and where an acceptance at times of not knowing is a part of acting with respect to the inherent sovereignty of other beings, human or nonhuman. This acceptance of not knowing is also related to having humility, that as human beings, we are limited in our ability to know very much at all, and all significant knowledge we do have does not come from ourselves, coming only at the graciousness of our ancestors and nonhuman relatives.

I stated earlier that when Indigenous knowledge and science are represented as distinct and separate knowledge systems, then neither system can or should be fundamentally changed by their interaction. In fact, we actively reproduce and solidify their differences from each other. The competing ethos over the right to know is not something that can be solved with knowledge integration. This is a problem of processes, competing values and ethics in the context of colonial power dynamics and the logics of white possession, where knowledge is a resource to be possessed, and the scientist, as a figure representing the white male subject,[10] has the assumed right to possess, while

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[10] People gendered or racialized differently can access this position in temporally varying ways.

others (human and nonhuman) are objects to be researched. As argued by Kolopenuk (2020b), this is the construction of modern knowledge, which has portrayed Indigenous peoples as objects: incapable of producing valid knowledge, governing efficiently, or owning land. To be a subject means to be an actor, capable of agency, creation, and knowing. To be an object is to be incapable of agency, knowledge, and possession.

Moreton-Robinson (2015) describes this subject-object relationship as a part of the ontology of white possession: "At an ontological level, the structure of subjective possession occurs through the imposition of one's will-to-be on the thing that is perceived to lack will; thus it is open to being possessed" (114). Indigenous peoples are constructed as lacking will so that they can be possessed and become wards of the state. As they lack will, they lack the ability to possess property, and thus, Indigenous peoples' are not perceived as capable of making claims to territory at all.

The forms that environmental management takes in Canada are shaped by the assumption of white possession and the need to defend that position, and this structural insecurity necessitates the constructed and enforced absence of Indigeneity to maintain colonial authority and legitimacy. Indigenous governance and Indigenous claims to land are an inherent challenge to the legality of the Canadian state and white possession of all Indigenous land. Kohn (2013) describes the concept of constitutive absence as the idea that absences are just as much a part of defining a thing as what is present.[11] Indigenous land has to be constructed as being without any imposition of human will (Indigenous management) so that it can be open to possession. The constitutive absence of Indigenous governance, enacted as an assumption or collateral reality, structures environmental science, and so the ontology of possession is manifested as an ecology of possession.

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[11] "Blockades are both a refusal and an affirmation" (Simpson 2021, 56).

3. Methodology: Studying Kin

In the previous chapter, I proposed a theory of colonial ecology: Indigenous land must be constructed as being without the influence of Indigenous agency to be open to white possession. This imperative, enacted as a mode of rationality or collateral reality, structures environmental science. In this chapter, I aim to cultivate an Indigenous Science and Technology Studies (STS) methodology to apply this theory. Acknowledging that case studies have conventionally served as the primary method for conceptualizing and exploring theories in mainstream STS (Law 2008), I propose that the concept of kin study (Todd and Kanngieser 2020; Todd 2022) possesses the potential to operate as an alternative framework for the development of Indigenous STS research methods.

I begin by describing the method of case study in non-Indigenous STS before moving on to look at how Indigenous and feminist STS have articulated the value of situated and embodied knowledges. I then consider Kanngieser and Todd's (2020) proposal of 'kin study' as an alternative to the use of case studies and discuss its relevance to established methodologies of Indigenous STS. I then situate my application of kin study in a Nehiyaw intellectual tradition and the particular kinship landscape of the Beaver Hills and Elk Island National Park.

3.1 STS and Indigenous STS

STS, Method and Practice

STS methodologies may offer potential tools to "trace how white possession manifests as a mode of rationality" (Moreton-Robinson 2015, 131) in the environmental sciences. Duarte (2018) outlines some commonalities between practitioners of (non-Indigenous) STS and practitioners of Indigenous STS: both look to explain in detail and precise terminology how things work by attending to the relationships between micro-scale processes and macro-scale effects, grounded in an understanding of the legacies of

infrastructures and material conditions of everyday life (8). To understand this commonality, I will examine the use of case study as a method in STS.

STS scholars look at how science works in practice as methods that shape and reproduce the social world. Sciences are here understood as sets of practices that represent and enact realities. The challenge is to find methods to "undertake the analytical and empirical task of exploring possible patterns of relations, and how it is that these get assembled in particular locations" (Law 2011, 157). Law argues that closely studying the particularities of practices uncovers non-coherence: different versions of reality being held together. Uncovering non-coherence leads us toward understanding the collateral realities holding these differences together. This is typically done through the use of case studies, where sets of material-semiotic relations are studied in a particular place and used to build theory (as in Callon 1984).

This focus on case studies lends an attention to messiness and difference. On a macro-scale, generalities and grand narratives may appear to hold true. Material-semiotic STS sees the macro-social as precarious and attends to the heterotopic spaces all around us: "If you think that practices are ramshackle, differ from one another, and relatively poorly co-ordinated, then you are moved... to the conclusion that more or less different realities are also being done, moment by moment, in those different practices" (Law 2008, 636).[12] By using case studies to attend to the particularities of the ways realities are created in particular places and times, we open up spaces to intervene in macro-social narratives, such as the logics of white possession.

However, non-Indigenous STS is more often informed by generalized visions of equity (Duarte 2018). For us as Indigenous peoples, "justice for all just ain't specific enough" (artists Common and John Legend, quoted in Kolopenuk 2020a). I find this methodology of case study helpful to understanding scientific practices as networks of relationships, connecting the theoretical to material enactment. Still, it doesn't address

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[12] In an Indigenous research context, look at macro-scale deficit-based narratives (Tuck 2009) of Indigenous lives built by national statistics. The specificities of community resistances and responses to crisis, and the resilience and beauty we see in our families and communities are drowned out in those grand narratives (Aldred et al. 2021).

the complexities of Indigenous-led research when the networks we study are deeply co-constituted with ourselves, our communities, and the places we come from.

Embodied Knowledges

Indigenous STS scholars have previously explored the complexities of relational research from an Indigenous standpoint. This ongoing exploration builds upon the tradition of positionality and locating the self in Indigenous studies research (Moreton-Robinson 2013; Absolon and Willet 2015) while pushing the boundaries further by situating it within a critical scientific context. In doing so, it establishes a connection between Indigenous studies' positionality and the concept of situated knowledges as developed by feminist STS scholars. Positionality and situated knowledges both recognize the cultural, historical, and social contexts from which knowledge emerges. This recognition prompts researchers to distance themselves from asserting an impartial "view from nowhere" (Haraway 1988). Instead, it encourages them to approach their own social and cultural context with critical inquiry. This approach allows researchers to attend to the possible biases in their research openly, thereby theoretically strengthening objectivity (Harding 1995). Kolopenuk (2020b) says that in such approaches, subjectivity is recognized as inherent to any perspective, and so the researcher is responsible for acknowledging and addressing their subjectivity. Medina (2013) refers to a responsible epistemic agency, entailing a deep awareness and understanding of oneself (where we are and where we come from). This awareness can only come from understanding oneself in relation to others (who they are and how we relate to them).

Recognizing and acknowledging the significance of relationships within research prompts us to delve deeper into the influence that knowledge production exerts on our connections and unveils the transformative power inherent in how knowledge has defined and categorized life. In doing so, we come to understand how the ways in which knowledge defines and categorizes peoples can actively shape and impact our relations. Humans and non-human beings, nature and culture, science and the social, subject and object exemplify co-constructed concepts reiterated by knowledge production and

colonial sciences. Critical Indigenous theory takes seriously the theory and knowledge built from the embodied experience of living indigeneity under colonial rule. Linda Tuhiwai Smith's Decolonizing Methodologies described Indigenous peoples' relationship to research: "Just knowing that someone measured our 'faculties' by filling the skulls of our ancestors with millet seeds and compared the amount of millet seed to the capacity for mental thought offends our sense of who and what we are" (Smith 2012, 1). Smith's statement is both a statement of a visceral, instinctual offence and an intellectual critique of anthropology. This sense instinct is embodied knowledge that informs critical Indigenous theory. The ongoing disparity between the way colonial history writes of our people and the proud humanity we feel in ourselves drives us to make sense of our experiences– to research, study, and theorize.[13]

Haraway (1988) also refers to embodied knowledges while warning that "subjugation is not grounds for an ontology… Identity, including self-identity, does not produce science; critical positioning does, that is, objectivity" (586).[14] While 'subjugation' may not be grounds for an ontology, I argue that it may be grounds for critical positioning. Medina (2013) acknowledges that while we can not generalize about the perspective of the oppressed (or oppressor), and neither can the oppressed claim a cognitive superiority or innocence; still, that differently situated subjects often accumulate different sets of experiences which develop distinctive epistemic characters. This means that privileged positionalities more often give rise to experiences which encourage and reinforce predominant beliefs about society's functioning, living in the "stifling embrace of the liberal state" (Martin 2023, 2). Oppressed groups more often have experiences that contradict such beliefs, providing more resources to question ideologies, identify patterns of social forces, and respond with strategy and relational awareness (Medina 2013; Duarte 2018). As Andersen (2009) argues, Indigenous peoples' experience of colonialism instills

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[13] Since Indigenous people have been writing in English, they have been using it to make sense of colonial power and speak back, such as Ahenakew and Center (1995).

[14] Haraway here seems to be referring to 'identity' as an essentialized claim to represent the fundamental perspective of those who share a subjugated identity, pointing out that in reality, subjects do not fit into such wholly discrete subject positions. Indigenous collectivity and belonging should not be confused with this notion of self identity, a critique I will discuss further in chapter 4.

in us an embodied knowledge of whiteness and colonialism, their logic and effects. Andersen (2009) refers to this as our density: Indigenous people don't only carry knowledge of indigeneity and culture; we have developed a distinct knowledge of whiteness. Duarte (2018) describes the 'visceral realization' with which Indigenous STS practitioners observe the world: "It is in the body, in our guts, musculature, and instincts, because it is rooted in the cumulative realization of our histories as creative and insightful yet intensely subjugated peoples" (3-4). Generations of experiences surviving and adapting to colonialism's methods, tools, and effects have accumulated this embodied knowledge in our families and communities. We have had to learn the ins and outs of colonial dynamics and structures in order to survive. We have had to learn to hold multiple viewpoints at once, to tell a non-Indigenous boss or teacher a 'correct' answer we know to be untrue or to navigate a conversation with a person who insists we are all immigrants here. There is a character to our imaginations which has a long, circular memory with an attendance far into the future: we look out on an urban space or a national park and see a storied landscape, still living, on which young buildings are temporarily constructed.

In my understanding, the sense instincts or embodied knowledge are not an academic endpoint (do not alone produce science, as Haraway says) but they are grounds for critical inquiry. I come to my current research as a Nehiyaw student of both environmental science and Indigenous studies. This work of theorizing Indigenous ecology comes from a long process of collecting and compiling resonating concepts, trying to understand the gaps and contradictions I saw everywhere in my interdisciplinary education. Even as some in the university attempted to bridge the disciplines of Indigenous studies and environmental sciences, these attempts seemed only to make the contradictions more intangible. I struggled with bridging Indigenous studies and environmental studies because Indigenous studies and environmental science/studies both perpetuated a division of the so-called knowledge systems, Indigenous knowledge and Western science. Operating in these frameworks, I felt I had to split off parts of myself while in Indigenous studies or environmental science. Haraway (1988) writes, "The split and contradictory self is the one who can interrogate positionings and be accountable...

The knowing self is partial in all its guises, never finished, whole, simply there and original; it is always constructed and stitched together imperfectly, and therefore able to join with another, to see together without claiming to be another" (586). This sense of confusion and contradiction is a form of embodied knowledge, but the goal is not to join together the contradictions into a unified whole. As a scientist formulates a research question based on the instinct that something has been missed, as an Indigenous scholar spends their days in the archive based on an instinct that something has been misrepresented, this sense of confusion I have is an instinct that indigeneity has had a more profound, more basic influence on science than is most often acknowledged. "Non-coherence is a chronic condition" (Law 2011, 10), and so I do not wish to braid together the splits and contradictions but to understand in what ways they were always inherently intertwined.

3.2 Kin study: deepening relationality

Zoe Todd, a Métis scholar who comes from amiskwaciwaskahikan and also writes about this place, reflects, "I struggle with how to mobilize my knowledge of the human and nonhuman relations animating Alberta (the home of the Tar Sands) without turning them into case studies– especially the sort of case studies that are consumed and reproduced carelessly by those with no lived relations with the lands, waters, and atmospheres that they are mobilizing in their own scholarship on the Anthropocene, late liberalism, extinction, and other forces of ecological destruction" (Kanngieser and Todd 2020, 391). While specific places and networks of relationships instrumentalized as case studies can theorize macro-social processes, this also can separate the researcher from the researched and separate researcher and researched both from their contexts, their peoples and cultures. Kanngieser and Todd (2020) argue that "the case study in historical inquiry is predicated on disassociation of place from thought" (387). While STS does consider relational approaches to research in its use of case studies, it still most often studies as an outsider. Building theory from observing practices and networks in case studies still positions place "as a substrate from which we take ideas" (Kanngieser and Todd 2020,

391). The authors propose an alternative method called "kin study." Kin study grapples with the reality that our presence is always interacting and changing the sites we study and speak about. In turn, the places we engage with constitute our selves. "Reciprocity of thinking requires us to pay attention to who else is speaking alongside us. It also positions us, first and foremost, as citizens embedded in dynamic legal orders and systems of relations that require us to work constantly and thoughtfully across the myriad systems of thinking, acting, and governance within which we find ourselves enmeshed" (Todd 2016, 19).

Elsewhere, Todd argues that scholars in science and technology studies (and anthropology more broadly) use symbolic references to escape the work of engaging with the lived realities of specific peoples and territorial legal orders: "when climate change and the Arctic act as mega-categories, they can quickly erase arctic Indigenous peoples and their laws and philosophies from their discourses. It is easier for Euro-Western people to tangle with a symbolic polar bear on a Greenpeace website or in a tweet than it is to acknowledge arctic Indigenous peoples and their knowledge systems and legal-political realities" (Todd 2016, 6). This tendency to abstract relations into hegemonic, universalizing discourses, such as seen in the concept of the Anthropocene, universalizes our relations to these issues and disguises our differing responsibilities (Todd 2015). In this way, such 'mega-categories' allow for a flattening of complexity, wherein all humans are equally affected and equally implicated, which is not so. Todd and Kanngieser (2020) write that Western academia now is "desperately seeking escape routes… For those who now are becoming aware of the ways in which this violence has manifested, there is a desire to quickly distance oneself from the damage and to fix what is unjust," but, "There is no outside where we find ourselves. In kin studies, we begin where we are. With the fact of having nowhere else to be" (1). Kin study is a call to scholars to begin where they are, to attune to the specificity of place and relationality.

Kin study still involves engagement with theory and macro-social processes, but this is a situated theory. In my understanding of kin study, we can use research and theory

to understand our lived experiences in terms of the bigger picture. "One thing research can do is help everyone see the big picture, regardless of where each was (or is) located within it. This is particularly important for First Nations peoples, since we are continually being fed only the localized, individualized picture as 'Truth'" (Chrisjohn and Young 1994, B19). Theory can help us to understand what appear to be individual events as located in broader relations of power (E. Lightning 1997, 52). We can try to understand how our relations in a specific time and place fit into a larger network of relations situated in the dynamics of power so that we can be better informed about how to respond. Kin study looks to theory and metaphor as frameworks to explain our reality. Case study applies reality to understand concept, turning relations into a metaphor– think of the scholar looking to the tar sands as a case study of the Anthropocene, where the study originates from an impulse to explain the concept. Contrast this with Indigenous scholars consulting theories of power to understand the how and why of their experiences.

Todd recalls a time that a peer dismissed her theorizing about Indigenous architecture in her hometown, here in amiskwaciwaskahikan as her 'going native' (becoming too close to the subject matter) because, "ostensibly, Indigenous thinkers cannot maintain objectivity when working with our own political, legal, and intellectual concerns" (11). Kin study flips this assumption and posits that the study of people and place, absent of relational responsibilities, is a practice of irresponsible and incomplete research. Duarte (2018) makes a similar critique of STS: "Where non-Indigenous STS at best offers generalized visions of equity—social, racial, or gendered—Indigenous STS addresses actionable types of justice... for specific groups of Indigenous peoples in specific territories at specific historical junctures" (9). This is consistent with Indigenous STS approaches to 'relationship building as method' (Kolopenuk 2020b) and 'standing with' (TallBear 2017b), both as a member of Indigenous communities and scientific or academic communities.

TallBear (2017b) has written about the complex ethics of 'studying up.' While Indigenous researchers have been encouraged to study the power structures that impact

our lives, TallBear questions the ethical implications, particularly within a feminist praxis, of studying and critiquing those whom we do not 'care' for. Instead, she argues that a feminist praxis rooted in care requires us to find ways to 'stand with' our subjects as researchers. To achieve this, TallBear reorients her anthropological approach towards scientists, aligning herself with Indigenous scientists. This involves researching the standpoint of Indigenous scientists (TallBear 2014) and actively engaging with scientific disciplinary realms. By immersing herself in these spaces, she aims to advocate for and create more opportunities for Indigenous scientists and, in turn, for Indigenous governance of scientific research.

Engaging in Indigenous STS then requires a multidisciplinary approach, necessitating our ability to communicate in various disciplinary languages and collaborate with diverse scientific experts. As discussed by Kolopenuk (2020b), our research is shaped by our networks of kinship, which encompass not only our familial connections but also our academic kin: "Relationship-building as method is required to do actual stuff in an attempt to manipulate the relations of coloniality that exist as the subject of critique... Research-doing entails exactly what it is named. It involves becoming a practitioner" (Kolopenuk, 2020, p. 7)

This is where productive critique (Kolopenuk 2020b) entails holding together an Indigenous STS critique of the coloniality of science with hope for the potential benefits that active engagement with scientific fields may pose for our communities. Kolopenuk stresses that "Indigenous STS is not anti-scientific, but rather, considers how engagement with technoscientific fields by Indigenous peoples and from dynamic approaches might support Indigenous ways of relating" (2020, p. 5). By actively attending to our responsibilities within these relationships, we intervene in the material realities that impact our connections.

3.4 Methods: Specificity of place and practices

Elk Island: The Island in the Prairies

> *Beaver Hills– a mass of broken country rising 200 to 400 ft above the general level & covered*
> *with poplar thickets & a few Pines, Larch & many small swamps; pasture good.*
> (Notes recorded on "Portion of Map of Routes in British North America explored by the
> Palliser Expedition, 1857-1860," Figure 2 in Scace & Associates 1976, 37)

Elk Island National Park is a Canadian national Park located in the Beaver Hills, just east of Edmonton, Alberta. Elk Island was first a forest reserve (Cooking Lake Forest Reserve) in 1899, which in 1906 became a preserve for dwindling elk populations in the area. Soon afterwards, it became a part of bison conservation history when Canada bought the largest living buffalo herd from a rancher in Montana, also in 1906. The herds were to be shipped to Wainwright but were temporarily held at Elk Island. A herd of 40 bison got left behind in Elk Island and remained. A lot of the buffalo that have been restored in parks today have come from the Elk Island herds.

Historical descriptions of the Beaver Hills similarly describe it as unique in that it was a landscape that contained characteristics of the boreal forest and yet was surrounded by aspen parkland and prairie, with ready access to bison herds as well as forest resources, game, and freshwater (Scace & Associates 1976, 21). In 1983, a few years after the first master plan was created for Elk Island, an interpretive plan for the park was produced. This plan aimed to emphasize the national significance of Elk Island National Park (Elk Island National Park 1983). The guiding theme that was decided upon was "Elk Island National Park – The Island Anomaly" (Elk Island National Park 1983, 17). This theme characterizes EINP as an island in "physical and philosophical contrast with its surrounding environment" (17). Physically, they characterize the park as an island of Boreal Mixedwood forest in a "sea" of Aspen Parkland (15). Philosophically, they characterize the park as an island of natural landscape in contrast to the surrounding agricultural, resource, and urban development (17). Even today, the Beaver Hills Biosphere

website describes the Beaver Hills as "an island of Dry Mixedwood Boreal Forest within the Aspen Parkland Natural Region of Alberta" (Beaver Hills Biosphere n.d.). Although classifications of the Beaver Hills are notoriously variable, the area is generally considered to be part of a transitional zone between the prairies to the south, and the boreal forest to the north called the Aspen parkland.

Practices: Document/Discourse Analysis

It would be easy enough to read the management plans and observe, say, how the public participation proposals for most park history do not (at least explicitly) engage Indigenous people or communities in any way. Although such an approach might be interesting to think about what this governance could look like if treaties had been taken seriously, that is not the purpose here. My analysis is closer to discourse analysis, a close reading of themes and language used and what they say about the power dynamics and beliefs that inform knowledge production and management of the environment.

Shankar, Hakken, and Osterlund (2016) suggest that the use of documents in STS research should be approached with intention and critical consideration. It is important to examine the assumptions that one might approach a document with— "that the meaning of documents is contained within them," and "that this meaning is largely straight-forward and self evident" (60). Vinyeta (2022) conducted a similar discourse analysis of fire policy represented in public-facing United States Forest Service documents. Part of document analysis in STS is the critical consideration of the process by which documents come to be made. My analysis of environmental management documents has revolved around the primary environmental management plans at Elk Island, but in examining those documents, I also came to review many supporting documents that informed the creation of those plans, as well as the scientific sources used in those supporting documents. This method traces scientific knowledge production through to its practice in environmental management policy and back again. I chose to study management plans because they are public documents created at the intersection of parks planning and

public communications, and so they can exemplify how environmental knowledge production informs narratives of white possession in public discourse.

I organized the document analysis itself around the official management plans of the park in 1978, 1996, 2005, and 2011, using the management plans to mark periods of knowledge production about the park and sort the supporting documents.[15] I first read each of the management plans, identifying major narrative themes and recording significant passages. Then, I read through each of the supporting documents, continuing to note themes and record related passages. After reading all of the documents, I gathered all of the themes and passages I had recorded throughout into one long list, and I began to sort them and order them into narratives. At first, my intention was to write a results chapter summarizing the development of narratives throughout each of the periods. However, this became too lengthy and repetitive, and instead, I integrated the results into the kin study, writing around the collected passages. Each kin study begins with two sections that tend towards analyzing direct quotations from the documents, and then ends with a discussion which expands the analysis in relation to other sources.

The method of document analysis used here may seem like an odd choice based on my previous discussions of the relationship between Indigenous knowledge and environmental science. Why not, for example, a case study more closely related to collaborations between Indigenous communities and scientists? First, beginning a Master's thesis in 2020, at the height of the global coronavirus pandemic, substantially limited any choice of research methods. Even with restricting my methods to document analysis, obtaining documents remained difficult when most buildings were closed to any in-person research.

In a more positive sense, though, reading public management plans became a fascinating way to learn about the history of a national park and to trace the ways knowledge was produced about park through documents such as soil surveys, public consultation meetings, planning workshops, commissioned histories, vegetation

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[15] A 2023 plan was in draft stages and released just as I finished writing, and so wasn't included in the analysis.

inventories, management recommendations, newsletters, and more. I saw how the documents cited, informed, contradicted, and built upon each other, and which information later sources chose to keep or leave out from those previous. However, I did not pay close attention to the individual authors of the documents.[16] While scientists individually are diverse and heterogeneuous in their ideologies, opinions, and values (Sandlos 2002), this study focuses on the broader logics of white possession which can underly scientific discourse regardless of individual intention. My argument is that concepts used in environmental knowledge production have co-constituitively informed and been formed by colonial possessive logics, becoming a part of what is assumed to be common-sense reality. By identifying and analyzing possessive logics, we can start to question these collateral realities.

The development of an Indigenous STS theoretical and methodological framework to analyze colonial ecology is a substantial contribution made by this thesis. It also contributes to understanding the history of Elk Island National Park and Beaver Hills. There is still much more that could be said about the history of environmental management at Elk Island, and this narrow focus probably misses the complexities of how those management documents were applied. As previously acknowledged, individual scientists and experts are diverse in their values and practices, and a different study could have attended to the flow of knowledge and decision making processes between individuals in the history of the park's management. Though I made use of multiple documents, I was constrained by time from consulting more. Though my research involved relationship building and involvement at Elk Island, it did not involve any direct participatory research or interviews. These were also constraints affected by beginning a Master's thesis at the height of the global coronavirus pandemic.

Though the gathering of data occured during periods of lockdown and isolation, I'm grateful that my writing and analysis was eventually informed by active participation

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[16] It may be noted that authors and decision-makers of the park tend to be white and male, especially in the early years of park management, and this may play a role in knowledge produced about the park, but I did not conduct in-depth analysis along these lines.

in the community as lockdowns eased. During this research, I served as the historian laureate for the Beaver Hills Biosphere. I also worked as a research assistant for a project organizing inclusive ceremonial spaces and rites of passage for two-spirit and trans Indigenous youth and their families living in Edmonton. I was fortunate to take part in culture camps with Indigenous youth at Elk Island National Park in my role as the historian laureate and to camp in the park as a research assistant. During this involvement, I built relationships with the staff at Elk Island National Park. Because of them, I was able to attend Parks Canada wildfire training that enabled me to take part in seasonal prescribed burns in the park and deepen my relationality to this place.

3.5 Conclusion

Environmental science, along with the policies and practices it shapes, holds significant material implications for Indigenous communities. As Clapperton (2016) has written, the rigid boundaries constructed between Indigenous and Western environmental knowledges "heavily restricts the knowledge over which Indigenous peoples can be considered a prime authority and a creative force" (14). Through this research, I aim to work towards exploring alternative approaches to environmental science to contribute to an understanding that expands the knowledge over which Indigenous peoples can be considered an authority and creative force. By this, I mean approaches which are capable of interrogating the ways that environmental science has been built upon colonial and possessive logics. All of this is rooted in a lifelong love for environmental sciences, intertwined with an awareness of my relations and responsibility as a Nehiyaw person embedded in Nehiyaw legal orders.

In the next chapter, I will look at key concepts relevant for kin study and relate them to my personal and academic understandings of Nehiyaw ontologies. This will establish a grounding of my understanding of ontology and ecology in Nehiyaw concepts.

4. Nehiyaw Ontologies: The Materiality of Spirituality

4.1 Intellectual lineages

In proposing a method of kin study for Indigenous STS, I do not aim to be prescriptive. Previous Indigenous STS scholars have theorized Indigenous STS methodologies through their own kinship relations. Similarly, I want to locate my research within my Nehiyaw intellectual lineages here. Concepts in nehiyawewin encompass ideas far more complex than their literal English translation. As a language learner[17], I am always in the process of trying to make sense of what I learn from a variety of sources. Initially I had tried to write about my understanding of nehiyawewin intellectual traditions and philosophies in a section separate from the other concepts discussed here. However, in a more truthful sense, my split and contradictory self does not come to understand them separately.

In my Nehiyaw methodology, I am greatly influenced by nohkom, Elizabeth Lightning. In her Ph.D. dissertation in 1997, she also wrote about "The dichotomy between the scientific world view and the holistic world view" (E. Lightning 1997, 12), and our different views on that dichotomy have been a topic of discussion many nights that I visit with her. As she wrote, "Dreams and visions do not mean only the sacred, but they also mean the mundane, the ability to struggle for your right to have visions and dreams, and to strategize and to have discussions" (12). This encouragement of critical thought and creativity has formed my approach to research and thought. In her dissertation on Native control of education, she reflected on how her own experiences as a Native woman and a residential school survivor deeply informed her research and also led her to embrace the power of education through her healing journey: "Through a long-term healing process I was able to achieve a sense of self and self-esteem. A persistent theme motivated me throughout my life, that is, to find out what happened, and why it happened, which means I have been searching for answers most of my life" (E. Lightning 1997, 15, emphasis in text).

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[17] Really with the nehiyawewin capabilities of a toddler.

Because of her story, I have grown up knowing of education and research as processes of healing and growth rather than as tools of assimilation and oppression.

Nohkom's dissertation is based on postcolonial and critical feminist theory, and on this, she stated, "I realize that 'tradition-bound' Native scholars will be critical of my use of Western-based approaches, but after years of study and reflection I feel that some of us have no recourse but to adopt this approach" (E. Lightning 1997, 47). I share her self-consciousness about my love of theory and my combining it with nehiyawewin here.[18] Some might not agree with this. Similarly to nohkom, "my task in this study has been to appropriate certain ideas and methods and make them relevant to the discussion of Native cultural and historical specificities" (E. Lightning 1997, 48). I suppose it is also an application of my theoretical framework wherein the relationship between Indigenous and non-Indigenous knowledges as we live them today is entangled and co-constitutive. The course of this research has been a painful process of physical, spiritual, emotional, and intellectual growth. I chose to move from Ontario to attend the University of Alberta because I wanted to come home to where my family is. I did not anticipate just how difficult it would be to make home during a global pandemic. The timeline of my Master's program has coincided with a personal struggle to escape an unhealthy situation and then create my life anew. All of this has informed the research; I have survived and made sense of my experiences by working through the following concepts. I hesitate to write these things because the written word implies that what is written is 'true' in a static way, while I know that my understanding of these ideas will continue to unfold over the course of my life.

4.2 Wahkohtowin and the intersubjective

Todd (2022), in formulating the method of kin study, draws on the foundational Cree and Metis concept of wahkohtowin. The Alberta Elders' Cree Dictionary translates

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[18] TallBear (2017): "I am especially concerned that Indigenous studies scholars committed to Indigenous self-determination and to maintaining relations with communities become adept at switching between academic specialty languages and the languages of home. We should acknowledge that different ideas can be robustly analyzed within different languages. We must find some level of comfort with imperfect translations" (79).

wahkohtowin as: "the act of being related to each other" (LeClaire, Cardinal, and Hunter 1998).[19] Donald (2021) explains,

> In a practical way, wahkohtowin describes ethical guidelines regarding how you are related to your kin and how to conduct yourself as a relative... However, wahkohtowin also refers to more-than-human kinship relations. The nêhiyaw worldview emphasizes honouring the ancient kinship and relationships that humans have with all other forms of life that comprise their traditional territories. This emphasis teaches human beings to understand themselves as fully enmeshed in networks of relationships that support and enable their life and living. (Donald, 58)

McAdam (Saysewahum) (2015) emphasizes wahkohtowin as nêhiyaw law: "In order to understand wâhkôhtowin, the kinship terms provide the foundation toward respectful boundaries, a law to prevent inappropriate actions, behaviours, and attitudes. All of nêhiyaw relationships are based on these understandings and laws that must be followed as the foundation to understanding relationships with blood relatives as well as the relationship with all of creation" (63). Jobin et al. (2021) also emphasize wahkohtowin as a foundational legal principle and also add to this "relationships include specific roles and responsibilities within families, and also relations to spirit beings, other people (Indigenous and non-Indigenous), and other living beings" (5). McAdam (Saysewahum) (2015) states that "Each nêhiyaw child has a birth right that is steeped in the history of the land and their kinship with all of creation. They are born into responsibilities and obligations that will guide them from cradle to death" (36). Kinship and relatedness are inseparable from roles, responsibilities, and obligations. This obligation is a birthright– we are born into a network of relationships in which we have an essential role. Kinship is a fact of being born into a world in which we are all interrelated, entailing laws that govern our close family relations and extend out into our relations with all of creation, recognizing that we are dependent on all other beings for our survival.

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[19] As nehiyawewin is a predominantly oral language with a huge diversity of dialects and local variations, most if not all words have many different spellings. I will defer to the spelling used in the Alberta Elders' Cree Dictionary (LeClaire, Cardinal, and Hunter 1998), but when quoting directly from another author, I will retain their spelling of a word.

To briefly return to the concept of subject-object ontology, David Shorter (2015) describes a process of "objectivating the intersubjective," in other words, "understanding human relational activities as things" (496). This is a process of, as I understand it, turning a verb into a noun or stabilizing a relational activity into an object/concept in our minds rather than understanding something as an ongoing process still in motion. Kolopenuk (2020b) describes a similar idea by theorizing identity, nationhood/peoplehood, and the importance of action, "doing," (6) and "being" (8).

In Cree (or Ininiw or Nehiyaw) worldviews, it is said that our spirits have chosen our parents (and the place and time we would be born) before we are born: "Before my energy arrived in this earthly body, I chose where it would land, who I would be, what roles I will play, what lessons I needed to learn, and which ones I could help others learn" (Kolopenuk 2020b, 11). Kolopenuk compares this to a liberal concept of self-identification, where we have the individual right to self-identify: "The liberal version depends on the body/mind construct, whereby one can become what they would like to be" (11). In contrast:

> Ininiwak becoming happens elsewhere. As such, my body is who I am; it is a manifestation of my energy, it carries my medicine, it contains the data of generations of my ancestors, and it is the conduit through which I channel tapwewin. (11)

These two previous quotations challenge the body/mind construct through the Cree understanding that we chose our parents (and therefore, our bodies) before we were born- so, she says, "my body is who I am," and this is an identity necessarily in relation to ancestry, place, and family. Through the "objectivating the intersubjective" lens (Shorter 2015, 496), liberal self-identity is a (somewhat) stable object that can be swapped out for another, while the "being" Kolopenuk (2020b) describes is a process in "infinite action" (6) that began before we were born.

Along with self-identity, Kolopenuk (2020b) reflects on the difference between nationhood and peoplehood. Nations (Metis, Cree, Blackfoot, etc.) have been stabilized into objects of study (objectivated) by disciplines like anthropology– making them seem

like distinct bounded categories and underemphasizing the interconnected relations between nations (Innes 2013). Kolopenuk argues that this overemphasis on nationalities distracts from peoplehood. Peoplehood can be thought of as an extension of the relational becoming in the previous paragraph. The connections established when we are born and throughout our lives in that process of being extend outward into networks of kinship, and the sharing of relations in that kinship (relationships to land, ceremony, worldviews, traditions, foods, etc.) form peoplehood. The boundaries between nations are a little more fuzzy, as we have people intermarry between nations, ceremonies and protocols shared between nations, people from different nations gather to hunt or do ceremonies together, etc. Relationality and kinship are these networks of interactions. When you zoom in, you look at someone's close family ties and the relationships they've built in their lifetime. When Kolopenuk details her Cree name and family background, it is not an act of self-identifying in an individual sense but an act of representing all of these relations and calling forth the power that comes from that. And when you zoom out, you start to see the connections that connect all of us- as Kolopenuk calls it, "misewa," all that exists (6).

There is a risk of turning wahkohtowin into an object or a noun. Nehiyawewin is a verb-based language and Donald (2021) notes in his breakdown of the etymology of wahkohtowin that the "win" part of the word is a nominalizer, which literally does turn a verb into a noun, making the action into a concept (59). I wonder, in Indigenous discourse with the academy, how much meaning in nehiyawewin words is lost in the conversion from verb to noun in order to be able to discuss them in English, an object/noun-based language. Jobin et al. (2021) observe the risk of wahkohtowin becoming abstracted in academic settings and reinscribing colonial relationships, warning that "when one is thinking of employing complex legal and governance concepts like wahkohtowin, it is imperative to commit to understanding what they mean, how they function in the governance of relations, and what responsibilities follow" (14).

4.3 Attunement and resonance

Todd and Kanngieser (2020) state that "Listening in kin studies is not done with the ears... it is disposition towards sensing, attuning and 'noticing'" (2). To understand this disposition towards attunement and noticing, I turn to W. Lightning's (1992) translation and interpretation of a nehiyawewin text given to him by Elder Louis Sunchild on the nature of the mind.

In Lightning's preface to his interpretation of the Elder's text, he discusses principles of interpreting teaching from Elders. He describes listening as an act of active participation and quotes an unpublished manuscript, which I will also quote at length for its detail:

> There is a "surface" story: the text, and the things one has to know about the performance of it for others. The stories are metaphoric, but there are several levels of metaphor involved. The text, combined with the performance, contains a "key" or a "clue" to unlock the metaphor. When a hearer has that story, and knows the narrative sequence of it, there is another story contained within that story, like a completely different embedded or implicit text.
>
> The trick is this: that the implicit or embedded text, itself, contains clues, directions—better yet, specifications—for the interpretation of an implicit text embedded in it.
>
> Many sacred stories have multiple levels of embedded texts. The elements of a story fit and are coherent as complete texts at each level. The relationships of each specific surface element of a story to its manifestation (or interpretation) through various levels of embeddedness is also part of the structure of a story. It is an incredibly complex genre.
>
> A person who speaks the "high" version of the language, knows the principles for "unfolding" the stories, and has some degree of skill in constructing and telling such stories. There are checks for validity of the story at each level and between levels. The stories have to fit, precisely, at all levels, to be coherent. At some levels there is very explicit and precise spatial and temporal information.
>
> [He makes reference to a specific story, a version of which is included in a classic ethnography of the Crow, and he refers to some of the narrative sequence.]
>
> At one level, that sequence of the story contains a very precise topological description of a stretch of the Missouri River and the basin around it, just south of its confluence with the Yellowstone. At another level, that same sequence contains a very precise set of principles for relationships between specific kin. A hearer isn't meant to understand the story at all levels, immediately. It is as if it unfolds.
>
> (Wapaskwan 1991, quoted in Lightning 1992, 18-19)

This excerpt regards the layers of knowledge contained in stories, but Lightning notes that this applies also to the interpretation of more general teachings as well. Lightning goes on to further describe assumptions and structural principles that can help interpret such teachings. One of these principles is the use of systems of implication, with this example: "The Elder speaks of rising before dawn, that one should make a habit of doing that. He does not mention 'prayer' in that connection, but that is what 'rising before the sun comes up' implies" (W. Lightning 1992, 21). Implication refers to the way that not everything is stated explicitly in order to let the meaning unfold for the listener. This leaves the listener responsible for learning through active engagement and action. Lightning notes as well that the listener doesn't need to read that in the text because "there is a certain trust that if a person is 'in harmony' and rises early, the prayer is an automatic outcome" (25). In this way, if the listener takes this teaching to heart and makes a habit of rising early as the Elder advises, the meaning of the teaching will start to unfold for them.

This principle of implication is connected with the assumption of resonance:

Something spoken has an effect in multiple other domains. It resonates. That can be at the physical level, where spoken words physically vibrate the air, vibrate the eardrum, and resonate meaning. In the same way, because domains are connected, because we are dealing with things holistically, an act that we think of as being in one domain resonates in other domains. That means that when we think of something in one domain (e.g., "mental") of having an effect in other domain (e.g., "physical") it is not just that it has an "effect," it is that it exists in that other domain as well. (Lightning 1992, 21-22)

To exemplify the assumption of resonance, we will continue with the example of rising early. Sunchild also connects the importance of a disciplined sleep cycle with a healthy heart: "Rising early has a profound effect on the heart and how it functions. Your heart will beat properly, your blood will be (in proper condition. You will not have heart disease" (Sunchild, quoted in Lightning 1992, 24, translated from nehiyawewin)

Lightning observes that in this, "the sleep cycle involves volition; an individual exercises willpower and discretion in determining to get enough sleep. The heartbeat is

automatic. If a person exercises appropriate discretion in the things that a person has discretion over, the things that a person cannot control will fall into the appropriate phase or place" (Lightning 1992, p. 25). This is a complex understanding of the relationship between the physical and the immaterial (thought and spirit) and between agency and humility.

As Kanngieser states, "More than just an aural hearing, listening is a practice of sensing, attunement, and noticing. Attunement means to bring into tune, to find resonances or moments of intersection. It is a laborious, humbling, and self-reflexive process" (Kanngieser and Todd 2020, 390). Aspects of this can be seen in the discussion of implication and resonance. The principle of implication means that one needs to have an established level of commonality and trust in order to think more deeply about what is being said, in other words, to be attuned. This is a mutual trust as the speaker also makes themselves vulnerable in speaking, and in leaving some ideas as implication, they trust the listener to unfold the meaning. It also requires action and change. There is an interplay between changing one's behaviour, which facilitates emotional changes in one's self: "If one does the things that all the Elders are talking about... the individual will feel it. A person will feel what might be called a divine presence in the joining of the heart and mind as one. The point is that you will actually feel it" (W. Lightning 1992, 37). Emotional growth, in turn, facilitates the ability of one's mind to retain knowledge and begin to understand truths. Sunchild refers to this as "the compassionate mind," and Lightning states that, "having a compassionate mind may be a movement towards [the ethos, or truth]" (33).

4.4 Relationality and Natural Law

Duarte (2018) states that "The Indigenous truth value of relationality is in its specificity. It works as well as the degree to which the one who applies it either as technique or in ethos has prepared his/her/ or their heart and mind to discern the complexity" (12). Part of the preparation of the heart and mind for néhiyaw is the observance of protocol. W. Lightning (1992) states that, "it is important that protocols be

followed because of the divinity behind the ethos" (32). The example given is that if an individual repeats an Elder's truths without following proper protocol, "The effect of that truth will last in those who hear it—maybe a year or two years—and then they will forget it; they do not stay with the truth, and the effect of the truth does not stay with them. However, if one follows the protocols, in all of their explicitness, those truths remain forever" (32). Again, here, there is a direct connection between material action (following specific protocols and practices) and immaterial effect (ability to remember).

Shorter (2016) critiques the non-Indigenous fascination with connecting to Indigenous spirituality, which rarely involves relationships to specific communities or interest in Indigenous political and social materiality (10). While we attempt to articulate Indigenous relationality in terms that the non-Indigenous world will understand– in spiritual terms– this also results in "indigenous traditions and land claims and wisdom traditions [being reduced to] sacred matters rather than rational science" (11). In English, the concept of spirituality is separated from materiality, rooted in the Cartesian notion of a spirit/body divide. When Indigenous peoples talk about a spiritual connection to the land, we are most often talking about a material connection to the land, involving dancing, harvesting, living with and interacting with the land. This includes the following relational protocols that are connected to Indigenous governance and legal orders. Shorter argues that if the term spiritual is constructed as nonphysical or disembodied, many Indigenous peoples do not maintain 'spiritual' relationships with the land. Instead, he proposes that "relatedness" and "intersubjectivity" are more accurate descriptors (19-20).

While this focus on materiality builds on the very real relationships with physical beings such as plants, animals, and even rocks and waters, it does not preclude relationships with unseen beings and deities, the more-than-human.[20] Simpson (2021) writes that "the spiritual world is alive and influencing... the physical world, which most of us usually inhabit, is sort of a detritus for what happens in the spirit world" (29). In many

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[20] "When Yoeme collaborators tell me about visiting ancestral worods, or *aniam*, in the hills or in caves, they are talking about actual physical places. And if a visitor to these worlds fails the test therein, the effects are physical in the most real sense, including sickness and death" (Shorter 2016, 1:13).

stories, the physical being we see in the material world is considered a manifestation of a spiritual being; they are the same.

Even our forms of prayer are physical. We burn sweetgrass; we offer medicines and food; we sing or dance. Elder Louis Sunchild said that "Elders say that what counts is the sincere prayer that is said from the heart. A prayer said with deep emotion where one will have tears" (quoted in Lightning 1992, 28).[21] Notice here that even the most abstract reference to the act of prayer is still situated as a physical action with an effect on the body– it is not just the strength of your feeling that 'counts' but the material manifestation of that emotion as tears.

I understand this as related to natural law. A profile of my late uncle Albert says that "Albert talked a lot about natural law. He said that humans' inner natures are an exact copy of the nature of the universe, and deep knowledge of the self comes from nature" (Meili 1991, 83). I have thought a lot about what natural law means, and it is too deep of a topic for me to claim any knowledge about. My current limited understanding of natural law, so far in my life is that it is human nature to act with generosity, kindness, care, and discipline. This means that when you harm other beings and act without care and responsibility, you break natural law– your human nature. Awāsis (2021) writes that "Natural law theory involves the view that certain rights and notions of justice are inherent to human nature prior to the existence of any system of human-made positive law derived from a central authority" (5) and where "practical reasonability and sociability are considered basic human goods" (5).

As human beings, we are dependent on other beings to survive– each other, animals, plants, and other entities and deities:

> Without full respect for all of these relationships the web cannot exist, and the bison will not come. This is a fact in the same way that 'the sun is the creator of all things' is a fact… Blackfoot knowledge focuses on 'timeless' dynamic relationships rather than first causes within a unidirectional time line. Some things necessarily belong together, like humans,

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[21] Trust that finishing this thesis involved a lot of prayer and tears.

bison, and wolves; and this is what Blackfoot generally render into English as 'natural law.' (Barsh and Marlor 2003, 589)

As the physical and the spiritual are one and the same, there is always an interplay between the material and spiritual world. If you are disrespectful of the animal itself, such as by over-harvesting and not following protocol, there are clear material and spiritual consequences. In this way, "nature has the power to legislate" (Awāsis 2021, 5).

4.4 Conclusion

Though I study environmental management documents, which are not what people would think of as a spiritual or culturally rich experience, it has taken a process of kin-making and cultural grounding to be able to write as a Nehiyaw person.

Choosing to work in the university as a Nehiyaw is a fraught choice that is often judged harshly. In order to start asking the right questions to start this research, I had to grow through my doubt and self-consciousness. This was a spiritual growth, where I came to believe that as I chose to be born here, in the body that I have, with the relations I have, this also includes the natural curiosities and passions that I have. The interests that consume us, the questions that keep coming back- those mean something, and that is how we get in touch with the purpose for which we were born. I do not believe that I know anything. However, I believe I have a responsibility to whatever it is inside of me that drives me to understand why things are this way to search for answers. This curiosity can be nourished in us in a way that is relational and in attunement with our kin.

To apply the methodology of kin study, I will discuss the ecology of possession in relation to two kin: soil and fire. I will discuss how these logics impact the chosen kin, as well as ourselves. This intends to show how our oppression and freedom are bound together with our kin.

5. Possessing Soil and Stone: Land Use History

[T]he Indians especially who are less guilty in this respect than their neighbours, and who, from their ignorance of agriculture, are most dependent upon the buffalo, should have this animal preserved to them until they can gradually acquire the knowledge necessary to enable them to raise stock and to cultivate the soil.

(quoted in Scace & Associates 1976, 57)

This section will engage with the earliest periods of history addressed by Elk Island's management plans. Drawing on Ahmed (2014), I will argue that these narratives of the landscape's past use a logic of cultivation to represent Indigenous people as lacking in will.

5.1 "Pre-History": Archaeology of Elk Island

Each management plan begins with a description of the history of the park's landscape, beginning with the "pre-historic settlement" (Parks Canada 1978). Understandings of this period are essential to the representation of the park for interpretive purposes, but also because the representation of how people lived here pre-colonization has practical implications for the management of the landscape today. These narratives consistently downplay the presence of Indigenous peoples on the landscape while avoiding (or even while presenting) evidence to the contrary.

Early plans say that little is known about archaeological sites in the area. The 1978 plan says that "little is known of pre-historic settlement in the Beaver Hills or Elk Island area" and "tangible evidence of the historical activity of the Indian is restricted to a limited number of archaeological sites" (6). A 1976 interpretive analysis says that "although little archaeological evidence is yet available to verify the point, Elk Island and the Beaver Hills were probably a home for transitory native people" (28). These descriptions qualify the very existence of Indigenous people pre-contact in the Beaver Hills as being unproven and, if true, only transitory. However, a 1976 cultural history states that there have been a

number of archaeological findings, including professional evaluations of projectile point styles in private collections in the Beaver Hills area, which suggest that pre-historic habitation occurred during the last eight to ten thousand years (Scace & Associates, 22). They also quote an earlier report that said, "The many stone hammers, arrowheads, spearpoints, tanning scrapers, tomahawks and pestles found in the area indicate many thousands of years of habitation by people much older than our present Indians" (Nyland 1969, quoted in Scace & Associates 1976, 22). It is clear from this report and the earlier sources that it cites that even at the time of the 1976-1978 documents, there was available evidence of historical activity.

Later documents begin to acknowledge that there are many archaeological sites in the area, but they are contradictory in their descriptions. A 1992 newsletter providing a review of the management plan envisions how "an archaeological artifact will ellicit powerful visions of prehistoric hunters and gatherers who once depended on these resources for their livelihood - all with in an hour's drive of Edmonton" (Elk Island National Park 1992, 3). The 2005 management plan states that archaeological research has identified more than 230 Indigenous camps, quarries, and stone tool-making sites, as well as artifacts such as projectile points and scraping tools (Elk Island National Park 2005, 29). They go on to state that "most archaeological sites indicate short-term use by people repairing stone tools as they waited for game to appear" (30). This suggests again that any Indigenous occupancy in the Beaver Hills was short-term and transitory. The visual of people 'repairing stone tools as they waited for game to appear' further emphasizes the casual and primitive nature of this use. However, in the very next sentence, they then describe:

> Several campsites reveal a larger number and variety of tools, signs of more intensive, long-term use and a greater range of domestic tasks. Tools include scrapers for preparing animal hides, pottery and hearths for cooking, small flakes of exotic stones brought to the site and reshaped into small tools, and large local quartzite cobbles made into heavy cutting and chopping tools. (Elk Island National Park 2005, 30)

This is a much different image from the first– the extent of organization required to establish camps with hide scraping, pottery, hearths, and the creation of large quartzite tools. However, the effect of beginning with that first image of short-term, casual use is that one is the more prominent description. Similar descriptions of "small" sites "reflecting transitory use" are seen in the 2011 management plan as well (Parks Canada 2011).

The narrative of the Beaver Hills as a transitory area of short-term use that can not be claimed by any Indigenous people is a theme throughout the documents. The 1976 interpretive analysis states: "It does not appear that the Beaver Hills were a permanent home for any particular band of Indians. Because they were in the transition point between the vast open prairies and the great boreal forest, the natives who inhabited them were usually in a state of cultural transition themselves, or were using the hills only as temporary winter quarters" (Elk Island National Park 1976b, 15). The describe it as a "natural 'half-way house' for tribes such as the Sarcee, and later, the Cree" (28). They conclude, "With a lack of local evidence, any account of the native inhabitants of the Elk Island area must be a general one relating to the Beaver Hills and their use as a transitional area between the grasslands and the forest" (16). The 1978 plan describes, "the area was the meeting place of differing Indian cultures based on ways of life reflecting forest and plains environments" (Parks Canada 1978a, 6) where "the key element is one of cultural transition both in a spatial and temporal sense" (6). The 1996 management plan describes how, "for thousands of years aboriginal peoples sporadically used the area commonly known as Amisk Wuche" (Elk Island National Park 1996, 12, emphasis added). This narrative of sporadic use is shown in the 1992 review of the management plan draft, where they say that the hills provided winter shelter and resources for bands of Sarcee, Blackfoot, Assiniboine and Cree (Elk Island National Park, 7), emphasizing the limited seasonal use and lack of exclusivity which Canadian law associates with claim to land.

Such narratives of the Beaver Hills as a transitional area of sporadic, transitory usage by Indigenous peoples act to pre-empt possible claims to the land and assuage

settler anxieties. Recall that Moreton-Robinson (2015) described the process of possession as an imposition of one's will on a thing that is perceived to lack will. Thus, within the ontology/ecology of possession, subjects must be constructed as imposing their will on nature in order to have any right to land. The narratives above largely create a narrative where Indigenous people are seen to visit the Beaver Hills in such ways as to be temporary and barely present. It is presented as a transitional zone, where Indigenous people have less will than nature– they may even be being acted upon by the environment, as the land helps them to adjust to a transition between the plains and the forest. In this way, the narrative of seasonal and sporadic use (regardless of whether it is functionally accurate) is used to maintain the belief that no Indigenous peoples have a claim to the Beaver Hills. The 2011 management plan states this outright, as "with no land claims or treaty land entitlements on Elk Island National Park, relationships with First Nation and Métis communities have been opportunistic and project-specific" (Parks Canada 2011, 16) – in other words, there are no claims and no entitlements, and so relationships have been unnecessary.

These descriptions of the Beaver Hills as a transitory area also tend to emphasize the abundance of resources and wildlife. The 1996 plan describes the region as an "excellent habitat for elk, moose, bison, mule deer, and game birds and provided good supplies of berries, wild vegetables, fish, fresh drinking water, and fire wood" (12). They state that since plains surround the Beaver Hills, it was an ideal location to base summer camps while still having access to the great herds of bison on the plains. The 1978 plan describes, "it is apparent that the area around the modern day city of Edmonton was an area rich in game" (6). Further, they say that "Indian utilization of the area resulted in very little impact, with the exception of their role in the reduction of natural wildlife populations, a role which was overshadowed by that played by the white man" (6).

Ahmed (2014) examines the concept of will as representing a subject's possibility for deviation. To deviate is to "snap the bonds of fate, understood as the forward trajectory of a straight line" (10) and so, 'will' is the capacity to not be determined by an external

force– to have 'free will.' In this context, deviation can also be understood as the ability to affect change in the environment. These descriptions of the area's richness never consider the possibility of any active role of Indigenous people in creating or maintaining such an abundance of resources. The closest acknowledgement of such is in the 1976 cultural history when they say that "these [Indigenous] people were part of the natural setting: their lives were inseparably tied to the ecosystem; and in contrast to modern man they lived in close harmony with it" (20). More often, the documents describe resources as attracting Indigenous people to the area.

However, as in the larger organization of people hinted at by the 1996 descriptions of long-term intensive use and development, there are indications in the documents of how those same seasonal uses could alternatively be presented as evidencing will. Seasonal rounds, the organized movement between known places at different times of the year to maintain a balanced livelihood according to seasonal changes, indicate extensive planning, governance and knowledge of the landscape. The 1976 cultural history describes how Indigenous people "often chose some cyclical combination of these environments which required a fully or semi-nomadic existence... in this way they could exploit optimal habitats for the greater part of each year" (20). This is the most respectful description referring to seasonal rounds within any of the documents I reviewed. They note that "any sizeable band would require much more substantial and reliable sources than forest hunting could provide," and that is why the Beaver Hills were ideal for supporting "a larger social scale than those people primarily dependent upon forest game" (20-21). This "made it possible for large bands of Cree to inhabit the Beaver Hills prior to 1800" (21).

5.2 1800's: Post-contact and post-treaty

The previous section established that pre-contact representations of Indigenous peoples in the Beaver Hills are constructed as lacking in the will necessary to possess nature and, therefore, not able to pose a threat to white possession. Will is established through the capacity to deviate from nature and effect change in the landscape. The management documents present a quickly changing landscape post-1800. The 1978

management plan notes that by the mid-1800s, records show increasing references to disappearing wildlife populations (7). This change is represented as brought about by the arrival of whiteness in the form of European technology. A wonderful representation of how abruptly this break is presented can be seen in a 1984 soil survey, which describes the Beaver Hills as a "rich hunting area for various Indian bands prior to the arrival of Anthony Henday, the first white man in the area, in 1856" (4). Apparently, that very moment the first white man arrived in the area, everything changed.

However, the change is not presented only as a direct result of white men themselves arriving in the area. Whiteness is presented as infectious, and the moment that Indigenous peoples come into contact with the technologies of whiteness, they are broken out of the state of nature. The 1976 cultural history report notes declining animal populations as soon as the late 1700s and early 1800s, as reported by trading companies in the Beaver Hills area. They write that, "prior to the eighteenth century the Indian posed no threat to the enormous herds. Tribes were still pedestrian and hunted according to their needs by various devices. The eighteenth century brought a distinct change. The European introduced the horse and gun to the aboriginals and himself embarked upon the great slaughter" (54). The 1996 management plan says that "although aboriginal peoples lived in harmony with the land and used the resources in a sustainable manner, the influence of European culture began changing life in the area long before the first settlers arrived" (12). They describe how European resource extraction from supplying the fur trade depleted most of the resources that made the area attractive to native peoples by the time settlers (primarily from Ukraine and Ontario) arrived in the early 1900s (12).

Human beings are the only ones viewed to be capable of will, which relies on being able to change their environment. But this is a conception of humanity which is white and male. Indigenous people only become capable of changing their environment once they possess European technologies and so possess (or maybe become possessed by) some whiteness. An especially rich description can be found in the 1976 interpretive analysis:

> The European influence brought new elements of change to the Canadian landscape. Technology - the gun, tools, metal - and the dictates of another culture's fashions, economics and politics began to make inroads on ancient natural systems whose only laws were those of survival... First by trap and gun, then with the plow, fire and axe, man reversed his role in the natural order. With the capability to exploit and manipulate environments to his own advantage, man no longer sought to adapt to them. (Elk Island National Park 1976, 28)

This passage describes the sudden development of the capacity for deviance. In this description, the land is already described as Canadian, and the people are no longer described as Indian; they are now 'man.' It is not a coincidence that the development of humanity is gendered and associated with the development of patriarchy. An explicit aspect of governance is also introduced in the reference to "natural systems whose only laws were those of survival," implying that the transition to whiteness is also a transition to civilized legal systems. There is a confused sense of moral weight in the looming sense of both doom and promise building through the narrative. It is presented as a tragic fall from nature and innocence, and yet a necessary step in the evolution towards a more civilized state of humanity.

The contradictory moral weight in the narrative of a break from the state of nature is informed by the Christian conceptualization of free will. In Christian morality, humanity's unique capacity for free will is also the origin of humanity's inherent sin– the possibility for deviation, for disobedience, symbolized in the choice to eat the forbidden fruit. This gives Will a moral weight. It is the potential to do evil, but it is also necessary for the potential to do good: "Humans must be free not to be good in order to have the possibility of being good; humans must be free to 'turn away' from the right path if that path is to become their own" (Ahmed 2014, 12). Will makes morality possible in the ability to choose to obey what is 'right' rather than act on what they desire. This, however, creates the mind/body split because the will experiences itself as separate from the body, which is desiring and aberrant. To have will is to be able to act outside of instinct or to attain self-consciousness, as in when Adam and Eve suddenly perceive their nakedness. The moral

virtue of obedience to God means to subjugate one's body to one's will. So the willful possession of what was previously a will-less thing (in this example, the body) is embodied– it constitutes a "primary form of embodiment" (Nicolacopoulos and Vassilacopoulos 2004, quoted in Moreton-Robinson 2015, 50).

The introduction of whiteness brings "the capability to exploit and manipulate environments to his own advantage" (Elk Island National Park 1976) and, therefore, "snap the bonds of fate, understood as the forward trajectory of a straight line" (Ahmed 2014, 10). In snapping the bonds of fate, "man reversed his role in the natural order" (Elk Island National Park 1976) and becomes a subject of free will. With the developing embodiment of will, and therefore a developing state of humanity, Indigenous peoples,[22] suddenly start to disappear from the narrative of the landscape. The 1984 soil survey says, "by 1870, with the bison herds and beaver populations drastically reduced by over-hunting and trapping, only a few Indians remained in the Beaver Hills" (4). Yet, those 'few Indians' remaining still pose a problem to the burgeoning authority of a colonial state. The 1976 cultural history writes that "with the expectation that white man would soon be present in substantial numbers in western Canada the federal government undertook to further restrict Indian activity through the application of various treaties" (48). The Canadian government's authority and right to restrict Indian activity does not need to be justified in these narratives because it has been being established all along.

Within the ecology of possession, the previously discussed virtue of obedience as the subjugation of body to will functions as a moral claim to governance. To be virtuous is not to exercise your own will but to demonstrate obedience in exercising the will of God. The colonial state's governance was established through a virtue which "functioned as property within the legal doctrine of discovery... developed by Spain, Portugal, England, France, and the Church to enable theft of Indigenous peoples' lands" (Moreton-Robinson 2015, 178). By the doctrine of discovery, it was "their divinely ordained destiny to redeem the lesser humans of the world through the application of their unique moral virtues"

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[22] As 'authentically' Indigenous. Remember Nyland 1969's comment that archaeological artifacts indicate "habitation by people much older than our present Indians" implying a break in Indigeneity from pre-history to the present.

(178). This destiny is divinely ordained because the church, representing those with access to the word (and orders) of God, acts as his ordained authority on Earth. Through the doctrine of discovery, the sovereign inherits its authority and possession from a divine authority: "Possession of lands is imagined to be held by the king, and in modernity it is the nation-state (the Crown) that holds possession on behalf of its subjects" (132). This divine authority is equal to a moral authority which presupposes the virtue of its impositions.

Thus, the 1992 management plan review states that "following the signing of Treaty Six in 1876, most natives were moved to reserves" (7). The 1976 interpretive analysis describes the Sarcee's 'transition' with a very ominous final sentence:

> With the westward push of the Cree who were exploiting the beaver to supply the fur traders, the Sarcee were eventually forced southward onto the prairies where they adopted much of the Blackfoot culture. By 1809, they were living near present-day Wetaskiwin and Camrose and by 1840 they were near the headwaters of the Battle River. By the time of the first treaties, the Sarcee were well divorced from their former homeland, settling finally on a reserve southwest of Calgary. Their transition was complete. (Elk Island National Park 1976, 16)

They go on to write that the Cree "were the last native occupants of the Beaver Hills before treaties relegated them to reserves at Saddle Lake and Hobbema" (16). In many of the documents, this point in the narrative is where mentions of Indigenous people end entirely.

However, once again, there are still hints that the narrative is not so settled. The 1976 cultural history states that:

> a number of non-treaty bands continued to move about the area in the 1800s. The Blue Quills band of Beaver Hills Cree were noted by land surveyors in 1884. Another band seemed to be rather permanently located on the northeast corner of Beaverhill lake about the same time. (Scace & Associates 1976, 49)

This is the only document I found to say this, but the same history later notes that census data during the proceeding settlement period did not include "Indians or children"

(74)[23]. It is for convenience's sake (and lack of records) that the majority of narratives abandon any Indigenous presence in the landscape here.

To close this chapter, I will discuss how these narrative of the park's history relate to our kinship with soil and the logic of cultivation.

5.3 Conclusion: The Cultivation of Will

Elder Jim Kâ-Nîpitêhtêw relays the oral history[24] of promises made by those representing the Queen during the negotiations of Treaty 6, as it was told to him by his late father:

> <<No, I have not bought the water from you, nor the animals upon which you live, I have not bought them from you; also not the fish, I have not bought that either; and the various kinds of berries upon which you live, I also have not bought those...
> I will never pay you in full for your land, I will forever make continuous payments to you for it. No, I do not buy from you what is deep within this land, only one foot deep whence the White-Man makes his living, that is what I buy from you...
> I do not buy the water, nor the lakes, from you, nor the fish; only enough land [i.e., one foot deep] for the White-Man to make his living. Where he homesteads, he will make a well, and that is the water he will use. Well, that is why I said to you that I am not buying the lakes from you, and I am also not buying the Rocky Mountains; I am only buying this whence the White-Man will make his living.>> (1998, 111-113, translated from Cree)[25]

Despite what narratives such as those I have discussed here might say, Nehiyawak have had knowledge and laws regarding material property, territory, and soil. The nations of people entering into Treaty 6 were promised that there would be no imposition upon their right to a livelihood from their lands and relations— from the fish, the berries, the animals, and the water. As the kehte-ayahk describe, Treaty 6 was entered into with an understanding that the arriving settlers would be allowed to homestead and practice

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[23] Ahmed (2014) also describes the discourse of will in regards to both "those who are not Europeans" and children (94).

[24] In the book's commentary, the translators confirm that this is to be taken as a historiographic oral document. The translators make some interesting comparisons between this account and the account of the Secretary of the Treaty Commission published in 1876. (See Kâ-Nîpitêhtêw 1998, 166, 185-197)

[25] Because the account contains three layers of quoted speakers by which the account was passed down, the guillements <<...>> and italics are used to denote the third level of speaker, representing conversation between the Cree spokesman and Queen's representative (Kâ-Nîpitêhtêw 1998, 172).

agriculture for their livelihood. The activities of homesteaders were not unfamiliar to Indigenous people living on the prairies. On Nehiyaw-askiy, they would be allowed access to soil one foot deep for such cultivation of their living.

However, in contrast to Indigenous ontologies, in the ecological ontology of possession, cultivation and settlement are equal to possession. In the language of cultivation, there is a symmetry between the subjugation of the body and the subjugation of nature. Early settlers referred to the 'wild' plants and peoples of North American landscapes as lacking in cultivation (Parsons 2018). Will is similarly discussed in terms of cultivation (Ahmed 2014). There is a moral imperative to *cultivate* one's will and overcome the weakness of the body to strive for self-improvement. The white man is burdened, as the carrier of civilization and white patriarchal sovereignty (Moreton-Robinson 2015), to be the authority of properness and orderliness and to educate the Other. To cultivate and improve oneself is equal to cultivation and improvement of the land, is equal to cultivation and improvement of plants and animals, is equal to cultivation and improvement of those others, less-human people, lacking in will.

Although the sovereignty of the state no longer openly justifies the virtue of its authority based on divinity, it still maintains a 'right' to possession which originates in this claim, in its exclusive claim to know what is 'right.' Ahmed (2014) continues their history of will by looking at Jean-Jacques Rousseau's concept of 'general will' in The Social Contract. Rosseau's general will is always 'right' because it "always tends to the public advantage" (quoted in Ahmed, 98). The "legislator" becomes the mediator and expression of a dominant, "sovereign" will by rendering its "particular will" inoperative: "One part of the body becomes an organ for its expression, which requires that this part of the body does not express itself as a part" (99). Those who embody the white patriarchal sovereignty of the settler state have freedom from self-assertion (160) as their will is expressed as the general will, inheriting the pre-supposed virtue and moral authority of the sovereign. Expressions of particularity become judged as selfishness. Ahmed uses the example of advocates for social welfare policies that are deemed 'selfish' and harmful to

the social body (105). Accusations of selfishness and unfair entitlements are also often applied to the advocacy for treaty rights. Citizenship in the settler state is a moral imperative, a "promise of membership" (100) predicated on the "requirement to will in the right way" (236).

Paradoxically, this means that although a basic attainment of will is demonstrated in the ability to deviate by stepping out of the state of nature, a *strong* moral will is demonstrated in the virtuous choice to give up that deviation. Although nature first symbolizes the straight line of fate which humanity attains will by deviating from, the white patriarchal sovereign then sees its moral obedience to the divine as inheriting the imperative to continue that line. As the 1992 management plan review puts it, "relative equilibrium between man and the environment existed in the Beaver Hills for over 9000 years" (7) before the demand for resources "upset this balance" (7). The state of nature alone can only progress to an equilibrium, and so it requires a higher power, a strong *force* of will, to cultivate nature to its full potential.

This is why narratives of the Beaver Hills as a transitory space are so important to maintain the validity of white possession. Ahmed (2014) describes how settlement is associated with strong will: "the weak willed have a wandering attention... [a] strong will thus settles" and the "willfull wanderer.... is the one who is not willing to settle down" (83). While in the narratives of the previous sections, Indigenous people are eventually accorded the possibility of will in the exploitation of resources, they are not accorded the possibility of sovereign ownership or strong will, because in the ontology of possession, that is the domain of cultivation and settlement. Indigenous peoples whose livelihoods depend on seasonal rounds are represented as nomadic, transitory, wandering, and thus, lacking the strength of will to stay in place and cultivate soil— atleast, without European guidance. The white patriarchal state takes on the authority to cultivate nature and soul, to make Indigenous peoples and lands into white possessions and forcefully assimilate their collective sovereignties into the state's will. As Ahmed puts it, citing Marx, "property relations depend on objects 'being willing' in such a way that they would be forced if they

were not" (42). Through assimilation or death, treaty rights are assumed to inevitably give way to a wholly Canadian citizenry.

For those whose will, or very existence, is contrary to that of the state, the requirement of citizenship to will in the right way "can be experienced as the renunciation of will" (88). In failing to will in the right way, refusing to renunciate the particularity of our sovereignties or to assimilate, we become willful. Ahmed (2014) suggests willfulness may be "what we do when we are judged as being not, as not meeting the criteria for being human, for instance" (15). The "willful object" is "what gets in the way of what is on the way" (119). Here, 'what is on the way' refers back to that "forward trajectory of a straight line" (11), which the 'will' either deviates from or obeys. So, the willful object is a not-human or less-than-human 'object' which stands in the way of what is seen as inevitable, or natural, progress. Indigenous peoples and lands are constructed as lacking the cultivation of moral character. We are emptied of will so that we can be cultivated and "through will, we learn to be directed in the right way towards the right things" (83). But an object that stands in the way[26] of progress and refuses to be emptied of will is "too full" of will- a "willful object" (42).

In Indigenous ontologies, even so-called objects can be capable of will, communication, and authority. This includes soil, rock and stone. Rocks can be described as animate beings in the Cree language[27] (Wolfart 1973, 20-23; J. E. Lewis et al. 2018) and pipestone is considered a relative by many Dakota people (TallBear 2017a).

Elder Jim Kâ-Nîpitêhtêw's account of the signing of Treaty 6 stresses that we can rely on the pipestem as nehiyawak testimony:

> The people must have something to rely upon as testimony, and we who are Crees do have something to rely upon as testimony; that which is called the pipestem, that is all upon which we can rely as testimony. When he, our brother the White-Man, made these promises to us, he did promise us that no human walking on two legs upon the surface of

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[26] "A body can become a willful thing, when it gets in the way of an action being completed" (Ahmed 2014, 43).

[27] Animacy structures Cree grammar. Wolfart (1973) describes how the same word, *asiniy,* can be used in both animate or inanimate form, with its inanimate form meaning 'bullet' and its animate form referring to 'stone' (23).

the earth would ever be able to break the promises made to us. (1998, 109, translated from Cree)

In the account of speeches made during the proceedings, the Cree spokesman then repeatedly interrogates the honesty of these promises.

> <<*Do you speak the truth in this which you have promised me, that no one will ever be in a position to be able to break the promises which you have made to us? For you have come between us, you have come between the All-Father and us, where he has given us the sustenance upon which we live, you have come between him and us... will you be able to provide for us to the same extent so long as this world shall exist?*>> (109, translated from Cree)[28]

In these comments, the Queen's representative is accused of coming between the nehiyawak and the Creator, interfering in the divine, by interfering in nehiyawak livelihoods. This refers back to the resources described earlier, the promises that this treaty will not affect our sustenance from the water, the berries, the animals, and the fish. After reiterating what the Queen's representative has promised, the Cree spokesman then invokes the authority of the pipe to sanctify the agreement:

> <<*If you speak the truth, hold then this pipestem; do you speak the truth in this which you have promised us — Yes, or no?*>>
> <<*Yes!*>> (111, translated from Cree)

While the government's record keepers make various references to the presence of pipes during the proceedings, they make no reference to this declarative role of the pipestem in the promises (194-196, discussed in the translators' comments). But to the nehiyawak, the presence of the pipe is the "divine authority and sanction" (192, translators' comments) for the documents: "That was the time when it [the pipestem] was used, he was the one who made it into the Cree document of the treaty" (101).

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[28] As in the earlier quoted passage, the account contains three different levels of speakers, two of which are denoted here by the switch from single quotations, which is spoken by an old man in the story, to the guillements and italics which denote the words between the Cree spokesman and the Queen's representative.

Just as the pipestone provides testimony for the promises made to us, the stone in the Beaver Hills, "small flakes of exotic stones brought to the site and reshaped into small tools, and large local quartzite cobbles made into heavy cutting and chopping tools" continue to testify to our "intensive, long-term use" of the hills (Elk Island National Park 2005, 30). Our leaders advocated for the right to maintain our seasonal livelihoods across all treatied land. These livelihoods were also based on collective governance of resources. It is the settler state which sees seasonal rounds as transitory and the cultivation of soil as synonymous with white possession. Possessive ecology uses the logic of cultivation to justify possession of Indigenous peoples and lands, but in this we can also find our kinship with the soil and stone, which continue still to maintain their own authority and testify to ongoing networks of intersubjectivity.

> <<*Indeed, thus now the promises which I have made to you, forever, so long as the sun shall cross the sky, so long as the rivers shall run, so long as the grass shall grow, that is how long these promises I have made to you will last,*>>
> Thus then our grandfathers had been told. (Kâ-Nîpitêhtêw 1998, 113, translated from Cree)

6. Possessing Fire: Disturbance Ecology

It is most lamentable to see so often such masses of valuable timber destroyed, almost invariably by wanton carelessness and mischief. The most trivial signal of one Indian to another has cost hundreds of acres of forest trees... The Indians, however, never taught by experience, still use 'signal fires' to the same extent as in former years, driving the animals from their retreats and marring the fair face of nature for the future colonist.

(Palliser quoted in Scace & Associates 1976, 48)

In this chapter, as a kin study of fire, I conceptualize a possessive logic of exclusion as seen in representations of fire history and landscape classification in park documents. As discussed in the previous chapter, possessive ecology must represent Indigenous people as lacking in will in order to maintain the authority of white possession. Because Indigenous peoples need to be seen as lacking will, understood as the ability to affect their environments, possessive ecology is excessively concerned with defining the nature of pre-contact environments. This understanding of nature becomes the classification of landscapes, defining what can be considered 'natural' and 'unnatural' processes. I argue that this process of classification is not a neutral activity but rather one that is continually influenced by the ideological maintenance of white possession. The classification materially shapes the environment's character, reinforcing its logic and further obscuring the presence of Indigenous agency.

6.1 Fire History in the Settlement Period

Following where the previous chapter left off, the next period of environmental change starts with the influx of settlers that began in the 1890s. The 1978 management plan describes this period as "the major impact caused by the white man... the creation of the particular set of conditions which resulted in the establishment of Elk Park" (7). This period of landscape alteration would create a convenient canvas upon which the ecology of possession could then be inscribed.

Park documents differ in their accounts of the early settlement period, but it appears that previously abundant wildlife populations had already declined. During this time, the writings of surveyors, police officers, and other colonial officials are characterized by "a language of anguish" (Scace & Associates 1976, 89), as they lamented the consequences of settlement on the landscape of the Beaver Hills and other regions of the Canadian plains. Furthermore, the 1978 management plan says that there was very little interest in settlement in the Beaver Hills during the early 1800s, yet there was still significant exploitation of the region's resources. Consequently, already "by 1890, when the first major settlements occurred in the Edmonton area, the beaver and the bison were no longer found there" (Parks Canada 1978, 7).

The passing of the Lands Act of 1872 granted settlers the right to obtain title to quarter-section parcels of land, including those located in the Beaver Hills. However, before this could commence, surveys had to be conducted (Scace & Associates 1976). The land around Edmonton was surveyed in 1881, while other areas within the Beaver Hills were covered between 1882 and 1884. The surveyors, taking into account the terrain and conditions, predicted potential difficulties in cultivating the soils of the Beaver Hills. In an 1884 report, one of the surveyors reported:

> "[The plot] is entirely in the Beaver Hills, and consists of rolling to undulating country, timbered with a dense growth of small poplar and birch. Spruce occurs in patches on the borders of the numerous muskegs which abound in this country; but no large belts of this timber were noticed. The poplar and birch timber varies from 1 to 3 inches diameter, but stands so closely together that quite a great deal of cutting had to be done in order to produce the lines carefully. The soil is of fair quality, but the country is so broken by ponds and muskegs that it has been classified 2 and 3." (quoted in Scace & Associates 1976, 69)

Several other park documents also describe the Beaver Hills region as having minimal appeal for homesteading, often citing its hilly and wet nature as obstacles to extensive agricultural development. Only a select few homesteads were established within the Beaver Hills, and they tended to be viewed as prospective claims (MacDonald 1994).

However, not all sources agree that there was a lack of settlers in the Beaver Hills. In contrast, the 1992 plan review says that "the rich appearance of the area's vegetation did attract interest in settlement" (7). The cultural history report of 1976 further acknowledges that a significant number of those who did choose to settle in the area were Métis. By 1885, there were Métis Settlements on the North Saskatchewan River near Victoria, at the south end of Beaverhills Lake, and the upper Battle River southeast of Bittern Lake. Individual Metis families were also settled near Hastings Lake in 1895 (73).

Settlement marked the beginning of a period characterized by profound environmental change. The Beaver Hills region has a long history of recorded fires; however, during the 1890s, these fires escalated in both scale and intensity to assume a more devastating nature.

Fire was the most convenient method to clear forested land for agricultural development. The 1992 management plan review mentions this period where "one of the early means of clearing the land for homesteading was through fire" (7). In May 1895, an editorial in the Edmonton Bulletin wrote that "many settlers look upon this wholesale destruction of timber as something commendable and to the advantage of the country in making more land available for settlement" (quoted in Macdonald 1994, 10). The 1978 management plan quotes the cultural history report's description of how,

> The first settlers perceived the forests of the hills to be a great advantage in that they represented extensive and free sources of building supplies and fuel. Simultaneously, however, the forests were viewed as being a nuisance. They hindered the laying out of fields and made travel difficult. They would have to be cleared. A simple solution was at hand: set fire to the timber and let wind do the rest. (Scace & Associates, 82, quoted in Parks Canada, 7)

The first significant forest fire was documented in 1892; the Beaver Lake area burned in 1894. It was in 1895 that fire devastated the entire Beaver Hills region, leaving behind a scene of "utter desolation" (Parks Canada 1978). Fires burned throughout April, May, June, and July, intensified by high winds that blew the flames further out of control. Although

fires subsided during the rainfall of August, they resurged in Autumn, advancing as far as the farms in Fort Saskatchewan. The flame front rose to such a scale that fire jumped the North Saskatchewan River and continued northward (MacDonald 1994, 9). The consequences of these fires were profound:

> The area which later became Elk Island National Park was burned so severely that only a few scattered trees in places sheltered by water, muskeg, or on north slopes of hills escaped. The large game population was destroyed. In fact the entire area between Edmonton and Beaver Lake, Fort Saskatchewan and Cooking Lake was dead. (Nyland 1967 quoted in Parks Canada 1978, 7)

These fires directly led to the establishment of the Cooking Lake Forest Reserve in 1899 to protect and restore what was left of the Beaver Hills forest stands. The fires that devastated the Beaver Hills during this period were emblematic of a "prolific" level of burning that is associated with the early years of mining, agriculture, railroad operation and forestry (White et al. 2011, 82). The widespread fire witnessed during this period of rapid development prompted government response in the creation of Dominion and provincial forest reserves.

In the previous chapter, I discussed how park management documents narrate a mythology in which the influence of whiteness begins an inevitable process of civilization to Indigenous lands and peoples. The Indian described by the management plans who was "part of the natural setting: their lives were inseparably tied to the ecosystem" lives "in close harmony" with the environment, but that harmony is seen as their inherent nature rather than any intelligent choice (Scace & Associates 1976, 20). In contrast, the settler is depicted as a human capable of deviating from the "bonds of fate" (Ahmed 2014, 10), as evidenced by the "capability to exploit and manipulate environments to his own advantage" (Elk Island National Park 1976, 28). Management documents consistently emphasize the destruction caused by European culture, and yet that does not seem to carry any negative implication towards their sense of authority. Somehow, it even

increases their sense of authority– why is this? An essential aspect of this mythology is the previously described moral character of free will, where the development of Will makes morality possible because "Humans must be free not to be good in order to have the possibility of being good; humans must be free to 'turn away' from the right path" (Ahmed 2014, 12). In the ecology of white possession, cautionary tales of humans destroying the environment become an important aspect of the virtue of settler-governed conservation because such stories are proof of their ability to choose the destructive path. This gives meaning to the choice to turn back to the right path. Without the initial narrative of destruction, they would be no better than "part of the natural setting" (Scace & Associates 1976, 20).

Additionally, narratives of destructive settler fire also play into the suppression of Indigenous management through controlled burning. For example, Vinyeta (2022) details the representation of Indigenous-operated controlled burning within the United States Forest Service's fire suppression policies in the early 20th century. These policies were explicitly formulated to oppose and counteract the practices of controlled burning carried out by Indigenous peoples on their territories. The systems of fire management developed by Indigenous communities were homogenized as 'Piute Forestry,' thereby infusing racialized connotations that deemed it 'savage' and lacking in expertise. This extended not only to Indigenous peoples but also to settlers who favoured burning practices. In this way, the United States Forest Service associated fire suppression with a sense of morality, utilizing it as a means to legitimize their authority and decision-making processes while simultaneously shaping settlers' perceptions of burning practices as primitive or savage. I will discuss Indigenous burning practices further at the conclusion of this chapter.

Elk Island's fiery origin story would go on to impact how park managers interpreted the park's environment and how to manage it. For example, in his report for 1907, the Superintendent of Forestry observed:

> This reserve has probably suffered more from fire than any of the other reserves and there is at present hardly a square mile of virgin timber left. The original stand was spruce, larch, aspen, balm, birch with some jack pine and balsam. Now the conifers have almost all

disappeared and only an odd old spruce or larch which has been protected by a muskeg or a hill remains to show that there was once a coniferous forest on these hills. Reproduction of aspen and balsam is coming up thickly over almost all of the reserve, but some of it has been burned over three or four times and is now beginning to lose its vigour. In these places it will be necessary to replant it if the forest is to be maintained. (MacDonald 1994, 10)

The question of fire's role in the landscape endures as a central theme throughout the park's history and in its management plans. The almost wholesale reset of the region's ecosystem caused by these fires led to a century of disagreements about how to define the landscape's 'natural' character.

6.2 Disturbance and Landscape Classification

A few years after the establishment of Cooking Lake Forest Reserve, concerns began to emerge regarding declining wildlife populations in the Beaver Hills area. In response to petitions and proposals by the public, in 1907, at least 24 elk and 35 mule deer were enclosed within a fence, and the newly designated "Elk Park" was incorporated into the Cooking Lake Forest Reserve (Parks Canada 1978, 9). That same year that Elk Park was being fenced off, across the United States border in Montana, on the Flathead reservation, Michel Pablo[29] was negotiating to sell the world's largest known bison herd to Canadian representatives. It took teams of 90 or more cowboys over five years to gather over 700 bison, which were then transported by train cars from Ravalli, Montana, to Canada between 1907 and 1912 (Coder Copies made ca. 1973). While the Canadian government created Wainwright's Buffalo National Park specially to house these herds, the first shipments from Montana were temporarily held at Elk Island National Park. When most of the buffalo were eventually moved to Wainwright, a 40-50 head herd was left behind at

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[29] Both Michel Pablo and his business partner Charles Allard were Indigenous men of mixed origins who married into the Confederated Salish tribes and ranched on the Flathead reservation. Michel Pablo's mother was Blackfoot, and Charles Allard's mother was Cree from Fort Garry (Coder Copies made ca. 1973). The two entered into business and purchased Latatitsa's herd of 13 bison from Samuel Walking Coyote. By Allard's death, they had raised the herd to at least 300 head, which was split between them. When Pablo sold his share in 1906, he estimated he had 400 bison, but in the end, he shipped more than 700 bison to Canada. According to Scace & Associates (1976), "by 1900 about 80 percent of the world population of American bison were in or descended from his herd" (58). The story of the Pablo-Allard herd is fascinating. I conducted a lot of archival research on it that didn't make it into this thesis.

Elk Island. Official reports say the bison left behind were too wild to transport. However, others say that after seeing the public interest during the larger herd's stay, park staff intended to ensure that bison remained as an attraction for visitors (Parks Canada 1978, 9).

While the primary focus of park management in the first decades of the parks' establishment revolved around overseeing and preserving large ungulate populations such as bison, a shift occurred during the mid-20th century towards embracing new ecological theories and a recognition of the need to consider the character of the entire landscape. Elk Island National Park experienced relative stability in leadership during its initial 65 years, with only four different superintendents serving the park from 1909 to 1959 (MacDonald 1994, 39). The continuity of leadership may have had advantages in park management, enabling the implementation of long-term plans which could span several years and contribute to a healthier landscape. But following the retirement of superintendent B.I. Love in 1959, during the next 18 years, the park was overseen by six different superintendents, each attempting to alter the shape of park policy or planning (57). Some of these attempts to alter policy stemmed from the developing ideas regarding ecological science and landscape classifications.

One of the longer tenures was of H. R. Webster, whose time as superintendent is described in a 1994 microfiche report on the history of science and conservation in the park (MacDonald 1994). Webster's tenure stands out as a story exemplifying the contested landscape within the Beaver Hills. Webster was interested in obtaining accurate estimates of the ungulate populations and sought to incorporate scientific research into the development of management policies. According to MacDonald (1994), an M.Sc. thesis conducted in the park by W.N. Holsworth (Holsworth 1960) became of particular interest. Superintendent Webster interpreted the results of Holsworth's thesis, which indicated that more of the park's area should be forested rather than maintained as grasslands, calling into question the suitability of the park as a sanctuary for bison.

Webster firmly believed that the park's current vegetation composition was a direct consequence of the historical fires during the homestead period. He argued that the

herbivory by park wildlife populations in the years since then had continuously prevented the natural regeneration of spruce forests (57). In Webster's view, the park, and the broader Beaver Hills region, was naturally meant to be dominated by spruce forest, suitable habitat for moose and deer, but not for bison. He believed that any bison observed in the area would have only been transient, not a sustained presence. He recommended that "serious consideration be given to establishing plains bison on more typical bison range somewhere on the Canadian prairies" (MacDonald 1994, 58).

Had Webster's tenure been more prolonged and had his recommendations to transition the park away from its role in bison conservation been implemented, it would have had a direct impact on the landscape's character. While not necessarily achieving all of his proposed changes, Webster did manage to introduce certain modifications to foster the development of the so-called 'natural' spruce forest within the park. He reduced the density of ungulate populations in the park by over 45%, marking the lowest recorded levels since the 1920s. Moreover, during his tenure, deliberate efforts were undertaken to plant spruce trees in prominent areas of the park, serving both aesthetic purposes and compensation for spruce regeneration that had been hampered by the influence of large ungulates (McDonald 1994, 59).

MacDonald (1994) notes that Holsworth's thesis, which had such an impact on Webster, was primarily concerned with the issue of overgrazing and the question of the park's carrying capacity rather than defining the natural state of the landscape. In fact, contrary to Webster's beliefs, Holsworth suggested that although a white spruce forest might be expected as climax vegetation in the park, the prevalence of frequent natural fires makes it unlikely that such a forest has ever been sustained over large areas or prolonged periods of time (59). Taking a look at the thesis myself, I assume that Webster's conclusions could only be based on Holsworth's observations that "the soil, climate and vegetation of [the park] indicate that with continued fire suppression the Park will eventually support a climax forest of white spruce" (1960, 65).

Holsworth's observation that continued fire suppression could result in a climax forest of white spruce doesn't appear to necessitate a moral imperative to ensure that succession. I argue that Webster's understanding of the environment was based on a view that Nature travels in "the forward trajectory of a straight line" (Ahmed 2014, 10), which governs beings not possessing free will. Nature can, in some constructions, symbolize divine intelligence: the natural order. Animals, like objects, are innocent; they can not sin or deviate because there is no will behind their movements. Thus, the natural environment flows directly from its inputs and moves in "the forward trajectory of a straight line" to its endpoint, the climax community. This understanding of climax community is based on defining the "abiotic environment," where "[s]oil structure, depth, fertility, moisture regime, aspect, etc. combined with climatic factors are the main determinants of the character of vegetation and ultimately fauna to be found in any area" (Elk Island National Park 1973, 21). By purifying the complex nature of an ecosystem down to the influence of soil, topography and climate, even the possibility of any limited will in plants and animals is excluded from nature. This process of purification (Latour 1993) is necessary to portray tidy classification systems for communicating possessive management. Moreton-Robinson (2015) describes how knowledge and power are produced in relation to possession: "You cannot exclude unless you assume you already own. Classification therefore ascribes value and identification, which manifests in racial markers like blood quantum and skin color" (xxiv). In the possession of ecology, the classification of soil, topography and climate acts similarly to racial markers to establish management, domination, and ownership.

Many park documents struggle with how to define the natural environment of the park. The 1976 soil survey of the park also describes the great fires of 1895 as the most influential event in the present vegetation of the park, and "prior to these fires the area was dominantly spruce forest. At present the vegetation within the park is evolving back to this pre-1985 type forest" (Crown 1976, 12). The 1976 interpretive analysis describes "the natural environment of Elk Island National Park which is the result of biological and physical processes" as opposed to "the cultural and historical messages which show the

inter-relationships between man and the environment and the historical patterns of land use in the area" (Elk Island National Park 1976, 5). The authors of the interpretive analysis seem to take a similar view to Webster, describing how "[w]hen the Elk Island region was settled, extensive clearing, logging and burning practices altered much of its native Boreal mixedwood communities to a grassland/Aspen condition, similar to that of the lower surrounding plain" (27). They contend that the white spruce community is the climax community, "[t]hat is, the community to which most natural areas would succeed, and which would normally perpetuate itself under relatively constant conditions in the absence of catastrophic events" (26). However, "Natural and man-induced catastrophic factors (i.e. fire, logging) have caused much of the park to succeed in varying stages of the Balsam/Aspen poplar forest" (27). "As wetlands, lakes, ponds and the mixedwood forest expand throughout Elk Island, the Aspen Parkland will tend to decrease… Since fire and perhaps a drier climate are major influences in the perpetuation of the grassland community, it could eventually disappear from the Elk Island landscape" (14).

Other documents, such as the 1992 plan review, build on the more simplistic portrayals of succession ecology, as when they state that "potential vegetation type is a result of climate, soils, drainage and landform contours. Actual vegetation is highly influenced by fire, large ungulates and man" (Elk Island National Park 1992, 6). Understanding the role of fire on the landscape creates a shift away from the strict understanding of linear succession to climax communities. This is a shift that also begins to reveal Indigenous management on the landscape; therefore, it also seems to be resisted within the possessive ontology on a psychological level. One of the ways this shows up in a common phrase I saw consistently through almost all of the documents I reviewed in Elk Island National Park management is "natural processes." Descriptions of natural processes often exhibit an anxious undertone, what Moreton-Robinson might refer to as an "anxiety of dispossession, which rises to the surface when the nation as a white possession is perceived to be threatened" (2015, 138). A report on a 1975 workshop focused on resource planning reveals that the planning team refrained from identifying a specific theme for the park at this meeting due to concerns about how emphasizing the park's historical role in

preserving large ungulate populations might impact the management objectives. They questioned to what extent the preservation of these herds would require subjugating natural processes (Elk Island National Park 1975). In the 1978 plan, this is especially apparent– nearly every decision is justified as either natural (right) or unnatural (wrong) (Parks Canada 1978).

Throughout the management plans, fire is often discussed as a natural process that should be restored to its natural role in the landscape. The 1973 background paper for resources analysis says, "To the greatest extent possible, natural processes of regeneration, growth, succession, vegetation dying through disease, insect infestation, windthrow, etc., and decomposition will be allowed to take place unhindered. It is through these natural processes that long-term environmental health and diversity is maintained" (22). Moreover, the document affirms that "[f]ire is a natural occurrence in many vegetative communities" and should be permitted to play its natural role within the environment (22). As opposed to the earlier descriptions which anticipated the succession from parkland to spruce forest, the 1992 management plan review says that "the removal of bison and fire and intensive cultivation has made aspen parkland among the most endangered of prairie habitats. Even within the park, the virtual elimination of fire for close to ninety years and the manipulation of the numbers of large ungulates has caused the forest to invade and eliminate most meadows" (6). Over the years and into the present, documents such as these increasingly call for the introduction or increase of prescribed burning programs (as in Blyth et al. 1992).

6.3 Landscapes Excluding Fire and People

While describing fire as a natural process, most descriptions do not offer an explanation of how so many fires start naturally. Those that do, tend to attribute fire to the cause of lightning strikes. This tendency persists in many modern understandings of prairie and boreal environments, although there have been studies presenting evidence that lightning strikes alone cannot account for the number of fires needed to maintain ecosystems. For example, comparing Alberta provincial fire occurrence data between 1961

and 2003 to the estimated amount that would be needed pre-settlement to maintain prairies, Rogeau (2016) concluded that "anthropogenic fire ignitions outweigh lightning ignitions," so they, "must assume that First Nations played a large role" (10). Rogeau (2016) also makes use of dendroecological studies and notes that "fire scarring evidence during the cured vegetation period (outside of the lightning season) indicate that burning often took place outside of the peak lightning season of July and August" (87), indicating burning in Spring and Fall, which is when controlled burning usually takes place (Lewis 1982). In another study, White et al. (2011) summarized a number of fire history studies in Canada and noted that very few studies reported an increase in burn area during settlement periods. They describe this as "remarkable" because the "prolific level of burning," as discussed earlier in this chapter, is well recorded across the country, but "it is likely not detected in fire history studies because it was relatively similar or… less than the burn area in previous times" (82). Historic photography from surveys in the late 1800s has even been used to observe patterns of burning in mountain landscapes based on their differing characteristics from other disturbance patterns (Arthur 2015).

Interestingly, after all the management documents arguments about whether the Beaver Hills should be considered more of a boreal or parkland environment, based on the prevalence or exclusion of fire, if they were to talk to Indigenous people, that distinction between boreal and prairie does not mean much at all. Henry Lewis at the University of Alberta conducted ethnographic fieldwork studying the controlled burning practices of Indigenous people in Northern Alberta's boreal mixed wood areas. One Cree interviewee from the Frog Lake area stated: "It used to be all prairie here; now it's mostly forest. My father told me that long time back there were plenty of buffalo here, all the way (north) to Cold Lake. We were Plains Cree, not like those bush people up north. Now it's all bush here too" (Lewis 1982, 24).

Within Lewis's study, many of the Indigenous people interviewed commented on the changes they see in the northern landscape as a result of fire suppression. They describe the landscape as much less open and more challenging to travel on. The

unburned area is also understood as less able to support animal and plant life and, in turn, less able to support trappers. Many indicate that reintroducing burning would be beneficial for all, human and nonhuman. However, they recognize that it would be difficult to reintegrate these practices into the mosaic of land uses that exist today. These include agriculture, living spaces, logging, drilling, and recreation. It will also be much more dangerous to burn today because of the length of time that burning has been excluded, leading to a buildup of fuels that can more easily cause extreme fires (46). One 73-year-old Slavey interviewee stated: "It would take a long time to make the country like it was before we stopped burning... it would take a lot of work" (46).

While he may be referring to the barriers facing the reintroduction of fire into a post-colonial country, this also indicates the extensive labour and planning that was needed to carry out Indigenous burning techniques on a large scale. Lewis notes that many other anthropologists ask him whether Indigenous people had any understanding of the consequences of their burning or whether it was something they "just did" (1982, 46). He observes that this is because anthropologists have these assumptions about 'hunter-gatherer' populations as having little thought about their effect on their environment. Lewis writes:

> An unplanned or indifferent approach towards the uses of fire would have simply increased the kinds of disruptions brought about by natural conflagration, effectively resulting in the kind of situation that now exists in many wilderness areas where fire regimes derive from lightning storms, human carelessness, and pyromania. (48)

Clearly, many complex understandings are shown in these interviews with Indigenous people in Northern Alberta, and there is much more that those interviewed may have held back or that the interviewer did not understand. Some of the interviews also point to the extended task of organizing this environmental management between groups of people- it is stated that when trappers travel from their trapline in the springtime, it is expected that the first trapper through an area will fire that area to clear it for the next through- it is also

stated that burned areas would be talked about and referred to with others to indicate where and in what year would be a good place to hunt.

Henry T. Lewis and Ferguson (1988) provide a further vocabulary for describing Indigenous controlled burns. They describe different ecological regimes of fire that Indigenous peoples lived within in Canada, the U.S., and Australia. In some of these areas, there is an interplay between natural fire regimes and human fire regimes, and over time and space, one or the other may play a more significant role. Within the larger body of literature debating the extent of fire on the landscape, Roos, Williamson, and Bowman (2019) argue that standard methods for measuring fire regimes bias paleofire records against such patch burning. Henry T. Lewis and Ferguson (1988) characterize the Boreal as an area where, at the time of contact, the mosaic of fire would have included a combination of natural and man-made patterns. Natural fires would have created a pattern of "large to very large 'patches' of varyingly aged forests which were primarily the consequence of lightning fires" (72). In those same areas, Indigenous-controlled patterns of burning are described as "fire yards," which refers to meadows and small forest openings, and "fire corridors," which refers to traplines, trails, streams, and lakesides (73). The practice of burning windfall or deadfall forests, those areas of forest which were full of dead trees and supported little game, would be the closest that Indigenous-controlled patterns came to the lightning-caused forest burning patterns.

In this system described by Lewis and Ferguson, large areas of forest were controlled by lightning-caused fire regimes, while alongside those extensive forests, there was a mosaic of human-controlled microhabitats. Controlled burns were predominantly carried out during the springtime, when some snow was still present in the bush (Lewis 1982). Fire corridors were used to maintain trails and traplines, usually along rivers and wetlands, where a fire could burn and then go out when it reached the wet lowlands or cold areas under the bush. These burns would make it easier to travel, as well as make room for new growth and attract game animals to the areas. Before the nesting season began, marshes and lakeshores were fired "to maintain them in stages of productive new

growth as the preferred habitats of muskrats and waterfowl" like muskrats and ducks (Lewis and Ferguson 1988, 72). 'Fire yards' describe the larger burned areas in meadows and open parts of the forest. Fire yards are maintained like pasture, with fresh (often described in interviews as 'clean') grass for the animals who live in adjacent forested areas. These burned areas are places where people go to hunt, knowing that animals will be attracted to the fresh growth of grass after burning.

I provide all of this detailed information to get across just a burgeoning vision of how extensively Indigenous management such as these (not limited to burning practices) would have shaped the landscape on a large scale in diverse ecosystems. The representations of landscapes as they are in contemporary colonial management regimes simplify these complex histories into concepts such as succession based on extremely limited factors. Management plans often use vignettes drawn from the journals of settler officials to imagine the landscape:

> As we journeyed on towards Edmonton the country maintained its rich and beautiful appearance... everywhere Nature had written in unmistakeable characters the story of the fertility over which we rode - everywhere the eye looked upon panoramas filled with the beauty of lake and winding river, and grassy slope and undulating woodland. The whole face of the country was indeed one vast park.
> – Major W.F. Butler - 1871, north of Beaver Hills (quoted in Scace & Associates 1976, 65–66).

Attuning to the scale of Indigenous ecologies can lead us to look again at historical representations of the landscape to question what peoples were involved in the maintenance of such rich and beautiful environments and how those governance systems can be restored.

7. Conclusion

7.1 Summary

Throughout this thesis, I have looked at environmental science as a site of knowledge production that shapes contemporary relations between race and property and how race and property are employed in governing resources. I have done this by theorizing 'ecology of possession' as a synthesis of Whyte's (2018) concept of ecologies as human agency in ecosystems with Moreton-Robinson's (2015) work on the white possessive ontology, which had previously questioned the role of white possession in colonial knowledge production and regimes of truth.

This was grounded in a critique of predominant representations of 'Indigenous knowledge' and 'Western science' as separate knowledge systems. I argued that such understandings sidestep the power dynamics of knowledge production while forwarding overly simplified understandings of Indigeneity tailored for non-indigenous consumption. Instead, I contend that these conceptual knowledge systems have been historically co-constituted and entangled through the processes of colonialism, and what truly sets them apart is the governance systems that employ them and towards whose livelihoods they are employed.

In this, I have also developed and applied a methodology of kin study, as informed by the work of Kanngieser and Todd (2020). Throughout the research, I have attempted to centre Nehiyaw-informed kinship ontologies as an alternative to the ontology of possession (Moreton-Robinson 2015). I analyzed environmental management documents regarding Elk Island National Park. I applied the methodology of kin study to structure my analysis around two specific kin: soil and fire. Centring my discussion on these kin helped to shape an understanding of the representations of Indigenous peoples and our nonhuman kin in such knowledge production as entangled. In the kin study of soil, I examined descriptions of the so-called pre-historic presence in the Beaver Hills, arguing that the ecology of possession operates through a logic of cultivation to depict both

Indigenous peoples and the soil we live on as open to possession. In the kin study of fire, I examined narratives of fire history and landscape classification in park management, arguing that a logic of exclusion governs what is considered natural processes, serving to obscure Indigenous ecologies.

7.2 A final consideration of will and agency

I began considering the concept of will to better understand Moreton-Robinson's (2015) description of the ontology of possession "through the imposition of sovereign will-to-be on Indigenous lands and peoples, which are perceived to lack will; thus they are open to being possessed" (178). I found a detailed history of the concept of will from Ahmed (2014), which helped me to understand better how the concept could be related to scientific representations of ecosystems. On the other hand, the concept of agency comes into Whyte, Caldwell, and Schaefer's (2018) definition of ecology as implying human agency within ecosystems in order to "facilitate a society's capacity to survive and flourish in a particular landscape and watershed" (159).

I have often tended to treat will and agency as interchangeable terms– I probably have at times throughout this thesis– but as I conclude this research, I am coming to recognize a distinction between how the two concepts operate within the ontology of possession. While 'will' refers to the simple capacity to make decisions and act based on personal desires or motivations, 'agency' describes the cultivated will that involves the ability to consciously direct one's actions, subjugate the body and choose what is right. Agency involves the capacity to reflect, dream, envision, and plan for the future. It may be that (within the ecology of possession) Indigenous peoples are perceived to take on a degree of will once they receive the tools associated with whiteness, as I discussed in Chapter 5.

This acquired will enable us to be perceived as capable of deviating from nature's trajectory and effect change within our environment, as seen in representations of Indigenous people taking on the influence of European culture and gaining "the capability to exploit and manipulate environments to his own advantage" (Elk Island National Park

1976) rather than adapt to them. Yet despite this perceived attainment of will, we are not necessarily perceived in such environmental narratives to attain a full agency. We are not considered fully conscious or in control of our actions, nor are we attributed with innate internality, intelligence, or the ability to plan and manage our futures. Agency encompasses not only the manifestation of will but also the conscious ability to exercise autonomous and deliberate control over actions and choices, as well as the capacity to set goals, plan effectively, and manage aspects of life– including the environment.

Ahmed (2014) discusses the concept of will and its correlation with the capacity to resist one's desires, which in turn implies the ability to engage in planning, foresight, and exercise self-control. Ahmed relates this aspect of will as the moment of pause between the outstretched hand and what it reaches for, which demonstrates a degree of consideration for a consequence or anticipated future reward (planning). This idea gains greater significance when viewed in connection with the previous (Chapter 2) discussion on ecology as a human agency. It becomes evident that human agency entails more than simply any form of interaction that impacts the environment. It encompasses conscious and purposeful engagements with the environment that are premeditated and deliberate. That is why the representation of the Indian who was "part of the natural setting: their lives were inseparably tied to the ecosystem" lives "in close harmony" with the environment (Parks Canada 1978) is so belittling. It is also why the emphasis on the spiritual nature of Indigenous knowledge in public discourse is so unsatisfying and often so strategically ineffective in establishing Indigenous authority in environmental knowledge or management (Clapperton 2016).

By identifying and critiquing the language of possession in ecology, I do not mean to suggest that we reject these terms in our engagement with its discourses. Instead, I propose that there is a strategic value in employing this language with purpose and intention. While it is true that words like 'management' are often rejected when characterizing Indigenous interactions with the environment due to their potential to imply inaccurate hierarchical relationships with nonhuman beings we consider kin, we

can still recognize the potential power in utilizing such discourse within non-Indigenous contexts. The language of possession is deeply embedded within this discourse, constraining our ability to describe ourselves outside of the language available to us. Therefore, in order to be strategic and effectively intervene in the production of scientific knowledge, we must understand and wield the language of science. We can appropriate the language of power, utilizing it to challenge dominant perspectives, or we can allow ourselves to be defined solely by our differences and reaffirm their perception of us as lacking agency. Regardless of our approach, Indigeneity will likely continue to be misrepresented, as this mode of knowledge production was inherently designed to perpetuate such misrepresentations.

However, I want to avoid getting caught up in our difference (Andersen 2009). Actually, what strikes me the most is how much Nehiyaw ontologies and white ontologies are concerned with the same ideas but come to different conclusions. I think it is useful to emphasize this similarity so that Indigenous people can be understood as people with internalities, concerns, opinions, and intellectual diversity. Science is not different in its observations, systematics and materiality– Nehiyaw traditions are also concerned with these practices. Indigenous knowledge is also not different in its incorporation of experiential knowledge, spirit, belief, and story. I have tried to show that scientific knowledge production and practice are far from rational or objective, being formed and bound up in theological, philosophical, and colonial stories and beliefs. If we believe that science is uniquely systematic and Indigenous knowledge is uniquely spiritual, we only reiterate the narrative that has been used to establish white possession. The colonial state has made spaces to include our spirituality, but it cannot include our practicality and our governance.

7.3 The right time and place

> *Elk Island National Park, Alberta; March 2023* – We stood on a metal platform overlooking the park's bison corrals. Positioning ourselves behind wooden planks attached to overlook, which shield us from the herd's view. After a long, quiet wait, we saw the herd being

directed on to a fenced path. In a short flurry of activity, the herd rushed past our perch and into a metal chute and a waiting horse trailer. The sound of hooves passed within seconds, and then the herd was loaded up neatly for transport to Samson Cree Nation. (K. Lightning 2023)

At the beginning of this thesis, I described how a feeling of comfort and kinship when reading nicâpân Albert Lightning's words about the return of bison to the landscape led me to pursue this area of research. Through my undergraduate and graduate research, I developed a love for prairie ecologies, an ear for environmental histories, and a fascination with fire management. I have attempted to work with the understanding and faith I have been taught, where "[i]f a person exercises appropriate discretion in the things that a person has discretion over, the things that a person cannot control will fall into the appropriate phase or place" (W. Lightning 1992, 25). During this research, I have stumbled into the good fortune to act as a historian for the Beaver Hills Biosphere, spend time at Elk Island National Park, the opportunity to participate in carrying out prescribed burns in the park, and attend the repatriation of an Elk Island bison herd to Samson Cree Nation[30]

I opened this thesis with a quotation from nicâpân, and I will conclude with one more:

> Albert talked a lot about natural law. He said that humans' inner natures are an exact copy of the universe, and deep knowledge of the self comes from nature. Western society's materialism is unnatural to the point that many people are unaware of natural cycles and energies…. as humans become unbalanced, so does their world. Medicine people understand natural laws and work with varying frequencies to accomplish what seems impossible. They know there is a right time and place for everything and what is possible given a certain set of circumstances. (Meili 1991, 83)

So many of the concepts I have discussed throughout this thesis are guided by straight lines, as seen in succession, will, and possession. In contrast, the language of natural law emphasizes cycles, energies, balance, frequencies and temporality, being in the right place

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[30] Where I am a band member.

at the right time. These concepts begin to guide me toward understanding how to be a Nehiyaw student of environmental sciences.

Resurfacing Indigenous ecologies is a reclamation of will. To be colonized is to be assimilated into a dominant structure, obediently conforming to the will of the sovereign authority. However, when individuals or communities reclaim their agency and voice objections, they exercise what they are expected to surrender. If obedience is not the starting point, then the act of obedience itself would require a conscious act of forgetting (Ahmed 2014). Thus, becoming unwilling to conform becomes an act of remembrance—a memory project that involves rediscovering and reasserting a will that has not been wholly eradicated (140).

I often think of Vine Deloria's words to the Society for Ecological Restoration:

> I told them that traditional Indian knowledge says that beings never become extinct. They go away, but they have the power to come back. I predicted that, in their restorations, if they were preparing the area right, plants they thought were extinct would begin coming back unaided after four or five years. Plants would come back first, and then animals, and then birds... This is not as extraordinary as it might sound. The elders tell us that the buffalo used to go back and forth between two worlds. (Jensen 2000)

In this thesis, I have sought to listen closely to the white noise of possessive ecologies. By recognizing its rhythms, we can begin to attune to what else is there. As the noise subsides, the voices of our own relations, our interconnectedness with the land and each other, can once again resonate. Behind the noise, we can hear our own relations still singing, planning for the future, calling us home.

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