

Human-Wetland Relations in an Agricultural Landscape:
Ojibway and non-Indigenous Perspectives from the Swan Lake Region, Manitoba

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Abstract

Wetlands in the Swan Lake region were historically seen as highly valuable parts of the landscape by Ojibway Peoples and early non-Indigenous settlers alike, providing vital food and water on an arid prairie. Contrastingly, wetlands today are often seen as a nuisance, incentivizing their ongoing drainage. As a result, Swan Lake, like other prairie lakes, faces cumulative impacts from wetland drainage including an accumulation of sediment, lowering lake depth, damaged wildlife habitat, as well as increased nutrient loads causing algae blooms and deoxygenation. In short, the introduction of colonial land management and governance systems has transformed the relationship between humans and wetlands from a mutually beneficial to a dysfunctional one. This thesis examines the transformation described above by looking at the influence of historical and individual decision contexts experienced by Ojibway and non-Indigenous land users today in the Swan Lake region. In this thesis, wetlands become a prism refracting a much bigger context, one where dysfunctional relationships between humans and wetlands are part of a polycrisis affecting all earth systems. A gatekeeper sampling method and semi-structured interviews with six Ojibway participants from Swan Lake First Nation, Gaubiskiiigamaug, and six non-Indigenous farmers from the surrounding region were used. Data were analyzed using thematic and grounded approaches. Results emerge in five themes: 1) Historical contexts shaping today's wetland-related decision-making, including colonization and changes in the agricultural industry; 2) Tensions between Ojibway and non-Indigenous worldviews related to wetlands; 3) The influence of individual decision contexts including differences in land use on wetland-related decision-making; 4) Land user perspectives on the future of human-wetland relationships; and 5) The dynamic nature of human-wetland relationships in shaping the landscape itself. This thesis

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concludes that enduring solutions to today's wetland crisis can only occur at pace with healing relationships between people and land.

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Dedication

I dedicate this thesis in memory of my mom, Lori Anne Fehr, who passed away on June 10, 2024. I know you wanted to attend my thesis defence. I miss you but will always be grateful that you had the honour of being the first to read an almost complete final draft of my thesis. I appreciate your motherly feedback from that reading: “It’s engaging and easy to read!”

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Chapter 1: Introductions and Background

I want to begin by briefly introducing myself and how I began this project. I live in the City of Morden, Manitoba, about an hour's drive from Swan Lake. My family comes from a Canadian- and Mexican-Mennonite background and this cultural heritage has influenced me by giving me an interest in land-based living through practices such as gardening as well as an interest in asking what it means to begin to belong to a place after many generations of migration and repeated uprooting from place. I have also benefited from settler privilege, having my identity and interests represented in broader Canadian society. I entered university at age twenty-one after several restless years, wanting to know more about what shapes human relationships with land.

In 2016, I worked for the Pembina Valley Watershed District (PVWD) as a student working on an undergraduate degree in environmental studies. In this role, I became aware of the many challenges facing wetland habitats as well as the importance of wetlands in the land and water systems in the Pembina Valley region. I also became aware of work being done by farmers, the community of Gaubiskiigamaug, also known as Swan Lake First Nation (SLFN), as well as by non-profits like PVWD and others towards protecting, enhancing, restoring, and otherwise addressing the wetland crisis. In 2017, I began working for Agriculture and Agri-Food Canada (AAFC), also as an undergraduate student. At AAFC, I worked in a lab at the Morden Research and Development Center assisting scientists studying the role of wetlands in cycling nutrients, particularly the agricultural fertilizers phosphorous and nitrogen, in cold climates. I also assisted in research on the dynamics and benefits of wetland restoration and water retention in the Pembina Valley region. Through these experiences, I had the opportunity to join the Agricultural Living Laboratories program in 2019 as a graduate student, a program now known as Agriculture

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Climate Solutions (Government of Canada, 2024, August 2). This interdisciplinary program, initiated by AAFC, brought together many different scientists, economists, farmers, and First Nations representatives to co-develop solutions to agricultural environmental impacts, including the loss of wetlands. Through this program, I gained insight into the sheer complexity and interconnected nature of the many environmental challenges facing wetlands as well as modern agricultural production as an industry. I was also introduced to many of the diverse perspectives on these issues including from Western and Indigenous backgrounds.

Through these experiences and relationships, I became interested in the human dimension of today's wetland crisis, especially in developing solutions. I was particularly interested in better understanding how people view wetlands and their relationship with land in general. I wanted to understand better how worldviews influence how people make decisions impacting wetlands and what shapes our worldviews regarding land and wetlands. Through my connections at Gaubiskiigamaug and AAFC's Living Labs network, I selected the Swan Lake region to focus my work, an area further described in the next section.

I was initially interested in comparing Ojibway and non-Indigenous perspectives on this issue within the region. After initial plans involving a mixed-methods approach were changed by restrictions during the COVID-19 pandemic, I switched to a qualitative, interview-based study allowing remote interviews. I spent most of 2020 making plans, filing paperwork for multiple approval processes, being denied or having events cancelled, and then hitting the drawing board again. The many COVID precautions in place disallowed all fieldwork and lab work. During this isolating time, podcasts and books became an important avenue of connection with the intellectual world outside my home office. I became inspired by Robin Wall Kimmerer, who discusses the weaving of Western and Indigenous knowledge systems in her book, "Braiding

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Sweet Grass” (2013), in addition to Simpson’s “Land as Pedagogy” (2017). “Are We Seeing Pimatisiwin or Creating Pomewin?” by LaBoucane-Benson, Gibson, Benson, and Miller (2012); and “Sand Talk” by Yunkaporta (2020). These works helped me better understand structural differences between Indigenous and non-Indigenous knowledge systems. Also informative, I read “What is Water” by Linton (2010), “The Patterning Instinct” (Lent, 2017), and “The Web of Meaning” (Lent, 2021), which provide a cognitive history of the modern worldview, presenting many of the influences and impacts on thought structures informing modern economic and governance systems including the processes of industrialization and colonization – and detail how these have shaped relationships between the dominant culture and land. Linton and Lent also introduced contrasting ontologies emerging in Western thought, such as systems thinking and complexity theory. I followed these ideas by reading “The Systems View of Life” by Capra and Luisi (2014) and “The Ecosystem Approach” by Waltner-Toews, Kay, and Lister (2008). Through these influences, I began to “get” Western knowledge systems and better understand how they differ from place-based, systems-focused knowledge systems like many Indigenous ways of knowing. Importantly, these works helped me to “see” the ontological (worldview or cognitive) waters I swim in and begin to understand how these affect the way I view and understand wetlands issues.

Most significantly towards expanding and shifting my worldview, Elder David Scott, a traditional Ojibway knowledge expert and historian at Gaubiskiigamaug, spent many hours with me on his front porch or walking on the land near Swan Lake as pandemic restrictions allowed. During these conversations, he shared insight into the Ojibway worldview in his community. He also shared from the Oral History of his people about the lands and waters in the Swan Lake region. In 2021-2024, I participated in the Swan Lake Youth Environmental Stewardship learning

program spearheaded by Scott. During this program, I learned about traditional Ojibway environmental knowledge and stewardship practices from Scott, alongside other Ojibway and non-Indigenous participants. Through this relational and land-based approach to learning, I became familiar with different places connected to the Swan Lake water systems, including Swan Lake itself, Grassy Lake, and Indian Springs. These places' stories and Oral History helped me write this thesis by introducing me to the Ojibway worldview and relationships with wetlands.

During this learning process, I began to understand how our worldviews are foundational to differences in how people relate to wetlands. In other words, we are not only making different decisions while sharing the same perception of the world. Instead, our different ways of perceiving the world, and our place in it, inform different decision-making. Furthermore, especially when comparing decisions made by the Gaubiskiigamaug community and non-Indigenous farmers from the surrounding area, understanding their significantly different decision contexts is essential as these are defined through the process of colonization, which has shaped Ojibway and non-Indigenous relationships with land in entirely different historical, political, legal, and economic contexts. Further, differences in decision contexts did not only exist between the Gaubiskiigamaug community and their non-Indigenous neighbours, as I had first assumed. Over time, I became aware of distinct views and opinions within these communities as well. These observations led me to the conclusion that we inhabit different worlds because our lived experiences, community roles, personal goals and responsibilities, worldviews, and even the legal and economic contexts we experience are different. These all influence how we see the world, make decisions differently, and uniquely relate to wetlands among other aspects of land.

Through noticing these distinctions between worldviews and decision contexts, I realized that comparing Ojibway and non-Indigenous views, as I had planned to do with my interviews,

without detailing the worldview's ontological structures (the narrative and philosophical structures that co-create collective worldviews), knowledge systems, and decision contexts that make distinctions between, as well as within, Ojibway and non-Indigenous communities would erase much of the critical nuance and complexity of human-wetland relationships in the Swan Lake region. I also learned from Scott that in traditional Ojibway knowledge structures, knowledge is centred around relationships and context. For example, Scott described how Western scientists often discuss the modern wetland crisis in a generalized, reductionist way, reducing issues to a narrow range of variables, such as the economic valuation of phosphorous reduction. Contrastingly, from the traditional Ojibway perspective in his community, the wetland crisis is understood in a place-specific and relational way, using the context of known wetlands such as Indian Springs and others where people from the community have a long history of harvesting specific plants or have some other mutually beneficial relationship with animals that live there such as beavers or turtles to illustrate bigger narratives and interconnections. From this perspective, issues affecting wetlands are interrelated with plants, animals, people, and the health of wetlands themselves. From a traditional Ojibway perspective, the wetland crisis is part of much larger systemic issues, such as the industrialization of human-land relationships taking place globally.

Therefore, to adequately represent Ojibway perspectives in this research this thesis is context heavy. I begin by providing a relationship-centred view, introducing place and people in the Swan Lake region. It is a place to begin understanding how people in the Swan Lake region relate to wetlands differently depending on their worldviews and the different lived contexts they make decisions within.

Introducing the Swan Lake Region

The Swan Lake region is centred around Swan Lake, a reservoir lake that is part of the Pembina River system. It is one of three lakes known as the “tri-lakes,” a triad also including the Pelican and Rock Lakes. Other smaller lakes are part of this system, such as Grassy Lake, located a short way downstream from Swan Lake and which is a culturally significant place for the Ojibway community at Gaubiskiigamaug. Wetlands are an essential part of maintaining the health of these lakes. They filter out nutrients and sediments as well as regulate the flows of ground and surface water, minimizing flooding, reducing erosion and sedimentation, and storing water to mitigate the effects of drought (Lillo, Matteau, Kokulan & Benalcazar, 2019; Ross & McKenna, 2022).

However, Swan Lake and other lakes interconnected with the Pembina River system currently face increasing adverse effects due to the drainage, damage, and contamination of wetlands in their watersheds. In this way, wetlands are showing themselves as cornerstones to the health of water systems in the Swan Lake region. Cumulative drainage impacts in the region include an accumulation of sedimentation in lakes, lowering lake depth, and damaged fish and turtle habitat, as well as an accumulation of nutrients such as phosphorous and nitrogen above historical balances, causing harmful algae blooms and deoxygenation with adverse effects to fish, amphibian, waterfowl and other animal populations (Pellissier, Oliver & Lowdon, 2014; Scott, personal communication). These impacts also negatively affect human communities such as Gaubiskiigamaug who have traditionally used the lake for fishing, hunting, harvesting, recreation, and land-based education activities, as well as non-Indigenous communities who depend on the Pembina water systems for recreation, drinking water, and more.

The landscape in the Swan Lake region is relatively flat with rolling hills, primarily comprised of agricultural lands interspersed with small remnants of habitats representing the Aspen Parkland and Southwest Manitoba Uplands ecoregions of Manitoba (Smith et al., 1998). A significant slope from the uplands to the Pembina River defines the region's watershed. This, along with large ravines and the erosion-prone nature of the topography are also important features (Pembina River Watershed Planning Authority [PRWPA], 2011). In turn, the Pembina River watershed is part of the much larger Lake Winnipeg Watershed, which includes land in Alberta, Saskatchewan, Manitoba, and parts of the U.S.. And it shares much with other regions across the Canadian prairies in terms of agricultural land use and impacts (Bunting et al., 2016).

Although lands in the Great Plains, including the Canadian prairies and the Swan Lake region, are considered of the most productive farmlands in the world, they are also some of the most altered landscapes (Thiessen Martens, 2022). Since the beginning of colonial settlement in the 1880s and the introduction of industrial agriculture, the construction of roads, cropped fields, and drainage ditches have significantly altered the way this landscape functions, including inflows of water and movements of various species across the landscape, perpetuating the exploitation of land and marginalization of Indigenous people (Baijius & Patrick, 2019; Bunting et al., 2016).

The human population in the Swan Lake region is made up of on-reserve members of SLFN 7, the Town of Swan Lake, Valley View and Windy Bay Hutterite Colonies, as well as numerous farming households (Swan Lake First Nation, 2024; Municipality of Lorne, 2024). At Gaubiskiigamaug, lands are governed by the Nation's Chief and Council under federal provisions within the Indian Act. At the same time, Gaubiskiigamaug's Lands Department carries out management under the authority of the Chief and Council under the guidelines of the Framework

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Agreement on First Nation Land Management Act (2022), formerly the First Nations Land Management Act (1999) (Scott, personal communication). Traditional governance structures were suppressed during the early years of the Indian Act (1985), as explained further in the first part of the thesis discussion (Scott, personal communication). However, some in the community, primarily Elders and traditional leaders, maintain traditional land use and governance knowledge and have some influence on decisions made about wetlands in addition to the Chief and Council elected under colonial processes (Daniels & Esquash, 2021). Most land in the Swan Lake region is privately owned outside reserve lands. Decisions affecting wetlands on these privately owned lands are primarily made by non-Indigenous land users (mostly agricultural producers) within the Rural Municipalities of Lorne, Argyle, and Pembina, as well as within the provincial jurisdiction of Manitoba beginning with The Manitoba Natural Resources Transfer Act (1988) which transferred jurisdiction over lands from the federal to the Manitoba provincial government (Stunden Bower, 2011). Historic drainage on these lands has been carried out by private landowners, municipalities, and the provincial government (Stunden Bower, 2011).

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In the late 1800s, a representative of the Canadian government, Henry Youle Hind, described the lands around Swan Lake as made up of “marshes and bogs, separated by low ridges” (cited by Stunden Bower, 2011, p 19). Before drainage, you would not have been able to live on the wet prairie without being immersed by wetlands. For the Ojibway, travelling here required familiarity with the landscape and its wetlands (Scott, personal communication). Knowledge of how to navigate around specific wetlands and the behaviour of water on the land during different seasons and climatic cycles was essential. Moreover, pre-settlement wetlands were highly valued by the Ojibway, early traders, and other new arrivals alike. Wetlands were

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abundant with edible and medicinal plants, waterfowl, and other wildlife. They were also the primary water source on the plains, which were nearly devoid of lakes and where many smaller waterways dried up seasonally (Stunden Bower, 2011). For these reasons, wetlands were valuable water sources before piped-in water was a reality. They were also valuable hay lands and provided land-based foods. Occupying lands that would today be considered “poor” or “undeveloped” land due to being “undrained” was sometimes the only feasible option for survival purposes (Stunden Bower, 2011).

Government employees like Hind were surveying these lands to make way for settlement, which was necessary for colonial land claims. Settlement was used to consolidate Canada’s claim to the territory, which had previously been granted by royal charter to the Hudson’s Bay Company (HBC) but on shaky legal ground before sale to the Canadian government (Leonard et al., 2023; Pasternack et al., 2021). Canada was motivated to settle and develop these former HBC regions quickly to solidify their claims to the land in the face of American expansionism as well as Métis constitutional and military claims of sovereignty over these lands. However, early Canadian strategies to administrate settler colonization in Manitoba were “in conflict with the region’s environmental realities” (Stunden Bower, 2011, p. 2). There was a quick slowdown after a flood of settlers in the late 1800s. Some settlers were even forced to leave due to unsurmountable environmental difficulties, most significantly the wet nature of the land and unpredictable moisture levels, which made cropping and homesteading a challenge. Due to this turn of events, the province was motivated to prioritize drainage to recover and attract additional settlement.

The province’s land drainage goals were in line with the imperialist and industrial capitalist worldviews dominant in the Western mindset of the day, where development and

progress were the priority regardless of the environmental impact or costs to Indigenous Peoples whose lands were being colonized (Carter, 2019; Linton, 2014; Paradies, 2020; Tsatsaros, Wellman, Bohnet, Brodie & Valentine, 2018). However, the land governance, private land ownership system, and early infrastructure the Canadian government put in place reflected a lack of awareness and familiarity with the landscape. It resulted in maladaptive drainage infrastructure and practices that presented challenges to the colonial systems themselves that persist into the present day (Stunden Bower, 2011). For example, grid roads and square land ownership tracts necessitated grid drainage. This rigid geometry did not work well with a dynamic, fluctuating landscape (Stunden Bower, 2011). Here, waters moved and changed along with seasonal and climactic cycles of dry and wet periods and through complex interactions between waters below and above ground. Private land tracts were located within an administrative grid laid over this complex and constantly changing landscape of interconnected wetland, forest, and grassland ecosystems (Scott, personal communication; Stunden Bower, 2011). Whatever tract of land each settler received was the location they had to make a living on – and they were required to convert much of their land to drained and cultivated fields to keep their land claim. Private land ownership structures further complicated the drainage of wet land by requiring homesteaders to convert natural lands for cultivation as part of the land allocation process. Moreover, they had to do so quickly because of the government's goals to rapidly settle and develop the prairie to protect its territorial claims (Stunden Bower, 2011). This time pressure left little room to familiarize with landscape dynamics before modifying it.

Selecting an optimal site in the grid was difficult on a dynamic prairie, with wet and dry cycles occurring over years and decades, as well as wet springs and dry summers (or the opposite). Many settlers found themselves in a situation where drainage was a matter of survival

or, at the very least, essential to maintaining their ownership of land (Hambley, 1950; Stunden Bower, 2011). At the same time, many settlers were drawn to wet land due to the benefits of wetlands as a water and food source for both themselves and their livestock (The Mariapolis Centennial History Book Committee, 1991). Thus, government-planned settlement created a conflict in motivations – motivating settlers to both seek out and drain wetter lands (Stunden Bower, 2011). In turn, small-scale drainage works, while an act of survival to retain lands granted by the government in an unfamiliar and dynamic landscape, created unintended consequences in the long term within the confines of private properties as well as downstream effects to others.

Indigenous people's experience of the settlement period differed greatly from that of settlers. The Ojibway of Gaubiskiigamaug arrived in the region after creating an alliance with Plains Cree, who previously occupied the area (Scott, personal communication). Arriving in the mid-1800s, the Ojibway were already familiar with living in wetland habitats, having moved from the areas now known as Northern Ontario and Minnesota, which are primarily made up of wetland complexes alongside lakes and forests. As recognized by colonial legal structures of the time, Indigenous Nations, including the Ojibway, held what was recognized as land title to most lands claimed by Canada and the province of Manitoba in 1870 (Centre for First Nations Governance, 2024). The Ojibway enacted their inherent rights and responsibility for the land through the use and management of the land in alliance with other Indigenous Nations such as the Cree, Dakota, Assiniboine, and the Métis (Scott, personal communication). An essential part of enacting inherent responsibilities for the Swan Lake region included management of wetlands, such as the areas known in English as Indian Springs near Swan Lake and Indian gardens near the Assiniboine River, which were important sources of water, food, and resources (Scott, personal communication). Traditional Ojibway management activities at Indian Springs and other

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wetlands in the area included controlled burns, transplanting, population control of beaver and muskrat, as well as monitoring water levels and ice conditions during winters, which informed spring activities to manage water flow (Scott, personal communication).

However, this traditional relationship between the Ojibway and wetlands in the Swan Lake region was drastically changed after the historic Treaty 1 agreement between five First Nations and the Canadian government in 1871 (Treaty 1). At the time, the treaty process was intended by the First Nations to establish reciprocal relations with the Canadian government during a time when their Nations were in a vulnerable state due to the already beginning process of degradation to their lands. For example, they faced the near extinction of plains bison which were an essential food source, as well as significant population loss due to the introduction of foreign diseases (Carter, 2019; Scott, personal communication). Unfortunately, the Canadian government's goal was to use Treaty 1 (1871) to establish absolute control over lands in the Red River and Pembina watersheds by the British Crown through the Canadian government, and true reciprocity did not fit their agenda.

The Crown saw Indigenous Nations such as the Ojibway as a continued threat to the absolute control over the land that the Crown desired. The threat existed in the form of Ojibway and other Indigenous knowledge traditions, governance, political, legal, and economic systems that were incompatible with establishing colonial systems of exploitation. Therefore, treaties were followed by the Indian Act, reserve systems, pass and permit systems, as well as the residential school program, all designed to segregate Indigenous people from settler populations and economies as well as to eliminate First Nation identities and cultures (Carter, 2019; Hanrahan, 2017). Elimination of Indigenous identities such as Ojibway was sought through the so-called civilization project of assimilation, enfranchisement, integration, and detribalization

(Scott, personal communication). These strategies were intended to terminate the rights and status of Indigenous Peoples as belonging to sovereign Nations with inherent rights separate from a paternalistic relationship with the Nation of Canada (Scott, personal communication). These measures also worked to remove First Nations such as the Ojibway from having agency over their traditional territories, breaking connections between land and people and effectively discontinuing traditional Ojibway land management practices (Scott, personal communication).

With the establishment of colonial governments, control of water and wetlands became based on ownership of land and capital within Canadian colonial systems, moderated by societal and political power and privilege held by settlers (Carter, 2019). Indigenous people, as Nations and individuals, were shut out of the new colonial economy and governance systems and, thus, from access to social and political power and, therefore, over control of land or water (Carter, 2019; Scott, personal communication). Even on lands reserved for Indigenous Nations through treaties, control over the land and even over daily activities and lifeways were taken away. Government representatives known as Indian agents were sent to each reserve to make these decisions on behalf of the community. At Gaubiskiigamaug, Indian agents had absolute control over decisions about land and often abused their power for personal gain (Scott, personal communication). Although Chiefs and Councils were put in place to represent community members in decision-making, if those in these positions went against the wishes of the Indian agent, they were removed. This meant that Gaubiskiigamaug community members had no say in the decision to convert much of their reserve land for cultivation. This process included the removal of wetlands and other natural habitats with cultural significance for the community.

As colonial settlement could never have happened were it not for drainage, it was said to serve the public interest (Stunden Bower, 2011). However, lands in the Swan Lake region, as

elsewhere, could never have been drained without the forced removal of First Nations from the land, nor without their inability to participate or be equitably represented in governance and management of their traditional lands, nor without Indigenous Peoples not being considered amongst “the public,” in whose interests these decisions were being made (Carter, 2019). In fact, at the time, Indigenous Peoples were not considered human under Canadian law. As defined under the 1876 Indian Act, a “person” was defined as anyone other than an Indian: a definition that was only changed after 1951 (Scott, personal communication). In this way, the understanding of “public interest” precluded the interests of First Nations such as Gaubiskiigamaug, reflecting the broader policies and measures to remove them from the colonial public and colonized lands.

Significantly to this thesis, many of the foundational decisions made about wetlands throughout Manitoba’s history have intentionally and systematically excluded participation and input from Indigenous communities such as Gaubiskiigamaug, pointing to one of the most significant differences in decision contexts when it comes to comparing Ojibway and non-Indigenous decisions about wetlands in the Swan Lake region. Where non-Indigenous land users have had land rights entitling them to decision-making authority over privately owned lands throughout the process of settlement and have also been represented within the province and municipalities through voting processes in the jurisdictions within which they are located; the community of Gaubiskiigamaug has not. First Nations in Canada have been excluded from the rights provided by land title (reserve lands are held in trust by the Crown) and from municipal representation (First Nation lands are under Federal jurisdiction and are precluded from municipal involvement) (Scott, personal communication). In addition, First Nations and their lands have been jurisdictionally separated from provincial-level land governance after the natural

resources transfer agreements signed between Western prairie provinces and the federal government of Canada in 1930 (Matsui, 2012).

Whereas First Nations have treaty agreements with the Federal government, provincial and municipal governments are not likewise obligated. This devolution process has resulted in broken treaty promises, including promised access to undeveloped Crown and private lands for traditional uses and land stewardship activities. And it has left First Nations largely unrepresented in decisions made for much of their traditional territories (Scott, personal communication).

Today, some of these historic imbalances are shifting. For example, through the Framework Agreement on First Nation Land Management Act (2022), individual First Nations now have powers to manage and govern reserve lands using their own land codes within certain limits set by the Canadian government (Scott, personal communication; Jung, 2019).

Additionally, in Manitoba, First Nations can now participate in municipal-scale watershed stewardship activities through The Watershed Districts Act (2022) for the first time in the province's history (Greenfield, personal communication; Scott, personal communication).

Gaubiskiigamaug has been one of the first to formally partner with the Pembina Valley, Redboine, and Assiniboine Watershed Districts, creating opportunity to partner with their neighbours at a local governance level (Scott, personal communication). Although much work remains to be done to see the impacts of these changes on the landscape, possibilities are emerging for more balanced relationships between Indigenous and non-Indigenous communities, including in land governance and the ability to shape human-wetland relationships.

As for wetlands themselves, changed economic and governance structures on the prairies have caused changes in the ways people relate to them by introducing different incentives in decision-making. Since the introduction of industrial agriculture, many wetland areas in the Swan

Lake region have been drained drastically, changing the behaviour of water systems as well as water quality in the Swan Lake region and beyond (Baulch et al., 2021; Hayashi, van der Kamp & Rosenberry, 2016). As across the Canadian prairies, agricultural development has been a primary driver of landscape transformation in the Swan Lake region, including changes to wetlands beginning in the late 1800s (Rashford, Bastian & Cole, 2011; Stunden Bower, 2011). At the global scale, wetland impacts in the Swan Lake region are rooted in colonial and global economic processes (Tsatsaros et al., 2018). However, the unique arid landscape in the Swan Lake region, prone to both flood and drought combined with freeze-thaw cycles of its northern climate, has created unique outcomes, especially around nutrient-related pollution of waterways (Baulch et al., 2021; DeBeer et al., 2021).

Wetlands have been drained through ditching, infilling, and consolidating smaller natural wetlands into larger, constructed reservoirs and by installing drainage tile which diverts sub-surface water. Through these processes, it is estimated that only about 30 – 60% of prairie wetlands remain, depending on the region, and these continue to be in a state of decline and loss (Baulch et al., 2021). All this drainage has degraded water quality and increased human and ecosystem vulnerability to flood and drought, among other impacts.

Swan Lake itself tells the story of wetland drainage and landscape changes. Swan Lake is considered a priority management site in the Pembina River Integrated Watershed Management Plan (IWMP) as nutrient loading and sediment accumulation are causing algal blooms while infilling in the lake, lowered lake levels, fish die-off, and damage to fish and turtle habitat has reduced the capacity of the lake for traditional land use or recreation (PRWPA, 2011). For example, in a 2014 bathymetric study, Swan Lake was noted to have large algal blooms during late summer, which are known to lead to decreased dissolved oxygen, contributing to winter fish

kill. Impacts on fish, waterfowl, amphibians and wildlife have also been noted by traditional land users and others at Gaubiskiigamaug over the past several decades, as mentioned by all Ojibway participants (P03, Daniels, Cameron, Esquash, McKinney & Scott, personal communication). Additional studies on phosphorous loading in the Lake Winnipeg watershed, which includes the Pembina River and Swan Lake, connect increasing nutrient levels far above historical recordings to the accumulation of agricultural inputs in waterbodies and waterways over time (Bunting et al., 2016; Koehler, Brua & Enders, 2021). These highlight that agriculture is currently a more significant threat to lands in the Lake Winnipeg watershed than climate change (Bunting et al., 2016)

For this reason, recommendations for improving water quality in the Swan Lake region and Pembina watershed as across the Canadian prairies include watershed-scale measures such as wetland conservation and restoration because wetlands are an essential part of capturing and reducing nutrients and other agricultural inputs within water systems (Kelly, Belcher & Khakbazan, 2018; Lake Winnipeg Stewardship Board, 2006; Lillo et al., 2019; Pellissier et al., 2014). However, it remains that water quality in major water bodies across the Canadian Prairies, such as Lake Winnipeg and Swan Lake, continues to decline with increased nutrient loading and other impacts, indicating that more work is needed to reverse these trends (Baulch et al., 2021; Environment Canada & Manitoba Water Stewardship, 2011; Koehler et al., 2021).

Gaubiskiigamaug has been a leader in expressing concern over the water quality in Swan Lake (Scott, personal communication). Towards this end, Gaubiskiigamaug has invited a group of stakeholders, including several watershed districts, AAFC, several non-profit organizations as well as university researchers to collaboratively work to address water quality and nutrient-related issues present in Swan Lake watersheds, leading to the formation of the SLFN Watershed

Stewardship Forum (SLFNWSF) (Vanrobaeys, personal communication; Scott, personal communication). In addition, the AAFC Agriculture Climate Solutions program has targeted the Swan Lake region as one of its first active sites, centring collaboration with Gaubiskiigamaug on guiding the development of its programs and activities in the area (Government of Canada, 2024, August 2; Vanrobaeys, personal communication). These collaborative efforts present an opportunity for this research to contribute to an improved understanding of the complex nature of human-wetland relationships and promote the restoration and protection of wetlands, combining Ojibway and non-Indigenous perspectives using a relational and community-centred framework in the Swan Lake region.

Background on Ojibway and non-Indigenous Perspectives on Wetlands

Perspectives on wetlands or how we see or interpret the meaning of wetlands, whether Indigenous or Western, are shaped by our worldviews. Furthermore, worldviews influence wetlands by shaping how we perceive, relate to, and treat them (Blackstock, 2001; LaBoucane-Benson et al., 2012; Linton, 2014; Yates, Harris & Wilson, 2017). Before comparing Ojibway and non-Indigenous perspectives from the Swan Lake region, I will briefly describe what I mean by “worldview” as a key concept.

Worldviews can be understood as philosophies of existence or interpretations of being and reality that translate observations and experiences into meaning (Boelens, Hommes & Hoogesteger, 2024; King & Hicks, 2021; Koltko-Rivera, 2004; Lent, 2021). In more detail, the term “worldview” can describe how what one knows about reality is patterned into meaning in one’s mind, translating into one’s perception of self in relation to a larger perceived reality, ultimately expressed as values and behaviour. Yates et al. (2017) propose that different ways of conceptualizing water, and human relationships with water, create different “water worlds” (p.

800). Linton (2010, 2014 & 2022) describes different conceptualizations of water as constituting different hydrosocial relationships. While Boelens, Hoogesteger, Swyngedouw, Vos, and Wester (2016) describe these as hydrosocial territories made up of the “people, institutions, water flows, hydraulic technology and the biophysical environment that revolve around the control of water” (p. 1). Significantly, I take the position that no worldview is more “real” than another as all are grounded in our interactions with reality (Battiste & Henderson, 2000). A worldview reflects, rather, the relationship between the perceiver and the perceived. Moreover, it says something about the interrelationalities (among humans and the more-than-human) that create our collective identities.

Yates et al. (2017) and Boelens et al. (2016 & 2024) also point out that water worlds created by distinct hydrosocial relations intersect in political space, advocating for a political ontological approach to examining modern water issues. Linton (2010, 2014 & 2022) argues for a political ecological approach to water studies arguing that water issues, such as the modern wetland crisis, are inherently political. In Linton’s analysis, without their human dimensions, problems like water shortages, drinking water contamination, or flooding impacts become non-issues. In this view, modern water issues are, at their root, problems in how humans and water systems interact. From these perspectives, worldviews are inherently relational as they are enacted processes that directly impact how we interact with the world around us, including its lands and waters, guiding how we relate to everything around us, including ecosystems such as wetlands (Kaplan, 2011; Simpson, 2017; Wilson & Inkster, 2018; Wiseman, 2021). Following that, understanding worldviews is critical to understanding human-wetland relationships.

Linton (2010) argues that we are facing a “hegemonic crisis” when it comes to modern water issues such as today’s wetland crisis (p. 11). By this, Linton refers to the global dominance

of the Western worldview in governing Earth's waters, overshadowing local and Indigenous systems of governance with a worldview that decontextualizes waters from their "social, historical, and local" contexts (Linton, 2014, p. 111). According to Linton (2010), modern water is an abstraction of "water as a fixed thing" (p. 4). He describes modern water as a conceptualization of water as quantifiable and placeless, separate from its social and ecological relations and social responsibility. It is water represented by a hydrological cycle rather than a hydro-social-ecological cycle. Instead, Linton sees water, including waterbodies such as wetlands, as processes, not things. In this view, wetlands are multi-dimensional, having ecological, cultural, and political among other dimensions, in this way creating a plurality of hydrosocial territories. Reed et al (2024) also comment on tendency of western systems to base decisions on theory and abstract rather than being aware of and responsive to living systems. Following this, the modern wetland crisis needs to be seen in its political and social circumstances using approaches such as political ecology and Indigenous frameworks that provide space for multiple ways of conceptualizing and being with waters.

In recent years, the modern decontextualization of water in research and governance has become recognized as problematic. As noted in a Nature Sustainability editorial (2021), "Water studies research has become...stagnant", and "as water studies has become more quantified and technically driven, it has also become less grounded." The editorial suggests that future water research looks beyond "engineering solutions" and re-engages with "the messy institutions, norms, and processes that underlie our relationship, as individuals and as a society, with water in the first place" (Nature Sustainability, 2021, p. 659). Doing so, in the context of human-wetland relationships in the Swan Lake region, is the goal of this thesis.

As this paper shares Indigenous and non-Indigenous land users' perspectives, this final introductory section provides a foundation for a cross-cultural comparison and, followingly, a comparison of worldviews. Importantly, when comparing Ojibway and non-Indigenous worldviews, the comparison will inherently be equivocal, having more than one possible interpretation or description, as detailed by Gould, Pai, Muraca, and Chan (2019). The non-equivalent nature of Indigenous and non-Indigenous worldviews allows each to be used as a lens to examine the other and, doing so, produce descriptions that are not categorically comparable (Battiste & Henderson, 2000; Gould et al., 2019). Further, power dynamics and the contextual relationships of Ojibway and non-Indigenous worldviews within political, colonial, and economic structures must be considered as these influence the expression of worldviews, typically suppressing if not entirely excluding, Ojibway worldviews from systems of land valuation, management, and governance (Arsenault, Diver, McGregor, Witham & Bourassa, 2018; Johnston, 2003; Wilson & Inkster, 2018; Yates et al., 2017). Thus, the framework to compare them must allow for a plurality of worldviews but also show the influence of more prominent contextual factors, such as colonial power dynamics and history, in its comparison.

For further details on the frameworks used to facilitate such a comparison in this thesis, refer to Chapter Two, Methodology: Frameworks. Meanwhile, the remainder of this section outlines different understandings of wetlands from both the Ojibway Indigenous and Western perspectives. I begin by providing foundational details to understand these worldviews. I then illustrate these different ways of relating to wetlands in the Swan Lake region over time.

Ojibway Perspective

This section relies on knowledge shared with me by Elder, historian, and Traditional Environmental Knowledge expert David Scott at Gaubiskiigamaug (personal communication,

2019-2024). Before sharing an overview of Ojibway perspectives on wetlands in the Swan Lake region, I want to briefly describe why I use the identifier “Ojibway” rather than the more generalized term “Indigenous.” I chose to refer to the traditional Ojibway knowledge shared by Scott and the perspectives of other Ojibway members of the Gaubiskiigamaug community as Ojibway rather than “Indigenous.” According to Scott, using the term “Indigenous” to describe specific Indigenous Nations, communities, or knowledge traditions is colonization in action. By painting the diversity of identities, knowledge systems, and cultures with an aggregate term, specific Indigenous identities are erased, making them ready to be absorbed and assimilated into colonial knowledge systems (Scott, personal communication).

Further, according to Stewart (2018), “the key difference between Indigenous and Western knowledges is at the level of philosophy” (p. 742). In contrast to the Western knowledge system, Indigenous knowledge results from living philosophies, inseparable from the place-based ethnic groups from which they emerge through cultural practices (Simpson, 2017; Tengö et al., 2017). These practices and associated knowledge are the enactment of human-land relationships. For example, the Ojibway language is structured upon its speaker’s memories of enacting culturally established relationships with land and passing on knowledge through a culture-specific pedagogy that revolves around interactions on the land and land-based skills (Scott, personal communication; Simpson, 2017; Stewart, 2018). For these reasons, “Indigenous” can be appropriately used when generalizing or as a descriptive placeholder for cultural identities that share land-connected, context-specific characteristics and exist in a marginalized space relative to the dominant culture whose knowledge is universalized (Stewart, 2018). However, the Indigenous perspectives in this thesis are from a specific cultural group: the Ojibway at

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Gaubiskiigamaug, originally from Yellow Quill's band and of the first five signatories to Treaty 1 (1871) with the Canadian Government.

From the Ojibway worldview, the traditional worldview in the Gaubiskiigamaug community, all parts of water systems, including wetlands, are understood as interconnected and are parts of a larger system thought of as “land,” which includes the emergence from all interactions of plants, animals, water, people and so forth (Scott, personal communication). The term “land” will be used throughout this thesis to capture this sense of emergence from the interconnection of all things. Thus, actions that impact wetlands are understood in the context of their system-wide repercussions in water bodies like lakes, rivers, and streams, as well as in their impacts on ice formation and groundwater flows, among other aspects of water systems (Scott, personal communication). In addition, these impacts, in turn, are understood in the experience contexts of all beings who are affected by them. For example, water quality impacts are understood in the context of those who depend on healthy water sources, including humans and animals (Scott, personal communication). Therefore, wetlands are understood as parts of much larger systems with interconnections created by all the ways different species use wetlands, including plants and animals, and the diversity of ways humans use wetlands (Scott, personal communication). Further, the wellbeing of wetlands is tied to the wellbeing of the landscapes they are part of and the communities of people that live in those landscapes. This view differs from Western perspectives that typically assess wellbeing, whether of land or of people, as separate (Tsuji et al., 2023).

In traditional Ojibway knowledge systems, including approaches to land-based education and Oral History, wetlands are visualized as connecting with water systems in a network like a spider's web that weaves together waters above, below, and on the land (Scott, personal

communication). For example, wetlands are understood to connect to aquifers through underground water channels, connecting further to ice cracking in the winter and patterns of rainfall in the summer, then affecting the wellbeing of everything from fish, amphibians, waterfowl, and human communities interacting with all parts of this system (Scott, personal communication). In this way, wetlands are understood in specific, regional contexts and seen as interconnected within real-world networks of relationships, including ecological and social ones (Scott, personal communication). Therefore, to understand the function and value of wetlands, one must also understand the water systems they are interconnected with and their networks of kinship and relationality in contexts both past and present.

These frameworks within traditional Ojibway worldviews and knowledge systems shape traditional Ojibway land management systems. Frequent observations from many locations across a territory are essential to nurture an ongoing awareness of the health or condition of land-water systems that comprise a region or part of a traditional territory (Scott, personal communication). An accumulation of these observations then informs land use and land stewardship decisions, such as where and when to hunt or harvest or where to use practices such as transplanting or controlled burns (Scott, personal communication). When it comes to wetlands, as mentioned, they are considered to have other ecological and social dimensions, which are also considered when making decisions affecting specific wetlands (Scott, personal communication). For this reason, many of the Ojibway participants in this study discussed the values of wetlands, the modern wetland crisis, as well as community decision-making about wetlands in the context of historical, ecological, political, and cultural lenses, tying in these contexts into their views on the values and future of wetlands.

Western Perspective

As the Canadian plains were colonized, the Western or colonial worldview became dominant, enforced through campaigns of re-education and assimilation for Indigenous people as well as tactics to shape non-Indigenous views of Indigenous people to see them as “backward” and “irrelevant” alongside the land being seen as being empty, needing engineering and cultivation (Scott, personal communication; First Nations Child and Family Caring Society [FNCFCS], 2022). Here, it is important to highlight a critical difference between the traditional Ojibway worldview, which is based on many generations of culture-specific relationships with land, and the Western worldview, which has been intentionally made dominant within colonized landscapes, having been imported from elsewhere rather than arising from within colonized places themselves (FNCFCS, 2022; Paradies, 2020; Shiva, 2015). While Indigenous ways of thinking are inseparable from cultural heritage and connection to place, non-Indigenous ways of thinking, such as the colonial worldview discussed here, are instead connected with systems of power, control, and exploitation of place (Lent, 2017; Linton, 2010; Scott, personal communication; Shiva, 2015). Furthermore, Western thinking tends to universalize knowledge and seek absolute understandings of “facts” (Battiste & Henderson, 2000). In contrast, Ojibway knowledge represents localized understandings formed through experience and relationship (Scott, personal communication).

A key distinction is that the Western worldview is built on disconnection instead of connection. The disconnection of people from the land, reason from emotion, mind from body, self from community, subject from object, and so forth (Lent, 2017). Separation is a foundational element in this worldview; distinctions between objects or subjects from their contexts create a tendency to abstract knowledge (Linton, 2010). By nature of emphasizing separation, boundaries

delineating separation are key and assumed to be definite, creating dis-continuous space, hiding the entangled, continuous, and often liminal space of real landscapes and interconnected social-ecological systems (Bear, 2013; Di Baldassarre et al., 2019; Lavau, 2013). In Western science, a focus on separate objects or reductionism has led to niche specializations or expertise in specific areas of knowledge, driving advances in science and technology that have benefited modern society in many ways (Kimmerer, 2013; Lent, 2017). However, despite its many successes, the dominance of siloed type thinking has led to reductionist problem-solving and a failure to recognize and accommodate complex interconnections within larger systems, such as environmental issues that occur at large scales and involve many complex and interconnected systems (Kay, 2008; Zeff, 2011).

Arguably, the Western worldview in terms of the dominant thinking informing colonial structures and system is distinct from the “intents, values, [and] heritages of settlers” (Leonard et al., 2023, p. 396). Settlers, including the non-Indigenous agriculturalists interviewed in this research, represent a heterogeneous group with a spectrum of cultural influences and worldview orientations. This heterogeneity will be demonstrated in part two of this thesis discussion, but the main distinction between Ojibway and non-Indigenous perspectives made in this thesis is the connection the Ojibway have with a distinct worldview and culture outside Western structures, one emergent from relations with land rather than from global systems of power.

Moreover, Western thought has a long history of philosophical and ontological heterogeneity and debate (Lent, 2017). A relevant example here is the existence of emerging disciplines such as systems thinking and political ecology that challenge dominant modern narratives. And even systems of thought such as relational qualitative methodology and restorative narrative, while having strong ties to Indigenous systems of thought also sustain roots

in Western knowledge systems and are in fact finding their emergence within these systems (Kovach, 2009b). Therefore, it is important to distinguish between the dominant Western narratives that define colonial legal, governance, and economic structures and the worldview orientations, beliefs, or values of non-Indigenous people. Specifically, dominant systems of thought have outsized influence on external decision environments faced by Indigenous and non-Indigenous land users alike, both influencing thought in a process of “colonization of mind” and, at times, creating tension between the internal worlds of land users and the external worlds they make decisions within (Shiva, 2015).

Equally, it is essential to emphasize that, as shared by Scott, the modern worldview and colonial thinking have also influenced the Ojibway people. Canada’s efforts to erase Indigenous ways of thinking and being through its residential school system is a stark example (Scott, personal communication). This process is sometimes referred to as “colonization of mind” (Shiva, 2015). It refers to “information control and thought control that aims to disrupt the ‘authentic identity’ of individuals and groups, supplanting them with colonial ones” (FNCFCs, 2022, part 1, p. 1). The goal of this process is to create an aggregate Canadian society where distinctions between Indigenous and non-Indigenous are erased, as evidenced by historic legislation such as The Gradual Civilization Act (1857), the Gradual Enfranchisement Act (1869), and the white paper of 1969 (Scott, personal communication).

The European rise to global power through extractive colonial endeavours followed the scientific revolution and the accompanying worldview shift from seeing Earth as made up of living landscapes inseparable from human cultures to a worldview where humans and nature are separate and where Earth is a resource (Lent, 2017). According to Stephen Gaukroger, “the rise of science was responsible for a ‘transformation of cognitive and intellectual values,’” which led

to a distinct shift in the predominant European perspective on human-land relationships, creating the opportunity for the spread of Western thinking through colonization (quoted on p 332, Lent, 2017). This dualistic separation between humans and nature, combined with a Christian belief system, provided a sense of moral superiority for those who saw the Earth as a resource to be controlled over those who viewed it through a relational lens. From this emergent belief system, those who treated the Earth with reverence and respect were deemed as “worshipping” it, “backward” and “pagan,” and in opposition to the Christian God (Carter, 2019; Lent, 2017; Linton, 2010). These beliefs were then used to justify atrocities from genocide to slavery to witch trials – essential for the transfer of power over land from local cultures to global power structures (Lent, 2017; Federici, 2020).

Further, technological advance was seen as God’s blessing and evidence of cultural superiority that justified the violent establishment of colonial domination over local, land-based, Indigenous cultures (Lent, 2017). These ideas led to historic transformations of societies and landscapes worldwide through the expansion and conquest of colonial enterprise (Lent, 2017; Tsatsaros et al., 2018). As individuals within place-based local cultures in Europe and elsewhere became assimilated and enfranchised into dominant systems of power, they experienced a colonization of mind, assuming dominant ways of thinking as is notably represented by mass conversions to Christianity away from local pagan beliefs that tended to be Earth-centric and to hold reverence for the sacredness of the lands and waters from which they originated.

Ultimately, it can be summarized that Western thinking is a system of relations structured towards “alienation, separation, conversion of land into property and of people into targets of subjugation” (Leonard et al., 2023, p. 396). And the Western perspective, as it is represented here, is decision-making from within this system of relations.

A Clash of Worldviews

As a result of scientific and technological advances accompanied by a growing belief that all of Earth's resources were made available to Europeans to exploit by the will of God, "Europeans focused on maximizing what they could mine from the Earth" (Lent, 2017, p. 327). Meanwhile, governance systems from many traditional and Indigenous cultures around the world predominantly focus on avoiding imbalances between human and ecological systems through laws guiding respectful, reciprocal, and responsible relationships with land (LaBoucane-Benson et al., 2012; Pasternack et al., 2021; Scott, personal communication). Contrastingly, the emerging dogma within the Western worldview was that stability, whether in culture or economy, is a sign of failure to progress (Carter, 2019; Lent, 2017). Likewise, the stability offered by a healthy landscape comprising a complexity of ecosystems, including wetlands, was seen as a waste of land that could otherwise be used to produce economic goods (Carter, 2019; Hambley, 1950; Lent, 2017). In the words of Robin Wall Kimmerer, it has not been modern science itself that is destructive but the worldview through which science operates. A worldview that provides "the illusion of dominance and control" and "the separation of knowledge from responsibility" making way for exploitation (2013, p. 346).

Colonization created a clash of worldviews. Differences between perspectives on human-land relationships, like between Ojibway and Western, are a stark example. In one, land is a relation with agency and inherent rights. In the other, land is an inanimate resource to dominate and exploit. The meeting of these worldviews has been intrinsically intertwined with the story of human-wetland relationships since the introduction of industrial agriculture in the Swan Lake region. However, this clash did not occur all at once and plays out into the present day. As will be seen during the remainder of this thesis, the interviews between Ojibway and non-Indigenous

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land users in the Swan Lake region reflect the clash of worldviews described here. However, they also show many areas of common concerns and even shared visions for the future, bringing to question how we can begin speaking across the divides of different worldviews and power imbalances to walk together into a healthier future, both for ourselves and for wetlands.

Chapter 2: Research Questions and Methods

Research Questions

This thesis research centers around three primary questions:

1. *How have the historical contexts of Ojibway and non-Indigenous communities influenced how they relate to wetlands differently in the Swan Lake region?*
2. *How do individual decision contexts among Ojibway and non-Indigenous land users uniquely affect their interactions with wetlands in the Swan Lake region?*
3. *How do Ojibway and non-Indigenous land users in the Swan Lake region envision the future of human-wetland relationships?*

Methodology

Influential Frameworks

Throughout this project, various frameworks influenced my research and development as a researcher. Although using multiple theoretical frameworks in research is somewhat unconventional (Newbury, 2011), I hope to defend this approach as it allowed me the flexibility needed to accommodate the representation of diverse worldviews and examine the complexities of human-wetland relationships as integrated systems. Theoretical flexibility also allowed me to embed the examination of human-wetland relationships within larger historical, political and economic contexts and to accommodate my evolution and change of worldview as a researcher throughout my research process. Let me elaborate.

Newbury (2011) explains how theoretical consistency makes sense when defending a singular interpretation or “truth” (p.336). However, when examining complex realities involving diverse perspectives alongside relationality nuanced by politics, colonial history, diverse

government systems, and the like, multiple theories can help generate coherence from what otherwise may seem like chaos from a singular analytical standpoint. Furthermore, theoretical multiplicity can help bridge dialogue between diverse communities and frames of thought (Newbury, 2011). Midgley (2011) takes a step further and describes theoretical inconsistency (or theoretical pluralism) as not only practical but necessary in research focused on complex systems, provided theory choices are bounded by relevance to the processes and content of the research. Importantly, theoretical flexibility allowed me space to reflect on my theoretical influences and personal positions, reflexively being open to growth and change throughout the research process, as illustrated by Spiller et al. (2015) and advocated for by Kovach (2009a). Using a collection of research frameworks relevant to analyzing perspectives from an Indigenous worldview, working respectfully and reciprocally as a non-Indigenous researcher in an Ojibway community, comparing Ojibway and non-Indigenous worldviews, connecting the evolution of human-wetland relationships to historical, colonial, and economic processes, and seeing wetlands as emergent parts of complex, human-land systems, allowed my research discussion to emerge as a creative force of its own. The frameworks that influenced my work are briefly summarized here.

A Relational Qualitative Methodology

As I completed the interviews, talked to farmers, and was mentored by Scott from Gaubiskiigamaug, I realized I would need to use a research framework that could see outside of dominant thinking to examine local non-Indigenous and Ojibway perspectives. For this, I needed a research framework that could see more than a developmental or economic value of nature, focusing more on wetlands' intrinsic and relational values (Datta, 2015). A relational approach to research emerged from process philosophy and holds that all things are in interrelation and emerge through processes of mutual becoming (Datta, 2015; Kovach, 2009b; Linton, 2010).

Furthermore, reality is seen as continuously emerging from relations among things (Linton, 2010). I also wanted to be responsive to how my worldview was growing and changing during the research process. For this, I needed a framework that would allow me to be critically reflexive, examining the politics of representation and honouring the Ojibway worldview while questioning my representation of multiple worldviews throughout the development of my thesis (Kovach, 2009b). To meet these needs, I selected a relational qualitative methodology.

A qualitative methodology was the best choice for answering my research questions because it can provide insight into social phenomena by examining experiences, perspectives, and beliefs (Castleberry & Nolen, 2018). Qualitative research is descriptive and provides contextual understanding and insight into experiences and relationships (Agee, 2009). A qualitative approach was also complementary within a relational framework, as a core belief in the qualitative paradigm is that our relationship with reality is through socially constructed perception and is rooted in our interactions and experiences (Kovach, 2009b).

As Kovach notes, the qualitative research framework is best complemented by the relational approach, an Indigenous approach to research (2009a & 2009b). A relational paradigm comes with the requirement of reciprocity instead of being extractive (Kovach, 2009b). Notably, a relational framework guided how I conducted the research, from first contact with community members to disseminating results in a community-accessible format. A relational paradigm was also present in my ongoing practice of reflexivity, critically evaluating subjectivity and reciprocity within my work – both enacted and written. I introduced reciprocity into my work through employment relationships both with PVWD, where I had opportunities to interact with farmers in the Swan Lake region, as well as employment in the Gaubiskiigamaug community working in the Swan Lake Youth Environmental Stewardship program in both 2021 and 2024

where I met additional community members at Gaubiskiigamaug. I also attended community events hosted by PVWD and Gaubiskiigamaug and participated in several workshops in the region. Further, after my results are finalized, I commit to distributing an accessible summary of my research in the region and to continue participating as a neighbour into the future. In these ways, using a relational approach has influenced how I have practiced reciprocity in my work and relationships before, during, and after the thesis process.

Two-Eyed Seeing: A Framework for Including Multiple Worldviews

In this thesis, I followed the example of other research that made space for multiple worldviews in their analysis, sometimes called a multiple-ontological framework, as described by Yates et al. (2017). Mi'kmaw Elders Murdena and Albert Marshall developed “Etuaptmumk” or the two-eyed seeing framework to compare Indigenous worldviews with Western perspectives. It has been widely applied when bringing Indigenous and non-Indigenous worldviews together (Abu, Reed & Jardine, 2020; Bartlett, Marshall & Marshall, 2012; Martin, Thompson, Ballard & Linton, 2017; Reid et al., 2021). Two-eyed seeing means to “see from one eye with the strengths of Indigenous knowledges and ways of knowing, and from the other eye with the strengths of mainstream knowledges and ways of knowing, and to use both these eyes together, for the benefit of all” (Bartlett et al., 2012, p. 335). This framework involves answering research questions in a way that contextualizes the issue with Indigenous and Western knowledge, using both systems to fill in gaps and create a bigger-picture understanding. The two-eyed seeing approach addresses the issue of Western scientific knowledge frameworks being viewed as superior and used to evaluate and validate Indigenous worldviews and knowledge (Brook & McLachlan, 2005). A further benefit of the two-eyed seeing approach is its deeper exploration of interconnected human-ecological systems that involve Indigenous and non-Indigenous people, as in this study.

Political Ecology

As mentioned in Chapter One, where I compared Ojibway and Western views of wetlands, modern wetland issues exist in political space. Simply examining individual land users' motivations and worldviews will not paint a complete picture of human-wetland relationships in the Swan Lake region without looking at power dynamics and politics. A political-ecological approach looks at larger, systemic contexts behind environmental issues, such as the crisis facing the world's wetlands today (Baijius & Patrick, 2019; Johnston, 2003). Considering that power, along with the ideas, energy, materials, and narratives interconnected with power, drives the continual evolution of connected human-ecological systems, studies of ecosystems quickly become studies of politics. For example, defining an ecosystem, which may appear simple, involves political contexts for boundary definitions and power dynamics that determine who gets to say what is important or correct to highlight about the ecosystem's dynamics (Johnston, 2003; Yates et al., 2017). Ecological health is another highly political concept, and there is much context behind who gets a say in what it means and how we should achieve it (Janzen et al., 2021).

Political ecology is a research approach that takes a political look at the “ecological categories and suppositions that are often taken for granted in expert environmental discourse to reveal the social location of the interests and privileges, advantages and disadvantages they entail” (Johnston, 2003; Linton, 2010, p. 69). In contrast with conventional approaches in Western academia, which seeks to identify “the essence of the problem and point toward essential solutions,” political ecology focuses on “analysis of discourse and ideology, seeking to define new ways of collapsing the nature/society duality and presenting a coherent view of hybrid environmental problems” (Linton, 2010, pp. 69-70). Essentially, political ecology means

recontextualizing environmental issues and looking at their human dimensions in terms of history, colonization, economics, and politics, something I have aimed to achieve in this thesis.

Decolonizing Perspectives

A decolonial research framework is part “decentering and dismantling of colonial thought patterns and structures of knowing” and part “affirming First Nations ways of knowing” (FNCFCS, 2022, part 3, p 1). By decentering colonial perspectives, decolonial frameworks oppose the colonial concept of land as a resource and reframe meanings of land, nature, and sustainability as embedded with relationality and responsibility among animate beings (Wilson & Inkster, 2018). Doing so requires calling for the restoration of First Nations relationships with land and advocating for the rights of nature and, by extension, the rights of wetlands as an issue of human rights (Cherpako, 2023; Leonard et al., 2023; Wilson & Inkster, 2018).

A decolonization approach to research requires highlighting Indigenous resistance and resilience to colonization as well as colonial injustices and calling for reparations (FNCFCS, 2022). For research to be considered decolonial, it must also focus “on Indigenous-settler relationships” and “seek to interrogate the powerful social relationships that marginalize Indigenous people” (Kovach, 2009b, p. 42). A first step to interrogating colonial power imbalances is explicitly describing Western ideologies and relating these to colonial processes (Leonard et al., 2023). Another is to expose the ontological violence that has continued throughout the process of colonization through to today, including in systems of education, research, and development (Wilson & Inkster, 2018). Finally, it is important to situate oneself in the research so that one’s audience can know how your cultural or worldview background may have influenced the research (Arsenault, 2021). And it is important to look beyond deficit and

damage, to highlight Indigenous resiliency and recommendations for future action (Arsenault, 2021)

This thesis aims to re-story colonial narratives by using an “ontological pluralism” of water, “highlighting multiple water realities and ways of being with water” (Yates et al., 2017, quoted on p. 517 by Wilson & Inkster, 2018). It also provides counter-narratives to colonial perspectives of land and waters as inanimate resources whose purpose lies in meeting the needs of human systems (Harding & Ray, 2021). Counter-narratives are provided by centring Ojibway perspectives to provide narrative context for the research. In this, I have followed the lead of Indigenous academics and environmental advocates who connect environmental issues such as those impacting wetlands within the larger context of colonial systems (Harding & Ray, 2021). I have also countered colonial narratives by presenting the Ojibway worldview, frameworks, and knowledge system as self-supporting, separate from Western knowledge systems (Mora, Johnston, Watson & Bharadwaj, 2022). Moreover, by affirming Indigenous governance, “politics of kinship,” and traditional methodologies related to the care and monitoring of water systems, including wetlands, this thesis presents wetlands as agential beings related within kinship networks of responsibilities, interdependencies, and relational obligations (Wilson & Inkster, 2018).

This thesis also advocates for environmental justice that includes respecting and honouring Ojibway relations with wetlands as a “collective social responsibility,” not just related to individual rights (Leonard et al., 2023, p. 401). I advocate for decolonizing our relationships with wetlands, moving away from frameworks where wetlands are non-agential beings to be managed solely according to human purposes and where the value of land equals its ability to

produce profit. Furthermore, I have used this work to advocate for a future of life-affirming infrastructure and systems (Pasternak et al., 2021).

Restorative Narrative

The restorative narrative framework has roots in restorative narrative journalism and restorative justice, both emerging from Indigenous ways of knowing. It has recently emerged as a framework applied to environmental topics (Maher, 2020). Its importance is in the narrative's shift from a focus on deficit to resilience and sufficiency (Arsenault, 2021; Maher, 2020). While not ignoring or glossing over critical issues, using a restorative narrative means honestly outlining the issues and their historical context, then focusing on community voices, resilience, and visions for the future.

In this thesis, a restorative narrative draws all into an “us” and “we” frame in data analysis to avoid othering, which contributes to colonial oppression through creating separation and assuming dominance (Datta, 2015; Maher, 2020). I have done this by framing Ojibway and non-Indigenous perspectives as adding to the diversity of the “we” and sharing a larger context rather than solely grouping these into oppositional categories. I have done this to help promote meaningful and respectful dialogue (Maher, 2020). The restorative narrative approach also informed my thesis narrative in framing the resilience of land and wetlands in the face of dramatic landscape change in the face of harmful shifts in relationships between humans and wetlands. I also demonstrate community resilience, emphasizing shifts in thinking in response to landscape change and to wetlands themselves. Throughout my thesis, I aim to illustrate how today's dominant paradigms have caused damage and then work to envision new narratives for a better future.

Systems Thinking

An emerging framework within Western tradition for understanding and narrating complex, interrelated human and ecological systems, systems thinking emphasizes a need to bring diverse perspectives and methodologies together to understand interrelated human-natural systems that are inherently complex. As Capra and Luisi (2014) state, “systems thinking is ‘contextual,’ which is the opposite of analytical thinking. Analysis means taking something apart in order to understand it; system thinking means to put it into the context of a larger whole” (p. 66). The systems approach has helped guide synthesizing a complex collection of observations about human-wetland relationships in ways that allow these relational dynamics to be understood as parts of larger systems. In this thesis, systems thinking has guided and inspired me in contextualizing aspects of my research questions as multifaceted descriptions of human-wetland relationships. The primary references I used were Capra and Luisi (2014), Lent (2017 & 2021), and Waltner-Toews et al. (2008).

Data Collection

The basis for data collection in this research was a series of semi-structured interviews I conducted with six participants from Gaubiskiigamaug and six non-Indigenous participants who farmed in the Swan Lake region. A list of themes guided each interview (Appendix 1); however, the open-ended nature of my interview approach allowed each conversation to be tailored to the unique way each participant related to wetlands. Due to restrictions during COVID-19, most interviews took place over the phone and were recorded and transcribed before being analyzed using NVivo software. Each interview was about one hour in length.

Before the interviews, nontechnical language was used to describe the purpose and procedures of the interview and the research purpose in general terms. Participants were given a

consent form outlining relevant research details, including the study purpose and methods, what they could expect during the interviews and how their data would be stored and used (Appendix 2). Compensation was provided at a rate of \$50 per interview to match what has been offered by Gaubiskiigamaug in similar studies (Scott, personal communication). The purpose of the honoraria, funded through the SSHRC scholarship, was to compensate participants for their time.

Participants were given the choice to have their name associated with their knowledge in study results. Otherwise, participant's identities were kept anonymous. Acknowledging Indigenous knowledge experts' contributions by name is often done when partnering with Indigenous communities in research (Blackstock, 2001; Martin et al., 2017; Tobias, Richmond & Luginaah, 2013). Further, doing so was seen as respectful within community protocol at Gaubiskiigamaug (Scott, personal communication). Referencing living people is a meaningful way to recognize Indigenous knowledge experts and honour oral knowledge traditions, as demonstrated by Blackstock (2001) as well as Anderson, Clow and Haworth-Brockman (2013). This respect was further extended to non-Indigenous participants in recognition of their local knowledge of the rural landscape around Swan Lake, a strategy recognized as being respectful to the place-specific nature and interconnection of people with place within research conducted in rural areas (Reid, 2021).

Participant Selection

Eligible participants included Ojibway and non-Indigenous land users who use, own, or rent land in the study area. From Gaubiskiigamaug, participants represented the Chief and Council, the lands committee, the Elders' committee, and others who contribute to land management decisions (band employees, traditional land users, and traditional land stewards). Non-Indigenous participants included annual croppers, livestock producers, and those operating

mixed farms, representing various operation sizes and practices. Land managers representing provincial or municipal governments, watershed districts or non-profit organizations were not eligible to limit the project's scope. Demographic details for each participant were recorded and are summarized in **Table 1**.

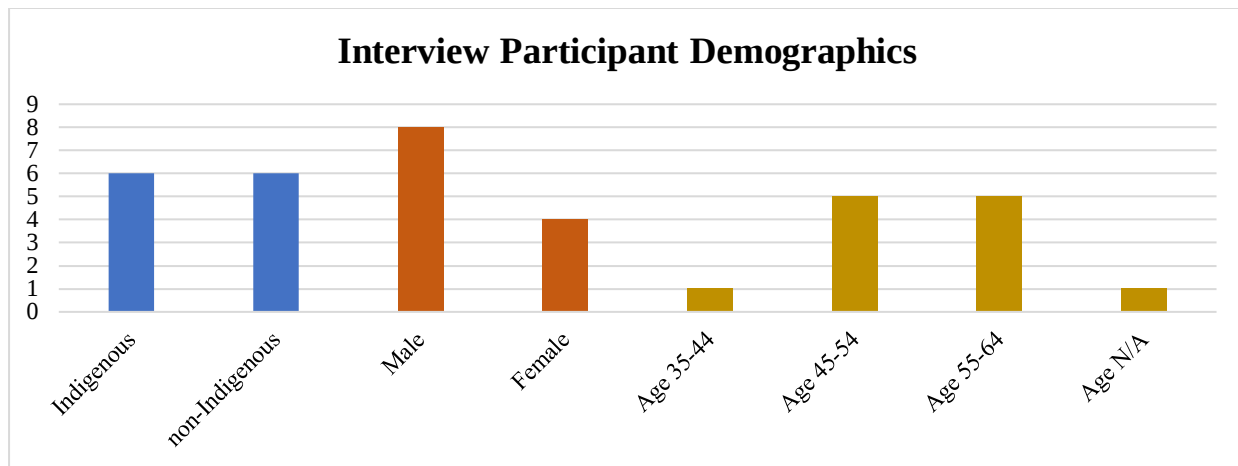
A gatekeeper sampling method was used to select potential participants. David Scott from Gaubiskiigamaug and Cliff Greenfield, manager at PVWD, assisted as community gatekeepers, each having well-established relationships with Gaubiskiigamaug and non-Indigenous producers and land users in the study area. Gatekeepers shared information about the project with potential participants from the recruitment material (Appendix 2). They identified participants through many years of experience building connections in the region and knowing who might be eligible.

Table 1: Summary of Participant Demographics

	Gaubiskiigamaug Participants	Non-Indigenous Participants
1	Band Councilmember	Livestock farmer with less than 500 acres
2	Lands Department Advisory Committee member	Two medium-sized mixed farmers with at least 1/3 income from livestock and operating between 500 - 3,000 acres
3	Lands Department staff person	A large-sized mixed farmer with at least 1/3 income from livestock and operating between over 3,000 acres
4	Community social services provider, former Councilmember	A medium-sized crop farmer operating between 500 - 3,000 acres
5	Elder and traditional land user	A large-sized crop farmer operating between over 3,000 acres
6	Elder, historian, traditional ecological knowledge expert	

Note: “Mixed farmers” refers to farmers producing crops and livestock.

Figure 1: Summary of Participant Demographics



Processing and Analyzing the Interviews

During and after the research, original identifying data from interviews and discussion groups was kept secure on a personal, password-protected computer. Hard copy consent forms or other identifying hard copy data are kept in a locked cabinet in the researcher's home office. Original data is only accessible to myself and my advisor, Rick Baydack, and to the participant the data belongs to. Each participant was provided a copy of their original transcript.

A grounded theory approach and thematic analysis were used to highlight major themes in the qualitative data. Through this, an iterative process was used to develop a coding manual that was continuously modified and refined until data saturation was reached when no new issues or themes continued to emerge (Castleberry & Nolen, 2018). Coding involves disassembling qualitative data in groupings of unique ideas or perspectives. Codes are organized into a codebook that evolves throughout the processes until a point of stability when all relevant codes have been identified; they can then be assembled into themes. Emergent, common, unique and divergent perspectives were coded and summarized with equal value. All perspectives were weighted equally and summarized to highlight the diversity of perspectives.

Chapter 3: Results

This section provides an overview of the data collected. First, metadata detailing participant demographics and other descriptive information about the interview data is provided. Next, the interview themes and sub-themes are summarized and organized in two tables. **Table 2** describes the five main themes, and **Table 3** describes nineteen sub-themes. Finally, a summary provides an overview of these thematic results and prepares for the thesis discussion.

Metadata

Twelve interviews were conducted with six non-Indigenous land users in the Swan Lake region and six members of Gaubiskiigamaug between July 2020 and January 2021, as summarized in **Table 1**. Of these, eight men and four women, aged between 35 and 64, chose to participate, as described in **Image 1**. One of the six non-Indigenous participants operated a small cattle farm of under 500 acres. Two operated a medium mixed livestock and crop farm, and one operated a medium crop farm. Additionally, two operated large farms of over 3,500 acres; one a crop farm and the other a mixed crop and livestock farm. Of these, all owned and rented some land except for one participant who owned and rented their land to others. Gaubiskiigamaug rents out some of their land for crop farming. At the same time, they also keep a significant portion of their land for raising bison, with total acres for livestock and crop production being over 3,500 acres. The Ojibway participants contributed to Gaubiskiigamaug's collective land use and management in a variety of roles, including a band Councilmember, Lands committee member, Lands Department staff member, an Elder, traditional land user, as well as a Traditional Knowledge expert and Oral Historian. Of note, most of these individuals held a diversity of roles in their community.

Themes and sub-themes

Themes were identified using an iterative process of reviewing related research and immersing within the interviews by re-reading transcripts and listening to the recorded interviews, all while using a thematic analysis approach to identify themes and sub-themes within the interview content. In this approach, I used grounded analysis, where interview data emerges from the interviews themselves rather than being prescribed before interviews are conducted (Corbin & Strauss, 2014). This approach can also be understood as constructionist, where both researcher and participants influenced the thematic outcomes of qualitative research through the open-ended and semi-structured nature of the interviews themselves (Roulston, 2011).

After an initial process of coding, identifying an initial set of themes and sub-themes, subsequent academic reading combined with time spent learning through land-based learning opportunities and learning from Traditional Knowledge expert Scott, my research objectives and questions evolved. This evolution of research goals is not unusual in qualitative research and reflects the learning of the researcher during the research process and is part of allowing results to emerge from the data (Agee, 2009; Roulston, 2011). During data analysis, I reviewed and re-coded my interviews accordingly two more times before I was satisfied with the results. Through this iterative coding process, I became more familiar with the interviews and gained additional insights. This work resulted in five primary themes and nineteen sub-themes, which have been used to structure the thesis discussion. The final primary themes are summarized in **Table 2**, along with a short description for each theme, while sub-themes and their descriptions are summarized in **Table 3**.

Table 2: Primary Research Themes

	Primary Themes	Description
1	Historical Context	Most participants made observations about contextual factors contributing to the loss and degradation of wetlands from outside the realm of individual decisions. These include upstream causal factors such as economic drivers and changes in the agricultural industry causing various downstream effects, including those arising from wetland drainage. The historical context theme captures observations about historical influences on today's human-wetland relationships.
2	Tensions Between Worldviews	How we see the world impacts how we act in it – and the feedback we get from these interactions further impacts how we act, creating morphogenic feedback loops in a process called reciprocal causality. This connection between how different people perceive the world and their experiences in it can generate tension when people see the world differently, for example, between those who are Indigenous to place and those who are not. The worldview tension theme captures areas of ontological divergence and explores power systems that influence and control the expression of worldview in land use and governance.
3	Decision Contexts	Decisions are made within larger cultural, political, economic and other contextual dimensions that influence them. Looking at decisions from a contextual perspective expands analysis from only examining the internal processes of worldviews to examining external contexts that influence decisions. The decision context theme identifies differing internal motivators and external contexts informing participant decisions.
4	Future perspectives	I asked each participant about their visions for the future of wetlands in the Swan Lake region, both asking where they felt things were going and where they would like them to go. A broad range of ideas were shared, including ideas for education, resources, and services, policy and governance suggestions, and insight into making these suggestions a reality through collaborative action. The future perspectives theme highlights these ideas.

5	Reflections in the Land	Tensions between factors driving land use, specifically human-wetland relationships, including different worldviews and decision contexts, can be reflected in the land. These reflections are the embodiment of human-land relationships, in turn shaping the landscape itself—changes that then influence future human-land relationality. Participant observations of these reflections are identified with the <i>reflections in the land</i> theme to better understand the human-wetland relationship as something enacted and experienced.
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Table 3: Secondary Research Themes

	Primary Theme	Sub-theme	Description
1	Historical Context	Tensions between ways of relating to and using the land	Tensions emerged during colonization between traditional Ojibway land use and industrial and agricultural land uses. Some participants also observed how wetlands simultaneously provide value and create inconvenience and costs, creating tension affecting land use decisions. This tension emerged differently between the management of crop and pasture lands and between agricultural and traditional land uses.
2	Historical Context	Tensions between Ojibway and colonial systems	Indigenous communities whose lands were appropriated for the establishment of an industrial, agricultural economic foundation for Canada's newly acquired Western territories have been devastatingly impacted by colonial systems. During colonization, the Swan Lake region experienced a complete restructuring of its predominant economic, governance, education and knowledge systems and land management processes.

3	Historical Context	The role of power and control in shaping human-land relations during colonization	Colonial coercive control has been used worldwide to benefit colonial systems at the expense of Ojibway and other Indigenous systems that colonial powers have aimed to replace. These methods have created an imbalance between the impact of Ojibway and colonial systems of human-land relations on shaping landscapes and influencing decisions made about wetlands since colonization.
4	Tension Between Worldviews	Relationships of harmonization vs control	In the Ojibway worldview, the best way to live with the environment is to harmonize with natural systems, patterning human systems such as governance and infrastructure to fit with natural systems. In contrast, the colonial approach has been to control nature, shaping land and water systems to accommodate colonial administrative and economic systems better. These contrasting ways of interrelating with land are informed by worldview differences, such as viewing humans as existing within a holarchy of relational networks that include humans and nature versus viewing humans as superior to and separate from nature within a hierarchical relationship structure. Each approach creates a different type of landscape. One has complex diversity, and the other tends to homogenize. Tensions exist between these two approaches' economic and environmental outcomes with significant implications for wetlands.
5	Tension Between Worldviews	Land as a home vs land as a resource	To those who live there, the agricultural landscape of the Swan Lake region is home. However, it is also a place of intensive agricultural production. This dynamic of <i>land as a home vs land as a</i>

			resource creates unique tensions for the study population, both Ojibway and non-Indigenous, that informs how wetlands are drained or protected.
6	Tension Between Worldviews	Concepts of rights and responsibilities	Differing concepts of rights and responsibilities within Ojibway and Western systems impact the legal system, land use and governance, education, land ownership, and management. In the Ojibway view, rights are inseparable from individual responsibilities within larger human and ecological systems. In this way, rights are collective. Contrastingly, Western concepts of rights limit individual responsibilities to private property, precluding responsibilities to larger collectives. In this way, colonial concepts of rights and responsibilities further promote colonial human-land relationships while restricting Ojibway and other traditional Indigenous human-land relationships in Canada.
7	Tension Between Worldviews	Impacts of worldviews on human-land relationships	Based on the Ojibway worldview of seeing everything as interdependent and rights as shared and inseparable from individual responsibilities, systems that govern human-land relationships are structured to maximize human-land wellbeing at the level of integrated systems. In this framework, the responsibilities of the individual to the whole are held over individual rights. In contrast, in the Western worldview, the right of an individual to have an extractive and exploitative relationship with nature is seen as more morally and legally justified than the rights of ecosystems or land in general. In this way, Western systems are designed to maximize individual profit at

			the expense of connected human-land systems.
8	Decision Contexts	External Contexts	Whether decisions about wetlands are made in the context of a cattle or a crop farm, or if they are made in a traditional Ojibway or colonial governance system, they are influenced by the external context they are made within, whether environmental, legal, political, or economic. In this way, the external contexts of decision-makers affect wetlands in profoundly different ways. Participant's insights into their external contexts affecting decisions they make about wetlands are highlighted by this theme.
9	Decision Contexts	Internal Worlds	Different worldviews create different mental models or decision structures – in other words, different frameworks within which decisions are made. These differences strongly impact decisions, behaviours, and actions that affect wetlands. The internal worlds theme explores differences between Ojibway and non-Indigenous decisions informed by worldviews. For example, decisions that favour integration vs. autonomy (thinking in wholes vs. thinking as individuals) or in making decisions about the land vs making decisions with the land.
10	Decision Contexts	Value Conflicts	The challenge of balancing the social wellbeing of people with the environmental wellbeing of lands and waters was another common theme of discussion that showed up in the interviews. The value conflicts theme explores the nuances and contexts of this difficult balance some participants

			experience between conflicting economic, social, and environmental values, particularly around wetland decisions.
11	Future Perspectives	Worldview shifts	As contexts change, people respond to those changes through our ability to adapt and learn through experience. Resultingly, as landscapes have changed from processes related to wetland drainage, so have worldviews. The worldview shifts theme explores changes in perspective related to participants' observations of the effects of wetland drainage and how these shifts affect their visions for future human-wetland relationships.
12	Future Perspectives	Education and knowledge sharing	Participants frequently preferred educational approaches over regulations as the educational approach to behaviour change is more relational and encourages self-initiated action. Some participants made suggestions for the formats and content of educational approaches. Others suggested a need to educate the public, not just farmers or individual land users, about the wetland crisis and the value of wetlands. In their view, public support is needed to motivate and make individual actions possible on the landscape.
13	Future Perspectives	Resources and financial support	Many participants highlighted that financial compensation and incentives are needed to increase the conservation and restoration of wetland habitats. In particular, because the economic environment First Nations and farmers operate within limits their decision-making to decisions that are financially beneficial. Suggestions included financial and other support for wetland conservation and restoration, as well as targeted support for

			compatible land uses and services to suggest on-farm actions and available funding.
14	Future Perspectives	Policy and governance	Participants made many recommendations towards the policy and governance sub-theme. These related to the geographic fairness of wetland policies; local agency and representation in policy; protecting wetland ecosystem complexes and rethinking the delineation of wetlands in policy; eliminating taxes on natural lands; creating tax incentives for wetland restoration; shortcomings of existing no-net-loss wetland policies; and recommending a watershed or regional approach to wetland policy.
15	Future Perspectives	Action and collaboration	Many participants emphasized a need to move beyond ideas and proposals, as represented in the action and collaboration sub-theme. Most participants from Gaubiskiigamaug noted that action needs to be collective and that building bridges between their community and neighbouring non-Indigenous communities is necessary. Some recommended moving beyond a focus on blame and moving towards healing relationships. Others noted a need to take action on existing reports and recommendations to improve environmental health.
16	Reflections in the Land	Current conditions	Tensions highlighted in the above themes and sub-themes can be reflected in the landscape around us. The sub-theme, current conditions , is used to identify participant's observations of wetlands, including various processes affecting

			wetlands, wetlands' current conditions and relations within water and land systems.
17	Reflections in the Land	Human-wetland relationships	Human-land relationships are also impacted as landscapes change. In this way, human-land relationships are connected to landscape change through reciprocal causality. The human-land relationships theme captures insights into shifting dynamics between humans and wetlands in the study area related to changes in the landscape occurring after the introduction of industrial agriculture.
18	Reflections in the Land	"Lines on the ground"	Abstracted models of landscapes are used to shape and control lands dominated by colonial powers; for example, property boundaries, political boundaries, grid roads, ditches, and dykes have all been necessary parts of colonization. These "lines on the ground" have interrupted traditional Ojibway relationships with the land and directly impacted Ojibway decisions related to wetlands. In this way, abstract models of land, known as "lines on the ground" in Ojibway Oral History, significantly and directly shape the land itself, altering how land systems function and how people interact with and relate to them. This sub-theme notes observations about how these "lines on the ground" affect wetlands.
19	Reflections in the Land	Land fights back	In the Ojibway worldview, the land itself has agency and expresses itself. For this reason, the land is looked to as a teacher and human systems are modelled after land systems. In Ojibway Oral History it is said that when human systems harm or do not synchronize within land systems, then "the land fights back." The theme, "land fights

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			<i>back,</i> ” identifies participants’ insights into instances of the land fighting back related to the treatment of wetlands and emphasizes tensions created through the agency of wetlands caught in disharmonious human-land relationships.
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Chapter 4: Discussion

Chapter 4, Part 1: A Historical Context of Systems and Worldviews

Chapter 4, Introduction Part 1

In the Swan Lake region, as elsewhere, colonization created a clash of systems and worldviews between the colonizing Nations of Western Europe and the Indigenous Nations who first occupied these lands. The dispute around wetlands in agricultural landscapes is a specific example of the clash between Indigenous and colonial systems and worldviews. For example, in the Ojibway worldview, land (which includes waters and wetlands) has agency and inherent rights. As Ojibway knowledge expert Scott said, *“Our view of water is that it is life itself, so the protection of water is crucial to our survival.”* As a meeting of land and water, wetlands are a part of living land and water systems. In many Indigenous worldviews, they are seen as essential for life because of the food, medicines, materials, and habitat they provide for many species. In this, they have animacy and relational obligations of their own (Matsui, 2012; Patrick & Baijius, 2021; Scott, personal communication). Some know this view as a kinship worldview (Kimmerer, 2013; Wilson & Inkster, 2018) or as a relational worldview (Latulippe & McGregor, 2022; Lavau, 2013). Following this relational perspective of human interdependency with water and wetlands, traditional Ojibway systems of governance, economy, and education reflect this understanding, incorporating relational obligations and responsibilities into their structures and processes that work to maintain the health of wetlands along with other aspects of the landscape (Scott, personal communication).

Meanwhile, in the colonial worldview, also referred to here as the modern or dominant worldview, the land is an inanimate resource to be controlled and managed, its value defined by the global economic marketplaces, not inherent to itself (Leonard et al., 2023; Linton, 2010;

Linton, 2022). Following this perspective, considerations for whether to protect, restore, or drain a wetland, for example, are limited to economic cost-benefit assessments of a wetland's value. Decisions about larger landscapes, including wetlands, are framed toward optimizing the economic productivity and efficiency of industrial operations within the landscape (Baulch et al., 2021). In this framework, economic factors are the primary reason for ongoing drainage and degradation of wetlands. As Baulch et al. state, "A major cause of drainage is economic pressures that encourage agricultural producers to drain wetlands" (2021, p. 236). In this way, colonial systems motivate behaviours that reflect colonial worldviews, which see the values of land and wetlands as equating to exploitable value as defined by the modern economy.

As becomes apparent, tensions exist between Ojibway and colonial systems. In Ojibway systems, lands and waters are to be sustained to maximize their productivity as entire, integrated human and ecological systems. In colonial systems, lands and waters are managed to maximize productivity for the benefit of those with ownership rights over abstracted, discontinuous (separate) units of lands and waters.

In this opening part of the thesis discussion, I focus on the clash of Ojibway and colonial worldviews and systems that have defined colonization. I begin by describing some of the ways human-wetland relationships have been affected by these oppositional dynamics. Tensions between colonial and Ojibway worldviews and systems are detailed with reflections from interviews with Ojibway and non-Indigenous land users from the Swan Lake region. I end by exploring the power structures and coercive control techniques that have been used to make colonial systems dominant while attempting to eradicate and silence Ojibway systems and worldviews. These are emphasized because they have important implications for how land and water systems have been reshaped by colonization, resulting in today's wetland crisis.

Part one of my thesis discussion is foundational because it demonstrates how dominant forms of land management have been informed and how they are upheld through colonial systems of power. Doing so, this first part of chapter four takes a political ecological viewpoint to assess the process by which a particular worldview is asserted over others. In this way, tensions between Ojibway and non-Indigenous thinking are put into contexts of power to understand the effect systems of power have in deciding whose worldview is legitimized and whose is not, ultimately impacting all parts of a landscape, including humans and wetlands.

Historical Background on Tensions Between Humans and Wetlands During Colonization

Awareness of how human societies depend on the environment is growing in dominant systems of thought, yet while this is happening, we are watching ecosystems worldwide become continually more degraded, driven mainly by modern systems (Di Baldassarre et al., 2019; Manheim, 2020). The tension created by growing awareness of environmental benefits alongside continuous environmental degradation is growing in our cultural consciousness and political discussions. In turn, this tension contributes to a growing sense of disconnection and opposition between humans and the land (Beery et al., 2023). The controversy around wetland drainage versus wetland conservation and restoration is an example.

Tensions within modern relationships between humans and wetlands have set a perception of wetlands and human societies as being in opposition (Melchior, 2019). This perception differs strongly from the ways wetlands were perceived by both Ojibway and newcomers during the early years of colonization when wetlands were seen as invaluable parts of the landscape, parts of the land that allowed human survival because of the food, water, and natural materials they provided (Scott, personal communication; Stunden Bower, 2011). The

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remainder of this section looks back to the roots of colonization to contextualize some current tensions between humans and wetlands to understand the shift from a reciprocal, or at least complimentary, to an oppositional relationship between humans and wetlands using insights from participant observations.

Colonialism through agricultural settlement was used to consolidate Canada's claims to territory formerly granted by royal charter on dubious legal grounds to the Hudson's Bay Company (Leonard et al., 2023; Pasternak et al., 2021). Beyond claiming the land, the government of Canada was motivated to settle and develop the area quickly to stop American expansionism and the Métis's constitutional and military claim to sovereignty over the lands of the North-Western Great Plains. However, these ambitions for agricultural settlement depended on draining large tracts of land to allow transportation routes, cropped land, and private property boundaries in the proposed grid system (Stunden Bower, 2011). Without drainage, these lands could not be developed, which would prevent the imperial aspirations of the newly emerging Canadian Nation-state.

Upon creating Manitoba as a Canadian province, Canada established its claim to lands in the West. The province's goals aligned with Canada's imperialist and industrial capitalist visions (Stunden Bower, 2011). Development and progress were the priority no matter the environmental or human cost, particularly to Indigenous Peoples like the Ojibway, whose lands needed to be expropriated for Canadian land claims to become a reality. Unfortunately, the land governance, private land ownership, and infrastructure systems put in place by the early Manitoban and Canadian governments reflected a lack of familiarity with the landscape, resulting in maladaptive land use and land management practices that persist to the present day, particularly around the effects of land drainage (Stunden Bower, 2011).

Many of these maladaptive practices connect to the abstraction of land, a necessary process within colonial legal and governance systems. In Canada's colonial legal system, land is abstracted; it becomes ownership over a "bundle of rights" delineated by abstract jurisdictional boundaries (Scott, personal communication; Kimmerer, 2013, p. 28). Land rights replaced Indigenous-enacted conceptualizations of land as a "bundle of responsibilities" that precluded land ownership (Kimmerer, 2013, p. 28). In the Ojibway view, for example, land could not be owned because it inherently belonged to all living beings, who made up the landscape through their interrelationships and interbeing with the land itself (Scott, personal communication). As colonial systems were implemented and enforced on the landscape, they transformed the dominant human-land relationships from those within Indigenous systems. In this way, they transformed landscapes themselves. To illustrate how colonial systems changed human-land relationships, I will relay a story shared by Scott, an Oral Historian at Gaubiskiigamaug:

Shortly before settlement, a significant Council was held between the Ojibway and Cree, who then shared the lands known today as southern Manitoba through Treaty, to discuss the process of colonization and anticipate changing dynamics between humans and the land. The Council was held along what is now known as the Dead Horse Creek, near Morden, Manitoba, in 1817, a year before the 49th parallel was declared the border between Canada and the U.S. The Council at Dead Horse Creek was significant because the prediction came true that the "lines on the ground" have imprisoned us.

At the time, land surveyors were starting the process of setting "lines on the ground" to delineate colonial jurisdictional boundaries, preparing the way for a wave of settlement. The border between Canada and the United States was also being marked. The "lines on the ground" Council debated how the abstraction of land through jurisdictional demarcations was "breaking

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up our land and the way we use our land” and would be part of the expropriation of land from Indigenous Peoples. More than this, it was said that the lines “will imprison us and will certainly imprison them,” meaning non-Indigenous settlers.

The Council was held to discuss the meaning of and possible effects from the abstraction of a landscape that, until then, had been viewed as unowned, a shared relation, responsibility, and right to all born on the land. Those who met at the Council debated why colonial governments might need these lines to control their own people. It was determined that the lines on the ground would trap Indigenous people, preventing their former nomadic ways and restricting their ability to live in a traditional way, which was dependent on being able to respond to signals coming from the land itself. Signals such as seasonal changes and the movement of animals were structured into systems guiding people’s behaviour. Significantly, it was anticipated that the abstraction of land would interrupt the ability of communities and societies to enact responsibility for the land as a whole.

Despite these observations and related concerns, the “lines on the ground” Council was held during a time when bison populations were being decimated, causing hunger and starvation. Disease and sickness were also rampant within Indigenous populations at the time, making it impossible to take effective action in response to outcomes from the “lines on the ground” Council. However, the concept of abstract land and the effect of this abstraction on the landscape and the people who lived there became a reality at that time within the Ojibway historical record. Many of the tensions between humans and land seen today are now connected back to observations made during the “lines on the ground” Council.

A land jurisdiction regime based on abstractions combined with a system of private land ownership created a rigid geometry that did not work well with a dynamic, fluctuating landscape.

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Wetlands were particularly affected (Stunden Bower, 2011). First, grid roads and square property tracts necessitated grid drainage, an inefficient flow path requiring costly, ongoing maintenance despite the system being anticipated to be self-maintaining by colonial decision-makers at the time (Stunden Bower, 2011). Instead of going around low-lying, wetter areas, the grid-road system motivated the construction of roads directly through them, requiring additional drainage. Forcing water to flow in straight channels and around square corners also intensified the effort and resources needed to build the roads and increased requirements for ongoing maintenance.

Private land ownership structures also worked to motivate wetland drainage. As private land was located within the grid, settler families were restricted to making a livelihood from specific tracts of land. On a dynamic prairie, with wet and dry cycles occurring over years and decades, selecting an optimal square in the grid to start a family homestead was challenging (Stunden Bower, 2011). Plus, early settlers were drawn to wetter areas as the water was important for people and livestock. However, those with wetter lands had no choice but to drain significant portions of their land to make room for crop farming. They were required to convert natural lands to cultivated lands as part of the land claim process as the Canadian government wanted to settle the prairie quickly to protect its land claims and accrue tax revenue (Carter, 2019). Short timeframes left little room for becoming familiar with how the landscape functioned before modifying it. Unfortunately, these uninformed and uncoordinated drainage efforts began to create unintended consequences in the long term – both within the confines of private properties as well as within shared water systems, creating tensions between upstream and downstream neighbours (Stunden Bower, 2011).

Today, some of the well-known effects of wetland drainage are related to water quality, such as the excessive nutrient accumulation in prairie waterbodies such as Lake Winnipeg

(Koehler et al., 2021). However, these and many other effects are also seen on a smaller scale in the Swan Lake region. Hacault, a crop farmer, explained how drainage is linked to the quality of water on his farm, creating more costs to treat water on-farm: *“One thing I’ve got pointed out to me is that I’m spending a lot more money on treating my water on the farms... it was my plumber guy who told me that. He said, ‘Dan, you guys keep on taking all the trees out, and I keep making more money.’ So, the wetlands and all the things that could filter that out seem to be gone.”*

He also linked drainage with decreased soil quality: *“I’m old enough to have seen all that [landscape changes from wetland drainage]. In one area, what we did is there was some sort of a wetland with trees in it, willows, and... we kind of destroyed it...now we’ve tiled it all, and we’re dealing with salinity levels which we never had before because the trees were keeping the water table down.”* Meanwhile, P01 shared concern about the potential impact on cattle due to the decline in water quality caused by drainage. She said, *“When they drain like that, you get the fertilizer and stuff washed into it. So, I would be worried about that blue green alga. We’re always watching for that so that the cows don’t get sick.”*

However, drainage has not been the only issue experienced by wetlands since the beginning of colonization. Participants from Swan Lake explained how industrial agriculture has contaminated wetlands, even if those wetlands are conserved and protected from drainage. As explained by Scott: *“Even the medicines we used to use... it doesn’t seem to work anymore. Like that mud pack that we used to have. We can’t find that mud anywhere anymore. Right? And again, it’s because the little sloughs and stuff like that are being drained away. And then we wouldn’t use that mud now anyway because of all the chemicals.”*

Gaubiskiigamaug Councilmember Micheal Esquash explained how contamination of wetlands with pesticides and excess nutrients has made existing wetlands unavailable for

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traditional use. He shared that: *“Wetlands were, and are, a major part of our existence as First Nations people. We even harvest a lot of medicines and stuff like that from wetland areas ... I know of one place in our community that is surrounded by fields, and there was a [wetland] in the field. Now, growing up as a young child we were told about this pond and how there was a certain medicine in it that thrived...and was abundant there. They did a study and were checking the wetlands to see if they were impacted by pesticides or anything like that. When they went to check the water there, they discovered that pesticides poisoned the pond and the water, so we couldn’t harvest the medicine because the poison was in the medicine itself.”*

Porteau, a non-Indigenous mixed crop and livestock farmer from the Swan Lake area, explained how wetland drainage is part of a much larger pattern stemming from modern trends in how people relate to the land. He related it to a mindset driven by increasing land prices incentivizing farmers to intensify production on lands they already own. He said, *“The way trees are knocked down and old yards are ripped out, it [wetland conservation and restoration] would really be a hard sell right now. It’s the value of land...the value of a cultivated acre. There’s such a demand for land... there are still acres being drained to farm.”* Porteau also observed a link between drainage and flooding issues, saying, *“As soon as you get a two-inch rain, everything drowns out; there’s a reason there’s a wetland there, but it [drainage] is still going on.”* Elder Larry McKinney summarized today’s tensions between humans and wetlands by sharing a short illustration, saying, *“‘If we hurt the land, the land is going to fight back,’ they used to say, and it’s true with what you see now and what’s happening.”*

In summary, today’s tensions between humans and wetlands are not only figurative but are occurring in enacted ways that are seen and experienced on the land. Abstractions of land or

“lines on the ground” are a significant example of how the way we think about and represent land is part of what shapes the landscape around us, thus affecting the way we live and move.

Tensions Between Ojibway and Colonial Ways of Relating to Land

Relationships of Harmonization and Reciprocity versus Relationships of Control and Exploitation

In the Ojibway worldview, the best way to live with the environment is to harmonize with natural systems, patterning human systems such as governance and infrastructure to fit with natural systems themselves (Scott, personal communication). In contrast, the colonial approach has been to control nature, shaping land and water systems to better accommodate colonial administrative and economic systems (Linton, 2010; Reed et al., 2024). Worldview differences inform these contrasting ways of interrelating with land. Where the Ojibway traditionally view humans as existing within holarchic, kinship or relational networks that include humans and nature, the Western worldview sees humans as superior to and separate from nature within a hierarchical relationship structure where land is a resource whose value is measured in its ability to be exploited (Leonard et al., 2023; Wilson & Inkster, 2018). Each system creates a different type of landscape—one with complex diversity, the other with straight lines and decreasing diversity. Tensions exist between these two approaches' economic and environmental outcomes with salient implications for wetlands.

Worldview of Harmonization and Reciprocity

In the traditional Ojibway worldview, harmonization and reciprocity with land and water systems are essential to the continuation of life (Scott, personal communication). To do this, it is seen as necessary for communities to live in interdependence with the land they inhabit. This

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means regularly engaging in activities requiring people to move about on the landscape and then observing the condition and behaviour of the plants, animals, and waters on the land. Doing so allows the community to know that environment and how it behaves so that they can make decisions that harmonize with these land and water systems—in this way, creating human-land systems that generate mutual benefit, or reciprocity, between people and the land (Scott, personal communication). Scott said, *“Again, knowing the environment and how it behaves was one of the things that, for me, I had to learn growing up. Part of my upbringing was [to learn] ‘how do I live within the environment that exists?’”* And to answer this question by asking *“How did the old ways deal with certain situations? And then, how are the things that are happening today? How is that going?”*

An essential part of living in integrated ways within inhabited landscapes was to live out a caretaker role in the environment. Scott described some of these stewardship activities his community has done traditionally: *“[Some areas] we wouldn’t disturb, sometimes for years, until the animals came back. That was part of the conservation that we used to do. It’s the same thing with fish. They used to jam where the water would come into the lake, and the fish would all come there to get oxygen. And sometimes we would take a lot of fish and other times we wouldn’t bother them at all. [Sometimes], we would break open the water for them, so they didn’t have to do that. They would all die there if you didn’t do anything.”* These traditional land caretaking activities are part of land-based education and cultural activities practiced today, even though access to much of the community’s traditional land is restricted through private property ownership (Scott, personal communication). Scott shared about a recent outing with a group of students from his community where the youth got to practice *“making our old Indian gardens is*

what I call it. I took them in the bush, and we were transplanting chokecherries, saskatoons, pin cherries....”

Other critical aspects of harmonizing with landscape systems include making decisions that do not change natural dynamics and trying to accommodate the needs of all life within the system. These two principles inform community development decisions made at Gaubiskiigamaug today. Lands department advisor Jason Daniels explained, *“Sometimes we’ve made some mistakes in building houses around these little sloughs, but for the most part, we are staying away from the sloughs and letting those things stay natural for the wildlife that lives there. Our goal is to do development without changing natural dynamics.”* Importantly, while the value of accommodating the needs of other-than-human life in decisions about how to develop or manage land was prominent at Gaubiskiigamaug, this value was also shared by several non-Indigenous participants. P05, a non-Indigenous livestock farmer, said, *“Some of it we just haven’t fenced off and...it could be cropped, but I think animals need a place to go, even for predators. If we were to get rid of all of it, then where are the predators going to go? They’re going to go for cattle and calves and stuff like that. But if they have more life and deer inside of the bush, then they won’t. We see coyotes here, but we haven’t had as big of a predation as some people who don’t have a habitat to provide for other animals and the predators to have. Then the predators go for the calves because there is no other sustainable life on that land....”*

Another aspect of harmonization is to see all aspects of a landscape, including human land use and the needs of other-than-human life, such as water, plants, and animals, as interconnected. As Daniels explained, *“We have to look at all the pieces of the puzzle when it comes to land.”* From the harmonization and reciprocity worldview, it is important to represent this diversity of land uses in decision-making to make decisions based on deep contextual knowledge of

landscape interrelationality (Scott, personal communication; Wilson & Inkster, 2018). Daniels gave the example of how this view impacts decision-making today at Gaubiskiigamaug, saying that land development decisions need to include community members who *“use the lands for different reasons whether it be ceremonial, hunting or harvesting plant species.”* This principle also extends to wetlands in worldviews centred around principles of harmonization and reciprocity. Wetlands are viewed as embedded in cultural and environmental contexts. Esquash explained, *“For us, I think it is truly important to as First Nations people [because] we existed off the land. What we survived with was from the land.”* In this way, *“if you had a wetland area, that was, say, the duck’s habitat or something, if you took it away, that would not come back, and therefore you would be without that food source.”*

Importantly, wetlands and other natural spaces are not just appreciated for their use value in the harmonization and reciprocity worldview – instead, a significant characteristic of the harmonization worldview is that natural spaces are seen as life itself. Elder McKinney emphasized this point, saying that when people remove natural spaces such as wetlands, *“they don’t realize what they’re doing to the environment...that’s life that they’re taking away.”* Scott further emphasized that *“for us, our view of water is that it is life itself, so the protection of water is crucial to our survival.”* Further, Councilmember Esquash explained how this view also relates to the needs of non-Indigenous communities as well. He said, *“When you look at water, it doesn’t matter what colour you are, what Nation, what municipality, what government you’re from. If you don’t have good drinking water, you will perish. Everybody needs good drinking water whether it’s a First Nation or a Caucasian or whoever, they need water to survive. If you don’t take care of that, and you damage it – man, it takes a long time for it to get better. That’s kind of how we look at things...trying to make sure that things are good for everybody.”*

Esquash's sentiment was reflected in several comments from non-Indigenous participants as well. As P01 said, *"I just know that these wetlands are important. They do have a purpose, and our water is very important to all of us. If the wetlands get poisoned our well water is not far behind."* In this way, the values of harmonization versus control did not fit a neat Indigenous versus non-Indigenous binary. Instead, some non-Indigenous participants shared values like those from a traditional Ojibway worldview, stating that the environment is indispensable for all of us and that wetlands need to be protected as essential parts of larger water systems. At Gaubiskiigamaug, it was noted that some decisions made by the Chief and Council conflict with traditional Ojibway values in favour of Western value systems due to economic considerations. Scott said, *"We're still dealing with our land like it's under the Indian Act. It's not really happening, there is no mechanism by which traditional land use, such as the way we used to farm, or those kinds of things are not there, and there's no place for it in the [band governance] structure that is there right now. Again, because we can't take away from provincial or federal Crown laws, we can't reverse that."* In this way, strictly comparing Ojibway and non-Indigenous perspectives in an oppositional Indigenous versus non-Indigenous binary would hide the larger structures that determine outcomes for human-wetland relationships beyond the impact of individual worldviews and decisions.

Worldview of Control and Exploitation

In the predominant worldview informing the colonial process, land has been seen primarily as an inanimate resource without inherent rights or agency (Capra & Luisi, 2014). In this view, land is an object whose value is expressed in its merged identity with those who own it, becoming an extension of individual landowners. In this way, land has primarily been evaluated within colonial governance and land management structures according to its use value,

specifically its use in economic production and ability to make a profit for individual landowners and, thereby, as a tax base for public governance entities (Carter, 2019). Following this rationale, landowners aim to maximize their land's economic productivity, shaping and transforming the land according to their economic activity. Often, this behaviour includes removing wetland areas that inhibit economic productivity (Baulch et al., 2021). Wetlands and other habitats that reduce productive economic potential are resultingly seen as costs (Melchior, 2019). Meanwhile, the objective of Western governance entities is to curate individual economic activity in ways that maximize macro (collective scale) economic activity, generating the most tax and gross domestic productivity (Carter, 2019; Government of Canada, 2024, April 16). In this way, the landscapes around Swan Lake, as elsewhere across the Canadian prairies, have been transformed through the colonization process into a patchwork reflecting the economic activities of individuals within allotments of private ownership and following borders of municipal, provincial, and National governance jurisdictions. I describe this worldview and the way of relating to land that it produces as the control and exploitation worldview.

Within this worldview, wetlands have been referred to with terms such as “undeveloped,” “undrained,” and “costly,” reflecting their perceived value based on their economic impact (Stunden Bower, 2011; Melchior, 2019). Crop farmer, participant P04 referred to non-permeant wetlands as “*maybe acres*,” saying, “*It depends on what you’re looking at as a wetland. A permanent one is a permanent one, but for me... it's not really a wetland in my books if it's wet one year, and the next it's dry.... maybe you get them and maybe you don't.*” P04 continued, “*If it's a wetland like that then that is not really a wetland in my books, that's a pain in the butt in my books. So, you just try to eliminate and do whatever you can so that you can farm across it like it's not even there.*”

As a result, the control and exploitation worldview has led to most ephemeral and semi-permanent wetlands being drained and consolidated since the introduction of industrial agricultural practices (Baulch et al., 2021; Breen, Loring & Baulch, 2018). Hacault observed, *“They’re all gone. There is zero left of what I would call a functioning wetland. They’re either totally drained, or they’ve been drained enough that they’re not functioning like a wetland. I guess I should qualify that statement and say that it’s not on pastureland...it would be on workable farmland...I would say, yeah, we got none.”* Porteau added, *“What the land is worth has the biggest play on that, the value of a cultivated acre...there’s such a demand for land.”* And P04, described this as the *“industry standard,”* saying, *“We’re not doing anything that the other guys are not doing. We’re not the only guys taking down trees and building tile drains nowadays. The whole industry is doing it, you can drive East, West, North and South and you’ll see it everywhere.”*

In this cost-benefit decision structure, land as a resource produces costs alongside benefits. Optimizing land for profitability means modifying the landscape to increase commodity production and improve operations efficiency while eliminating landscape features incompatible with these goals – such as wetlands. P02, a crop farmer, illustrated his experience by saying, *“It all comes down to cost. Let’s say you’ve got a circle in the middle of a square field; going around that circle for everything you do during the growing season is a big inconvenience. It takes time; time is a big one, and you’ve wasted inputs and money. So, if your time is money, it all comes back to the dollar anyway. And you have overlaps, and that’s where sectional control is huge for people who have all these wetlands in the middle of fields.”* As P04 explained, *“A lot of times as the farmer, you’re not satisfying too many people with what you’re doing to maximize your acres, but at the end of the day, you’re there to make money, not keep all the birds flying.”*

However, many of the participants I interviewed struggled with growing recognition of the ways ecosystem services enable economic activity while also making decisions in an economic environment that does not recognize these values in economically meaningful ways. Porteau said, *“There are still acres being drained to farm. In hindsight, they probably shouldn’t be because as soon as you get a two-inch rain everything drowns out, there’s a reason there’s a wetland there. But it’s still going on.”* P02 explained the need for this thinking within today’s agriculture industry’s economic context based such as the cost of farm equipment. He said, *“I think it’s a fifty-thousand-dollar touch on an air seeder right now...it’s almost going to be fifty thousand dollars again on both air seeders and the thousand-acre farmer can’t justify it [leaving a wetland in a field].”* Hacault shared that a perspective shift came for him during a conversation with his plumber. He said, *“One thing I’ve got pointed out to me is that I’m spending a lot more money on treating my water on the farms. Like, the bacteria quality is still good but iron content and mineral content.... It was my plumber guy who told me that. He said, ‘Dan, you guys keep on taking all the trees out, and I keep making more money.’ So, the wetlands and all the things that could filter that out seem to be gone...it was a bit of a shock when he pointed that out to me.”* In the end, when decisions about wetlands are made based on evaluations of their economic cost, the control and exploitation framework does not fully capture values generated in the two-way relationship between wetlands and landscapes that support human life.

Land-as-Home and Land-as-Resource

Both Ojibway people at Gaubiskiigamaug and their non-Indigenous neighbours see land as a home and as a resource. However, how they view the relationship between these two identities of land differs. One non-Indigenous participant (P05) described seeing the land as home as *“it’s just what you want to see. If you go out somewhere and you see nothing but dirt, it’s like,*

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'What's out there? There's nothing there!' You know? You don't get all the sounds of nature and everything else." A non-Indigenous historian from the Swan Lake region (Hambley, 1950) further described the lands around Swan Lake as home, saying, *"Most people have only one real home, no matter how many places they may move to.... That place is usually the farm or the lot or the river or the house that you loved when you were young. In your soul you live there."* However, Hambley also described the tension arising from settler's perspectives between appreciating the beauty of their home landscape and seeing it as a resource, saying, *"In the district that we know as Swan Lake, the beauty of nature's flowers has had to retreat before the growing grain and the grass planted for hay and pasture"* (1950, p. 123). In this view, land-as-home makes way for land-as-resource.

From the Ojibway perspective, land is both a home and a resource and these two identities are compatible. Gaubiskiigamaug historian Scott described his People's traditional territory as being *"up around the Assiniboine River and up near Rathwell at a place called Indian gardens. West there to Eagle's Nest, East there to Round Plain, and Long Plain. There's Long Plain, Round Plain, Long Lake, and Round Lake as well."* He described these lands as *"our gardens"* that were used for *"fishing, hunting, those kinds of things."* His people also cultivated many plants within their territory, including *"squash, wild turnips, wild onions"* and a variety of nuts and berries.

For the Gaubiskiigamaug community, the tension between land as home and land as a resource was addressed by their approach to cultivation and animal husbandry, which Scott described in detail: *"We didn't take down trees. We would plant our gardens in those open meadows, and some of them were very well sheltered, but again, you knew the environment, so you knew where the things would grow best, where they would catch the rain, where they*

wouldn't get runoff, those types of things. And it wasn't like the cultivating you see today.... You would turn the soil, plant the seed, and then move on the next year, right? So, it wasn't a permanent field like you see today." "Even the wild forests provided us with berries and different types of plants, so you didn't chop those things down, you didn't clear cut." Ojibway systems and worldviews accommodated a generative tension between considering the land-as-home and land-as-resource reflected in how they managed and used land. In contrast, colonial systems have created an oppositional tension between land-as-resource and land-as-home.

Significant repercussions exist today for traditional Indigenous ways of relating to lands across Canada. Traditional Ojibway land relations in the Swan Lake region are nearly impossible under colonial systems (Scott, personal communication). Private land ownership, exclusion from representation at municipal and provincial levels, and legislation that interferes with the expression of treaty rights, such as The Manitoba Natural Resources Transfer Act (1988), among many other factors, contribute to the continuation of tensions between Indigenous and non-Indigenous communities into the foreseeable future when it comes to questions of land governance such as with today's wetland crisis.

Concepts of Rights and Responsibilities

Colonization created a clash between Indigenous and colonial concepts of rights and responsibilities. Tensions created by differing understandings of rights and responsibilities have implications for how people relate to wetlands in the Swan Lake region today and have contributed to the reshaping of the Swan Lake region since colonization. In this section, I will examine a few examples of how traditional Ojibway views of rights and responsibilities clash within Canadian systems.

Legal Systems

First, this tension can be seen in how these concepts are enacted differently within Ojibway and colonial legal systems. Within the governmental system of Canada, Indigenous people are granted certain rights that are constitutionally protected under the law. However, these rights “*are continually being eroded*” because of their incompatibility within the Canadian legal system (Scott, personal communication). For example, part of Treaty 1 (1871) held that Ojibway people would be able to continue their traditional lifestyles and practices, which included specific routines of caring for the land, such as land-care tasks different people are seen to be responsible for as part of their cultural identity and role in the environment (Scott, personal communication). However, the right to access natural lands and practice traditional ways of living conflicts with private property boundaries, modern infrastructure, and industrial development, which preclude these responsibilities even while the rights are maintained. Scott gave an example of rights under colonial law interfering with Ojibway People’s responsibilities under Ojibway law. He illustrated how “*I can’t go and protect the water at Grassy Lake or Rock Lake because the municipality is responsible for that. But yet we’re supposed to have a shared responsibility [under treaty].*”

Another difference is that laws in the colonial legal system grant rights to individuals. However, in Ojibway legal systems, individuals are held responsible for their behaviour within collectives like their community and the environment as captured by the Ojibway concept translated in English as “*our role in the environment*” (Scott, personal communication). The concept includes an understanding of individual responsibility as part of collectives and landscapes. This concept was part of how the shared responsibility mentioned in treaties is understood from a traditional Ojibway perspective. In this way, agreeing to a shared responsibility was like becoming accountable to everyone you will impact on the landscape by

your actions. Scott explained, *“If [our neighbours] do something upstream of us that affects us, or we do something that affects people downstream, then we have that shared responsibility not to do that with each other.... It wasn’t access to just the water at the border of your reserve. Water constantly moves, so my water must be somewhere in the Pacific Ocean right now! So, to us, it’s ridiculous the way the laws are written.”*

Further tension has been generated because colonial laws limit responsibilities for the land, restricting collective land responsibilities for the benefit of individual economic wellbeing. This has played out in many ways, including exempting government responsibilities toward Indigenous communities while upholding the individual rights of private landowners. As Scott explained, *“The ways the laws are written it became a conflict over rights rather than responsibility.”* Adding, *“We look at it more as responsibility because we don’t believe in ownership of land. You can’t own it because everybody needs it. And water as well; everybody needs that because that’s life.”*

Legal structures under colonial systems also make it difficult for Gaubiskiigamaug to work with neighbouring private landowners or municipalities. Scott described how the legal system holds up individual rights but challenges collective responsibility, saying, *“The reason we were never part of the conservation district back then is because we were bringing in a federal jurisdiction.... [Reserve] land itself is still under Section 91 (24), which is a federal responsibility under the BNA Act. So, it is a complicated situation if you follow the strict sentence of the law. But in terms of working together with our neighbours and just making decisions about the watershed here, you know it shouldn’t be that complicated. It shouldn’t be, but you know it’s going to be.”*

Ojibway legal concepts of responsibility refer to the behaviour of all species, not only humans, and come close to being understood in English as the laws that govern an individual's behaviour as part of larger collectives, both as species and ecosystems (Scott, personal communication). This framework for guiding behaviours is also tied to identity. In this way, it is felt in the traditional Ojibway view that parts of the Canadian legal system “*diminish our ability to be human beings in Canadian law*” as Canadian law precludes individuals from fully expressing their role as a human, their traditional roles as Ojibway, or their traditional roles in their community at Gaubiskiigamaug specifically (Scott, personal communication). However, Ojibway law is still relevant to the discussion of wetlands because, despite the restrictions of the Canadian legal system, many people at Gaubiskiigamaug still follow their traditional laws.

Scott explained, “*Our laws are still relevant because if you look at people that live in these reserves that aren't really involved in the authority of the Band, other than voting, they're still actually practicing those laws.... They just don't recognize that they're doing that but it's our laws.*” Scott further clarified that Canadian laws effectively separate people from the land as reflected in concepts of individual rather than collective rights and “lines on the ground.” In this way, much behaviour driven by Western economic and government systems is breaking Ojibway laws and the treaties they made with the Ojibway Nation. Scott explained, “*Now we cut everything up, we make roads and plow everything underground,*” these behaviours are directly in opposition to the role humans are understood to have responsibility for within ecosystems they inhabit. This role includes responsibilities to steward ecosystems as wholes and not break them apart into separate pieces, among other things. By operating within the bounds of the Canadian legal system, the Chief and Council governance system at Gaubiskiigamaug often reinforces this separation. However, many Gaubiskiigamaug community members still interact with the land

based on Ojibway laws. This dynamic creates tension between traditional land users at Gaubiskiigamaug and the reserve governance system.

To summarize the contrast between how rights and responsibilities are enacted in Ojibway and colonial legal systems, it can be said that one system is about guiding connection, communication, and knowing how to live with our environment. The other is about separation, limiting responsibilities by creating isolated bubbles of rights designated to specific individuals and places, limiting their responsibilities within larger wholes, whether human communities or landscapes.

Land Use and Governance

When it comes to enacting responsibilities for the land and waters within Gaubiskiigamaug's traditional territory, as understood within their traditional land management systems, knowing how everything affects everything else within a landscape is essential (Scott, personal communication). Moreover, with modern agriculture, there are a lot of unknown dynamics with new technology and chemicals in terms of impacts on land and water, plants and animals. So, these knowledge gaps make it difficult to enact traditional responsibilities in terms of wetland stewardship due to all the unknown dynamics within modern agricultural landscapes.

In the traditional Ojibway view, Canada's laws protect ownership and rights. They do not support traditional land use or responsibility for land, which utilizes a collective and systemic approach to land use and care. In this way, the legal system is set up to support and enforce colonial human-land relationships while it erodes traditional Indigenous human-land relationships (Scott, personal communication). Even on Gaubiskiigamaug lands, the current land management regime, based on Canadian law, still restricts traditional land users' ability to access lands and their traditional role in land stewardship. In Scott's view, Indian Act-style decisions are

still being made, and reserve people are still separated from the land because Gaubiskiigamaug's land management system must comply with colonial systems' structures, which operate by creating limits on land access and land responsibility.

Education Systems

Through Ojibway land-based education systems, one had to learn how things connected through experience on the land and learning from Elders, relatives, and other experts in your community (Scott, personal communication; Simpson, 2017). This knowledge gave a person the responsibilities connected to their identity, something they built up over time. Scott shared a story: *"I remember a story that one of these old men said that we had one crazy guy here who, I guess, was responsible for part of our hunting group. And then they went and camped, and lightning struck a tree there, and their horses got electrocuted because I guess he didn't know that you don't camp near those. Because it was too high, where the lightning could affect our animals. Simple things like that [had to be learned]."* But *"you can't face that in a classroom where you're studying theory."* Instead, this type of knowledge and accompanying responsibilities are taught through experiences while in relation to community and land.

Unfortunately, according to Scott, these foundational abilities are not widely understood today because they are challenging to teach. Scott said, *"So all those little, little components of our knowledge are very difficult to teach now because you've got to get the attention, the long-term attention, of these kids,"* and the best way to do that is on the land without the time restrictions of colonial education systems (Scott, personal communication). In this way, both restrictions of time and restrictions of space enacted through colonial education have created an environment where the practice of Ojibway concepts of responsibilities, as well as their

constitutionally protected rights to practice these responsibilities, as detailed within Canadian law, are restricted in favour of colonial concepts of rights and responsibilities.

This tension is particularly felt between Ojibway and colonial education systems. As Scott illustrated, because following Ojibway laws, as they are loosely translated in English, includes responding to the environment in ways that do not harm everything around you and based on deeply contextual ecological knowledge, modern people have trouble following Ojibway and other Indigenous laws. Scott said, “[*responding to*] *all those little signals*” a person needs to follow under Ojibway law, “*they wouldn’t know how to do that today.*”

To summarize, colonial concepts of rights, built into colonial systems, restrict Ojibway and other Indigenous conceptualizations of rights by limiting land access and, thus, traditional responsibilities to care for lands and waters within traditional territories as whole, interconnected systems. Ojibway's concepts of rights include an understanding that rights are inseparable from responsibilities towards lands and waters, communities, and other relationships with plants, animals, and other beings in one’s environment. This way, a clash occurs between colonial systems based on individual rights and Ojibway systems based on interrelational rights. Furthermore, as enacting individual roles in collective responsibility is tied to Ojibway concepts of identity, spirituality, and understanding of what it is to be human, colonial legal systems “*diminish our ability to be human beings*” and live out cultural identity (Scott, personal communication). In the end, colonial concepts of rights and responsibilities can be seen as protecting separateness, while these concepts in the Ojibway worldview and legal systems are about protecting connectedness.

Worldview Impacts on Ojibway and non-Indigenous Human-Land Relations

Through colonization, minds were colonized, as were lands and waters. Colonization of mind changed the predominant lens people look through when they make observations and decisions about the land, including wetlands (FNCFCs, 2022; Shiva, 2015). The worldview inherent to colonialism is inherently in conflict with the Ojibway worldview in many fundamental ways – namely, in how the roles of rights and responsibilities in human-land relationships are structured within social value systems, how these are understood, and who is understood to have them. For example, “at their core, [Indigenous] rights are fundamentally environmental rights, as most [Indigenous] rights are directly and indirectly connected to functioning ecosystems” (Phare & Mulligan, 2015, p. 59). Contrastingly, in the colonial worldview, the right to having an extractive relationship with nature protected by individual property rights is seen as more morally and legally justified than are the rights of nature (Cherpako, 2023). A recent example is demonstrated by the Manitoba Southern Chiefs’ Organization, which faces an uphill legal battle asking for the rights of Lake Winnipeg to be respected (Weber, 2024). By extension, the colonial worldview places the right to exploit nature as more justified than the collective rights of humanity to live as interactive parts of a healthy environment.

Further, the colonial worldview has been perfected to bring about the domination and control of Earth’s lands and waters by colonial empires fed by an economic system of exploitation which depends on the continual expansion of people, lands, and waters dominated by the system to exist (Pasternak et al., 2021). This dynamic and dependency on exploitation put the colonial worldview in direct conflict with the Ojibway people, whose lands were sought for empire expansion. Private rights, private profits, and private lands oppose the idea of lands and

waters as unowned beings in themselves, reciprocal economics, and interdependent rights (cite). Pasternak et al., 2021, describe this conflict dynamic, saying, "...colonization is an economic project based on land theft. It requires a political system that operates through domination and violence to maintain this theft. Therefore, that which enriches the settler state necessarily impoverishes and criminalizes the colonized" (p. 5).

Today, through systems of abstraction and enforced through systems of power and control, lands and waters that have been home and relation with Indigenous Peoples for millennia have been converted into goods and services that fit the purpose of the global economy to serve the interest of colonial governments and corporations (Pasternak et al., 2021). This change has transformed human-land relationships and has transformed landscapes. It has also put colonial worldviews in opposition to Indigenous worldviews, an oppositional tension that exists today wherever lands and waters seen as a home and relative overlap with lands seen primarily as a resource to be owned and exploited.

Tensions Between Ojibway and Colonial Systems

The introduction of industrial agriculture on the Great Plains first and foremost served the interests of powerful empires. Throughout history, this form of agriculture has been used as a tool of empire – allowing the accumulation of power for conquering colonial powers. It has been spread worldwide through a combination of military, legal, and economic coercion to replace land use systems used by place-based and Indigenous societies (Pasternak et al., 2021; Reed et al., 2024; Shiva, 2015). However, for those engaging in industrial agricultural practice, it has often become a way of life, part of identity, community, and culture (Beingessner, 2022). In fact, for many settlers involved in the process of colonialism, the rural values and agricultural lifestyle have often been seen as an expression of moral and ideological attainment (Carter, 2019;

Beingessner, 2022). In this way, the complementary relationship between colonial systems recruiting and utilizing settlers and settlers themselves contrasts strongly with the abuse of power utilized by colonial governments to control and diminish Indigenous populations.

In contrast, Indigenous communities, whose lands were appropriated for private land ownership and the establishment of an industrial agricultural economic foundation for Canada's newly acquired Western territories, were devastatingly impacted by the colonial process. The Ojibway experience during the implementation of industrial agriculture in the lands around Swan Lake particularly contrasted with settler experiences. They experienced a complete restructuring of their economic, governance, education, knowledge systems, and land management processes on the lands they called home (Scott, personal communication). Their traditionally nomadic and land-caretaking societies were replaced with sedentary life systems, restricted by property and other jurisdictional boundaries, and inhabiting a landscape transformed into cropped fields and fenced pastures – place measured by its production value.

Here, I detail several key areas of tension to better understand tensions between Ojibway and non-Indigenous perspectives regarding wetlands as with lands and waters generally. I begin by looking at the signing of Treaty 1 as it signifies the beginning of a formal relationship between Ojibway and non-Indigenous Peoples in the Swan Lake region. Afterward, I look at key differences in how people related to lands and waters, including wetlands, between Ojibway and non-Indigenous populations. These differences are significant because they led to many misunderstandings during the treaty process and continue to cause tensions between the Ojibway and non-Indigenous communities today. These will provide the background understanding needed for the remaining sections.

Tensions Between Land Governance Systems

The land reflects how we use it. More, how we use the land and make economic and legal systems shape land management decisions. The landscapes seen by first settlers reflected a specific type of human-land relationship, one characterized by the integration of human and land systems reflected in economic, governance, education, and other systems both within and between Indigenous Nations (Anderson, 2005; Pasternak et al., 2021; Scott, personal communication). Colonization used a variety of strategies, from military to economic to political, to force a dramatic shift in how lands were governed and used (FNCFCS, 2022). This shift generated a landscape transformation that is ongoing today, converting self-perpetuating ecosystems of which human communities were an integrated part into actively managed lands used for industrial agricultural production, creating opposition between human and natural systems (LaBoucane-Benson et al., 2012). Furthermore, colonial land governance structures further perpetuate colonial human-land relationships (Patrick & Baijius, 2021). For example, wetlands continue to be converted to drained and cultivated land to enlarge fields and make them more geometrically favourable for industrial agricultural practices (Baulch et al., 2021; Rashford et al., 2011). Doing so perpetuates conflict between the needs of human and wetland systems in a system built from a worldview that sees humans and nature as being in opposition. It also changes the way landscapes appear and function.

During settlement, there was a major shift in land use from primarily traditional Indigenous land use to primarily industrial agricultural land use. This shift in land use was accompanied by a dramatic shift in how people were in relation with land, from relationships of reciprocity to relationships based on ownership and exploitation, reflecting a shift in the dominant paradigm used to govern the land (Patrick & Baijius, 2021). Where land relationships

under Indigenous and Métis government and treaties were recognized as shared, with various traditions, principles, and treaty agreements guiding land use; under the colonial land governance system, the land was privately owned and became managed as separate parcels, each landowner expressing different priorities and approaches to land management according to their values and economic participation (Scott, personal communication; Stunden Bower, 2011). These differences extend to wetlands, where some landowners choose to conserve or restore wetlands while others prefer to drain them, creating inconsistent treatment of wetlands across the landscape (Foguesatto, Borges & Machado, 2020; Liu, Bruins & Heberling, 2018).

The shift from traditional Indigenous land governance systems to colonial ones has created tensions between Indigenous and non-Indigenous populations in several ways. At Gaubiskiigamaug, from an Ojibway perspective, there had been an expectation that settlers would learn about the land and how to live on it from the Ojibway and other Indigenous people (Scott, personal communication). The Ojibway expected a two-way sharing of knowledge and hoped to learn farming methods from the settlers. They even engaged in several informal “*handshake treaties*” with groups of settlers, such as the Mennonites, agreeing that they would trade food and other goods in exchange for instruction in Western farming practices before the reserve system was put in place (Scott, personal communication). The Ojibway made this assumption because learning from a place’s previous occupants was a custom in the Indigenous world whenever a group moved to a new place (Scott, personal communication). For example, when the Ojibway moved onto the plains, they learned how to live here from the Cree, with whom they made treaties to share the land. Through this process, the Ojibway adopted Cree customs such as the bison hunt and using tipis.

However, the reserve and pass systems worked to prevent this exchange between the Ojibway and settlers from happening. Through military enforcement of illegal pass and permit systems, Indigenous people were restricted to their reserves and prevented from using money or participating economically with their neighbours (Carter, 2019). They were even imprisoned if they broke these restrictions (Scott, personal communication). Furthermore, on reserves, all decision-making ability was taken away from community members and given to government representatives called Indian agents, many of whom were known for abusing their power, forcing people into labour, taking sexual advantage of women, and arbitrarily withholding food or other necessities to serve their interests (Carter, 2019; Daschuk, 2019; Scott, personal communication). When it came to land, according to Scott, *“it was the Indian agents that made a lot of those land use decisions for us even though we objected to it in certain places. Like, in this reserve, in certain areas, we didn’t want agriculture practices. We wanted to keep it like a wooded area, a forest, because of who we were and the kind of things that we did, such as hunting, gathering that kind of thing. And then, of course, tying that all to our spirituality as well.”*

Furthermore, there has been distrust on the part of non-Indigenous farmers concerned about traditional land use practices violating their rights as private property owners. Recent examples have included the night hunting controversy, which has seen a former premier of Manitoba openly call young Indigenous men “offenders with criminal records” who “[go] off shooting guns in the middle of the night” as justification for proposed hunting legislation that would restrict night hunting practices (Fontaine, 2017; Scott, personal communication). Growing racial tensions have also contributed to an erosion of informal land-sharing arrangements people from Gaubiskiiigamaug have had with neighbouring farmers in the past. Scott explained how, in the past, non-Indigenous landowners used to be more willing, generally, to allow people from his

community to access their land for camping, hunting, or harvesting. However, today that is different. He said there are fewer farmers now that have a good relationship with people at Gaubiskiigamaug, and many will not allow access to their land due to increasing distrust between Indigenous and non-Indigenous populations. As things are, non-Indigenous landowners act in a gatekeeper role to the treaty rights initially negotiated with the Federal government, which included access to all unoccupied or unused natural lands, even those privately owned, for traditional and subsistence uses by Indigenous communities (Scott, personal communication). Arguably, this situation has put the interests of Indigenous and non-Indigenous rights in direct conflict with one another, a dynamic that feeds ongoing repercussions for Ojibway land users who are up against a system that protects the rights of private land ownership at the expense of their own.

Finally, another source of tension between Ojibway and colonial land governance has been between the current private land ownership system and traditional forms of sharing land collectively. This has led the land to be managed as separate units rather than an integrated system. Scott explained, *“One impact to land use at SLFN is that community members are now confined to lots, whereas in the past they would have used the land collectively and as an integrated system.”* A system that protects land ownership at the cost of public land access and land use results in separation from culture and land. For the Ojibway people, lost access to land has also resulted in losing the language and cultural knowledge, as it is difficult for the language to be passed between generations or taught separately from the land (Scott, personal communication). This loss of knowledge is a challenge to making wetland stewardship decisions informed by Traditional Knowledge or caring for wetlands in ways informed by Ojibway Traditional Knowledge, having impacts on wetlands themselves.

In conclusion, the land reflects how we use it, and human systems, such as governance and economics, direct how we use the land. A significant tension between Ojibway and colonial systems relating to land governance has been that Ojibway systems are shaped to be integrated with natural systems, meaning signals that influence change and adaptation within Ojibway systems primarily come from the land (Scott, personal communication). In contrast, colonial systems primarily respond to signals from modern global systems of power and economics (Paradies, 2020; Pasternak et al., 2021; Scott, personal communication). Here, the signals that drive change within colonial systems often conflict with the wellbeing of locally integrated human-land systems, such as relationships between humans and wetlands (Tsuji et al., 2023).

Tensions Between Land Use Systems

As mentioned, the change in dominant land use and governance systems from Indigenous to colonial ones transformed how humans used the land; or the human-land relationship. Scott described the way Ojibway used land before colonization as gardening. He said the land “*was like our garden, and we had a vast, vast garden. That’s why we were nomadic; you wouldn’t wipe out an entire area so that it could recover the next year. There was always a person in charge of that; I guess you could say our early conservation persons. Everybody within each of the sub-tribal groups would have those kinds of skilled people within them who knew about plants and somebody who knew about big game hunting and so on. Those were the people that held Council, and they would be the ones who made decisions about land use. Because you had to survive, so you didn’t kill everything in sight.*”

However, Ojibway gardening, partly learned throughout their Nation’s history and partly from the Cree when they moved on the plains, differs from European-style gardening. When asked how Ojibway cultivated different types of plants for food and what varieties, Scott

explained, *“It would’ve been grains and berries and those kinds of things. We had our own types of gardens. Squash, wild turnips, wild onions, those kinds of things we planted.” “Gardening was part of our practice traditionally as well as modern-day contemporary: tomatoes and canning. My mom used to can constantly. So, then we would have fruit in the middle of winter, things like that. Or the gathering of wild hazelnuts. I used to love roasting those things when I was growing up as a kid. And I remember my mother and my grandmother smashing them to make a butter like peanut butter. Or they would roast them or cook them for different types of foods. Same thing with berries, plumbs, all of those things.”*

Animals were also considered in how the Ojibway curated the landscape, and actions were taken to ensure abundant wildlife populations. Scott explained that some animal husbandry practices his people used before settlement involved keeping track of animal populations and movements, anticipating where to hunt and areas not to *“disturb for sometimes years until the animals came back. That was part of the conservation that we used to do.”* He continued, *“It’s the same thing with fish. They used to jam where the water would come into the lake, and the fish would all come there to get oxygen. And sometimes we would take a lot of fish and other times we wouldn’t bother them at all. We would break open the water for them, so they didn’t have to do that. They would all die there if you did not do anything.”* These decisions were made based on many observations made by many different people in the community who used the land in a diversity of ways doing daily tasks. These people then brought their observations back to the environmental knowledge experts in their community, who then made decisions for the whole community informed by real-time data and their knowledge of Oral History as well as traditional environmental expertise,

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Scott described the pre-colonial landscape as being made up of *“lots of woodland areas and open meadows. That’s where we put our gardens.”* Importantly, caring for these landscapes was an important part of survival since, in the past, his people could not access global food systems as we do today. Instead, they completely relied on the landscape around them to source all their food year-round. For this reason, traditional land management and gardening practices include curating habitats to increase the productivity of edible foods. These knowledge and skills are central to the traditional Ojibway land-based education system.

Scott explained, *“It’s the way we teach. It’s the same thing as when I had these kids yesterday, where I was transplanting wild berry trees and making our old Indian gardens is what I call it. I took them in the bush, and we were transplanting chokecherries, saskatoons, pin cherries, and then the snowberry with the thorn bushes.”* *“But those are just the simplest little things that you have to learn in our culture. Being out there in the environment, you have to learn those things. That’s part of survival. You need to know those things. Now we cut everything up, we make roads and plow everything underground.”*

When describing tensions between his community’s traditional way of using the land compared to industrial agricultural practices, Scott said: *“We were nomadic, so we wouldn’t always be in one area all the time. Like maybe we would be there for one season and then we would move on to the next. It’s like summer fallows. You don’t see them anymore; there’s just this constant addition of chemicals to try and keep the soil growing something instead of just letting the plant create a bed there where things can grow properly. Now it’s just constantly churning up soil and letting chemicals do their job rather than letting nature take its course. So that’s the difference from the way we used to do our agriculture and the way it is now.”*

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“We didn’t take down trees. We would plant our gardens in those open meadows, and some of them were very well sheltered, but again, you knew the environment, so you knew where the things would grow best, where they would catch the rain, where they wouldn’t get runoff, those types of things. And it wasn’t like the cultivating you see today.... You would turn the soil, plant the seed, and then move on the next year, right? So, it wasn’t a permanent field like you see today. So, you used what was available there, right? Even the wild forests provided us with berries and different types of plants. So, you didn’t chop those things down. You didn’t clear cut.”

To summarize, wetlands are never considered isolated parts of the environment from a traditional Ojibway perspective. Instead, they are to be stewarded as parts of larger ecosystem complexes made up of forest, grassland, and wetland habitat as well as humans and the many plant and animal species that lived and interacted there as part of their environment. The ways Ojibway people traditionally use wetlands reflect their view of wetlands as relationally integrated within connected human-land systems. For example, some areas known by settlers as “*the Indian’s gardens*” include wetlands (Scott, personal communication). The knowledge that goes into stewarding wetlands is built over long periods through relationships with traditional land users and in sustained, reciprocal interactions with these specific wetlands.

According to Scott, the old people in his community now passed, would have thought about the land as a whole. They would not have thought of environmental disaster as a scary future possibility. Instead, they would have seen what is happening to the land today as an immediate crisis affecting all of us – both because of the magnitude of environmental damage already occurring and due to the risks created by not being able to survive off the land you inhabit should global systems malfunction.

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To compare, non-Indigenous perspectives usually view wetlands as separate from other types of landscape, whether natural or cultivated. This reductionist perspective clashes with the systems view of the Ojibway. When wetlands are seen as separate from other parts of the landscape that happen to be less valuable for cropping or other types of agricultural production, it can lead to wetlands being seen as “in the way” and as needing to be “cleaned up” to allow delineated areas on the land to be more productive agriculturally. For example, P02 described his perspective: *“Let’s say you’ve got a circle in the middle of a square field. Going around that circle for everything you do during the growing season is a big inconvenience. It takes time...and you’ve wasted inputs and money. So, if your time is money, it all comes back to the dollar anyway. And you have overlaps and that’s where sectional control [comes in] for people that have all these wetlands in the middle of fields.”* Sectional control is the practice of reducing overlapping applications of inputs and costly chemicals (Vanrobaeys, personal communication). Going around obstacles such as wetlands makes this difficult to achieve. With sectional control, the goal is to optimize the landscape for efficient agricultural production by removing irregularly shaped wetland areas. This clashes with the Ojibway worldview that sees the landscape as a whole, where all parts of a landscape are interconnected and necessary for the healthy function of the whole, rather than trying to optimize the landscape for one type of land use over others by modifying the landscape into geometric shapes to optimize a single type of land use.

Scott illustrated this traditional perspective, saying, *“I don’t like that idea of draining land just for agricultural reasons.... Tractors have good steering wheels; they can go around them. That’s my thinking. Like, we need duck habitat because that’s part of our lives. We eat duck. We need wooded areas because we eat deer and rabbits and whatever else is in there. So, agricultural and traditional land use they clash at that level.”*

When settlers first started arriving in the Swan Lake region, the Ojibway had verbal agreements with settlers about not disturbing wetlands where his people specially stewarded different plants and or animals. The settlers translated the Ojibway name for these places to “Indian gardens,” which they are called in English today. Indian gardens were usually complexes of forest, grassland, and wetland, as the Ojibway used natural materials from all these natural systems. These gardens were also usually connected to a waterway, which are seen as landmarks and used for navigation within Ojibway conceptualizations of land. Until the reserve and pass system segregated Ojibway people from settlers and isolated them from their traditional lands and their neighbours, these agreements to leave the “Indian’s gardens” aside for their use and stewardship were respected by non-Indigenous Peoples (Scott, personal communication).

In this way, colonial policies, including the reserve system and pass system, which restricted the Ojibway People’s movement on the land, have worked to eliminate their Indian gardens. Moreover, this example illustrates how they have also worked to separate Ojibway communities from collaborating and partnering with their non-Indigenous neighbours to make decisions about the landscape as a whole. These colonial policies have removed the Gaubiskiigamaug community from the ability to look after their plants and animals within wetlands in these gardens, separating them from their history, cultural traditions, and practices, as well as traditional ways of passing on knowledge related to wetlands. This has eroded their cultural knowledge of wetland stewardship and use of wetland areas. People at Gaubiskiigamaug are now concerned, and have been since settlement, about the impacts of agricultural activity on wetlands. However, they have been largely cut off from having a voice, let alone a decision-making role, through various Indian Act policies while simultaneously being cut off from

accessing much of their traditional lands, which have worked to isolate them from the landscape as a whole.

Isolation from land and waterscapes is a big part of why the reserve system has been so terrible for Gaubiskiigamaug. Under colonial systems, Ojibway people have been removed from the care for their traditional lands and gardens, which, in their worldview, they have an inherent responsibility to care for. According to Scott, *“It is these interactions with the land and the skills we develop through them that give us our traditional roles and responsibilities,”* in this way, forming traditional and cultural identities. As Scott explained, today, people at Gaubiskiigamaug want to be part of caring for wetlands and other natural areas within their traditional territories, and they continue building bridges within colonial legal and government systems to do so. Current changes to The Watershed Districts Act (2022) in Manitoba, which allows First Nations to participate in Manitoba’s Watershed District program, result from this work, which is an ongoing process.

The Role of Power and Control in Shaping Human-Wetland Relationships

Modern wetland issues exist in political space. Examining individual land users' motivations and worldviews does not complete the picture of human-wetland relationships in the Swan Lake region without looking at power dynamics and politics (Boelens et al., 2016; Scott, personal communication; Wilson & Inkster, 2018). Essential to this political-ecological perspective includes examining the measures used to establish systems of power and control. In this section, I detail the coercive control measures used to establish colonial dominance over land and methods used to break treaty agreements between the Canadian government and the Ojibway. I also investigate how these systems of power, and the strategies used to uphold them, lock systemic dysfunction and injustice into the modern human-wetland relationship.

Coercive Control and Colonization of Mind

Coercive control is “a specific set of methods and techniques” used to “influence how a person thinks, feels, and acts” to gain control over them (FNCFCS, 2022, part 1, p. 1). Colonial coercive control has been used worldwide through the process of colonization to influence the way both Indigenous and non-Indigenous people think, feel, and act in ways that benefit colonial systems at the expense of Indigenous and other local systems that colonial powers aim to replace (FNCFCS, 2022; Shiva, 2015; Yates et al., 2017). Many techniques have been used as part of colonial coercive control. Here, I share a few examples from Canada. Although not a comprehensive summary, these will help explain some of the coercive control measures used to colonize the Swan Lake region, ongoing tensions between Ojibway and non-Indigenous people, and dynamics in today’s human-wetland relationships.

Colonialism depends on obtaining control of people to control lands and waters, so-called natural resources (FNCFCS, 2022; Linton, 2010). Many coercive control tactics have been used towards this end worldwide, and Canada is no exception (FNCFCS, 2022; Tsatsaros et al., 2018). As detailed in a three-part document shared by the First Nations Child and Family Caring Society of Canada in 2022, Canada’s coercive control tactics have included the distribution of propaganda portraying Indigenous people as “dangerous,” “lazy,” “greedy,” and “irrelevant.” They have included displacing Indigenous people from their traditional territories, isolating them on reserves, separating them from their families, and forcing dependency on government hand-outs. They have included planned starvation, outlawing culture and language, distorting history and representation of important events, and, today, denying “the reality of ongoing human rights violations” and putting the blame on First Nations communities themselves (FNCFCS, part 1, p. 2).

Beyond controlling people and land, colonization depends on controlling minds. Colonial history, as we know it, would not have happened without a colonial mindset replacing Indigenous beliefs regarding the rights of nature and human relational responsibilities toward nature as the dominant mindset. Many Indigenous populations worldwide have worldviews centred on respectful and reciprocal relationships with the natural world, often having emerged over generations of human-land relationships in a specific region or place (Datta, 2015). According to Kimmerer (2013), beliefs about land in many Indigenous worldviews is that land, which includes waters, is everything: “identity, the connection to our ancestors, the home of our non-human kinfolk, our pharmacy, our library, the source of all that sustained us.... It was a gift, not a commodity.... In the eyes of the Federal government - that belief was a threat” (p. 17). Leonard et al. (2023) explain, “valuing Water as a sacred gift... will result in different actions rather than knowing Water as a resource to be harnessed purely for consumption, economic gain, and exploitation” (p. 387). Morales and Thom (2020) also demonstrate the threat that Indigenous systems posed to colonial power, illustrating that colonial ownership of land and dispossession of Indigenous people would have been disallowed within Indigenous systems of law and governance.

The threat presented by Indigenous worldviews motivated an explicit and systematic campaign of coercive control tactics used to ensure the dominance of the colonial worldview and systems (FNCFCS, 2022). In Scott's words, *“Everything, even our worldview, is being attempted to be extinguished. We have to conform to the way Western society thinks. That’s the intent behind the destruction of our inherent rights.”*

On the Canadian prairies, coercive control was needed to establish a population of people across Canadian territories that conformed to and supported colonial systems. Before settlement,

Indigenous governance systems had already been established across the territory. In the Swan Lake region, trade occurred between European and Indigenous Nations for nearly a century before settlement. Indigenous systems remained predominant during this period, governing people's movements and behaviour (Scott, personal communication). Colonization required the replacement of the existing network of land-stewardship civilizations with one compatible with the networked economies of global colonial powers – a system that would enforce responsiveness to global economic signals rather than place-based and environment-based signals (Pasternak et al., 2021; Reed et al., 2024). To achieve this systemic transformation, coercive control methods developed centuries ago in Europe were used here to override the deeply established Indigenous worldviews, lifeways, economies, governments, and ways of managing, using, and demarking landscapes previously existing in Canada's newly claimed Western territories (Federici, 2020; Lent, 2017). Moreover, these measures had to be effective within a short timeframe required for quick settlement of the plains to allow Canada's tenuous claims to the territory in the face of immediate threats from U.S. expansionism, Métis and other Indigenous claims to sovereignty over land, as well as pressures from Europe (Leonard et al., 2023; Pasternack et al., 2021). The result was a dramatic transformation of the systems and structures shaping human-land relationships, dramatically transforming the prairie landscape, with significant implications for the wetland crisis we face today.

Examples of Coercive Control Used Toward Colonial Aims

A key coercive control tactic has been controlling narratives to justify state actions towards Indigenous people, particularly for injustices, abuses, and manipulation. For example, early propaganda used to promote the colonization of Canada used “dehumanizing and denigrating views of Indigenous Peoples to legitimize immoral state actions” (FNCFCS, 2022,

part 1, p. 1). For example, it was said that “In their refusal to progress, improve, develop, and prosper, the Indians were ignoring God's gift” (Carter, 2019, p. 20). This narrative was used to justify Canadian actions that caused high rates of starvation and sickness within plains communities, such as using military control to restrict Indigenous people to reserves and to limit hunting and other food harvest activities, leading to high mortality rates that began to raise concerns in settler communities in addition to Indigenous ones (Carter, 2019; Daschuk, 2019; FNCFCS, 2022; Scott, personal communication).

The lack of European-style agricultural practices within Indigenous cultures was also used as evidence by the colonial state to claim that Indigenous people were morally inferior, a narrative used to justify state mistreatment of Indigenous people. In this way, the colonial state equated living and using the land in ways that were beneficial to the state and the global economy as “good.” In contrast, Indigenous methods of land use were labelled as “sinful” or “bad,” further delineating differences between Indigenous and non-Indigenous cultures as good and bad, placing settlers into oppositional relations with Indigenous communities using narrative (Leonard et al., 2023).

Besides narrative control, legal means have been a primary tool of colonial coercive control measures, mainly through the Indian Act. The Indian Act was first introduced in 1876 through the consolidation of several other pieces of legislation related to Indigenous Peoples in Canada, such as the Gradual Civilization Act of 1857 and the Gradual Enfranchisement Act of 1869 (Dickason & Newbigging, 2010; Hanson, 2009). The Indian Act has been used to control every aspect of life for Indigenous people in Canada, including identity, cultural practice, economic participation, and community governance (FNCFCS, 2022; Carter, 2019; Scott, personal communication). In the past, Indian Act policies have been used to enforce the pass

system under which *“if you were outside the boundary of the reserve, the Indian agent had to approve it, and you had to carry a piece of paper like a ticket. You had to carry it on your person and if the police caught you and you didn’t have that you would get thrown in jail”* (Scott, personal communication). Unfortunately, the pass system was often abused by Indian agents who were known to withhold passes as a means of controlling behaviour and to allow abuses including, for example, taking advantage of women and using Gaubiskiigamaug community member’s labour for their financial gain (Scott, personal communication).

Isolating First Nations and racially dividing Indigenous and non-Indigenous people in Canada has been another colonial tactic used for coercive control. Isolation has been achieved in many ways, including legally through the Indian Act, geographically through the reserve system, and economically through the permit system which restricted Indigenous Peoples from buying and selling (Scott, personal communication). “Us” versus “them” racial segregation was also created using “savage” or “primitive” and “civilized” or “modern” identity categories (Carter, 2019). Due to these methods of separation, today, *“it’s tough because maybe people don’t know how to work with the First Nation communities,”* said Daniels. Although Gaubiskiigamaug has made progress in collaborating with and building relationships with their neighbours through initiatives such as the Tri-Lakes Development Group, AAFC’s Living Lab – Eastern Prairies research and development network, and through partnerships with Manitoba Association of Watersheds (MAW), they have had to overcome many hurdles to do so and still do (Agriculture and Agri-Food Canada, 2023; Greenfield, 2020; Manitoba Association of Watersheds, n.a.; Sawatzky, 2021; Scott, personal communication).

Mind control through the residential school system and religious indoctrination of Indigenous youth is another example of coercive control used by the Canadian state to

successfully colonize what is now Canadian territory. The residential school system involved the forced removal of children from their homes for months to years (The Truth and Reconciliation Commission of Canada, 2016). Many schools were known for using harsh punishments with the purpose of erasing cultural identity. Abuse was rampant, as is well documented by the Truth and Reconciliation Commission of Canada. The residential school system was enforced through the Indian Act and is one of the starkest examples of colonial efforts to change the worldview of Indigenous populations, the consequences of which are well documented (FNCFCS, 2022). Scott shared a part of how the residential school system affected his family: *“My brother, who is sixty-nine now, he was the last one of our family that went to a residential school because my dad said, ‘That’s enough, you’re going to kill my kids. You aren’t going to take any more.’ And they just stopped, and he was never even charged, he didn’t go to jail for that. But at that same time too we had an RCMP here, he was one that helped us. He never enforced those silly-ass laws.”*

Restrictions on economic participation were also justified by the narrative that Ojibway people *“were savages and pagans and so on. That, and because we were wards of the state and weren’t persons under law, we weren’t allowed to hold money”* (Scott). From the late 1800s to the mid-1900s or so, *“We weren’t allowed to do our own trading, or even to help one another. Say my brother was farming across the road and he was having trouble: I couldn’t go across the road to help him. The Indian agent could charge me for incitement to riot and throw me in jail. That’s how strict they were back in those days”* (Scott).

Further, in 1927 First Nations were restricted from accessing the Canadian courts so were unable to advocate against these injustices through legal avenues (Scott, personal communication). It was in 1880 under the Enfranchisement Act that First Nations became wards of the state. In 1881, government officials known as Indian agents were placed on reserves and

given almost unlimited power to oversee all affairs of the state's wards. Indian agents had a lot of power to interpret Canadian Indian policy as they saw fit, using this power to benefit themselves and were able to stop Gaubiskiigamaug farmers from being successful in any way necessary (Scott, personal communication). The intent of this was to discourage Indigenous farmers and prevent them from competing with non-Indigenous farmers. For this reason, Indian Affairs policies were implemented in a diversity of ways within each First Nation as decided by the Indian agent, but the end goal was to remove the First Nation's agency in managing and using their lands. As a result, Gaubiskiigamaug lands were deforested and drained against the community's wishes, yet they were still unable to benefit from these changes and precluded from economic participation and from adopting modern agricultural methods.

Indigenous people still face many barriers to economic participation, unique from those faced by non-Indigenous Canadians. For example, *"It wasn't until about the 50s that the Indians could go and work off the reserve, like with a local farmer down the road, legally"* (Scott). Moreover, in the present day, First Nations still face numerous restrictions on their ability to participate economically. For example, their land is still *"held in trust by the Crown, so it is Crown land, and we are just occupants on Crown land"* (Scott). This means a lack of access to equity from land ownership nor the benefit of access to a tax base (Pasternak et al., 2021).

Finally, another recognized coercive control measure used by the Canadian government to control and manipulate Indigenous Nations has been setting up systems to ensure Indigenous failure, all while presenting the Canadian government as a benevolent benefactor. Experts recognize this strategy as a common characteristic of coercive control and it is seen in many examples throughout Canada's history (Carter, 2019; FNCFCS, 2022). The peasant farm policy is an example.

The Peasant Farm policy was introduced by Hayter Reed in 1889, well after many Indigenous communities had taken up a variety of agricultural practices, including cultivation for crops, raising livestock, and harvesting hay (Carter, 2019). The Peasant Farm policy was in part informed by a belief at the time that for Indigenous people to become civilized, they had to progress through various stages of evolution in sequence – they could not simply adopt modern farming implements and techniques without first using primitive types of agriculture (Carter, 2019). Following that, the policy went so far as to limit the tools people on reserves could use to those they could make by hand. Furthermore, they were discouraged from using metals and were only allowed to use wood, sinew, and other natural fibres. Even buckles, nails, and screws were disallowed. This, despite the fact that Indigenous peoples had been using these items for well over a century by the time the policy was put in place.

Furthermore, each Indigenous family was required to become independently self-sufficient under the peasant farm policy, breaking from the collective self-sufficiency traditional for Indigenous communities. This feature was informed by the idealistic vision of the self-sufficient farm family, popular at the time, where subsistence farming was seen as a morally superior lifestyle. It was hoped that independent subsistence farming would make Indigenous Peoples more virtuous in the Christian sense. Towards this end, Ojibway families and neighbours were not allowed to support one another in farming practices (Scott, personal communication). In effect, this meant that all members of each family, even young children, were required to help with seeding and harvesting, and work was done less efficiently than had been done when communities worked together. This change significantly reduced productivity on Indigenous farms (Carter, 2019). Furthermore, Indigenous families were not allowed to go into debt as their

non-Indigenous neighbours did, limiting their ability to purchase livestock, feed, or other supplies and further decreasing their ability to farm successfully.

Some aspects of the Peasant Farm policy did not follow the logic of evolutionary progression, however. These might be interpreted as blatant attempts to restrict Indigenous success at farming. For example, when clearing land for farming, people at Gaubiskiigamaug were not allowed to take down trees in the first year. Instead, the “*stump policy*,” as it was known, required Indigenous farmers to “*leave the stumps four feet high*” so that “*you couldn’t cultivate the land right away*” (Scott). Stumps were then only allowed to be removed the following year, and another year had to pass before the land could be cultivated (Scott). Government officials claimed that these harsh requirements were necessary for Indigenous people to progress towards a civilized evolutionary condition “at an accelerated rate” without taking the “unnatural” step of simply adopting modern practices of the day to begin with (Carter, 2019, p. 213). The subsequent years of starvation and harsh living conditions were downplayed as the result of the “lazy” and “half-hearted” efforts to farm as peasants, as well as proof of Indigenous people’s uncivilized nature and need to evolve. The many government officials and settlers who expressed concern with the unjust policy were labelled as “dissenters” who needed, in the words of Hayter Reed, to stop thinking for themselves and “set aside completely any opinions they might hold regarding the feasibility, etc., of carrying out this policy, and to act and speak always as if they had full confidence in the wisdom of getting Indians [sic] to cut their grain by hand” (Carter, 2019, p. 223). Reed’s statements reflect the intent to control minds and suppress critical thinking.

Non-Indigenous Canadians have significantly benefited from the lands and freedom of living in Canada but were also targeted by colonial coercive control measures. Descendants of

non-Indigenous Canadian settlers have been sheltered from the true nature of their Nation's character and history, such as the many injustices and harms committed in the name of the so-called public good (FNCFCS, 2022). They have also been subjected to government propaganda and policy, which has limited the ability of settlers to build positive relations with their Indigenous neighbours and, consequently, has prevented them from benefiting from sharing knowledge and skills between cultures.

Ultimately, the Canadian state depends on Canadians maintaining a mindset that upholds colonial narratives about the morality and rightness of colonial action, colonial power structures, and colonial ways of extracting value from and transforming the lands and waters within colonized territories. Both Indigenous and non-Indigenous Canadians have been affected by coercive control measures used during the process of colonizing what are now Canadian territories. However, Indigenous Peoples have undoubtedly been the most negatively impacted. While non-Indigenous people have developed disinforming worldviews concerning Canada's history and character and have missed out on the benefits of healthy relationships with their Indigenous neighbours, Indigenous people have been dispossessed from their land and economies alongside intentional exclusion from the colonial social and economic fabric, resulting in a vast wellbeing gap between non-Indigenous and Indigenous populations among other impacts (Pasternak et al., 2021). The reason for this disparity has then been hidden, taking advantage of prejudice in the settler population to perpetuate stereotypes that further separate Indigenous and settler populations, preventing us from building the relationships and collaborations needed to heal relationships between us – and between us and the land.

Broken Treaties

The context for what led up to and what happened during the signing of Treaty 1 (1871) is essential to understanding today's relationship between Ojibway and non-Indigenous people. Yet, while the story of Treaty 1 is important, it is also complex. I will not be sharing a comprehensive overview here but will relay part of the story relevant to this thesis as shared with me by Scott:

About two or three generations before Treaty 1 was signed between the Ojibway along the Assiniboine River and the Canadian government, another treaty was made between the Cree and a group of Ojibway from the present-day Lake of the Woods area. This treaty allowed Ojibway people to enter the plains, forming a military alliance with the Cree to help keep the Dakota moving north of the medicine line, a traditional boundary between the Dakota and Cree. This is how the Ojibway came to be occupying lands along the Assiniboine River near Rathwell at the time of Treaty 1.

Yellow Quill was recognized as Chief by the Hudson's Bay Company and represented his people in signing Treaty 1. However, it is necessary to mention that there were many Chiefs at the time, including many women, with various roles and responsibilities within Ojibway society. After Treaty 1 was signed, Yellow Quill and the Ojibway war Chief, Big Goose as his name is translated into English, started realizing what was meant by reserves, and it was a lot worse than they had thought. Yellow Quill had initially agreed to a reserve of six hundred and twenty-five square miles of land with a five-mile-wide buffer around it to protect his people from sicknesses brought by the settlers. At the time, many Indigenous groups were experiencing significant losses of life due to European diseases. Unfortunately, the reserve lands Yellow Quill's band was allowed was significantly smaller than what was agreed to with no allowance for a buffer, and

they lost many of their people to sickness and starvation in the following years as well as suffered due to being confined to a small area of land.

Worse than reserves being significantly smaller than what was promised, the federal government introduced the pass system in 1885 in response to the Northwest Rebellion to prevent Indigenous people from leaving reserves. This, despite treaty promises that Indigenous people would continue to have access to natural (uncultivated and unfenced) lands off reserve and the understanding that land and land management would be shared between Indigenous and settler Peoples. The pass system illegally restricted reserve members from leaving the boundaries of their reserves as it never became law, yet was enforced by Indian agents, the RCMP, and the Canadian military. The pass system was convenient for serving colonial interests of erasing Indigenous people, but while settler populations benefited, Indigenous people suffered.

The reserve system, combined with the pass and permit systems, caused devastating effects within Indigenous communities such as Gaubiskiigamaug. As Scott explained, “It was about power. They didn’t want us to cooperate with our neighbours. They didn’t even want us being involved in our neighbour’s lives. They wanted us isolated in the reserves. As a guy said in 1930, these [reserves] are prisons.”

Scott further described the conditions at Gaubiskiigamaug under the pass system, saying, “You couldn’t leave the reserve, and then you’re confined to these small, small reserves, right? So that’s the only place you could hunt, even though you had a treaty right to hunt wherever you wanted within your own territory. But you couldn’t leave the reserve without a pass or approval from the Indian agent. You had to have a good reason to be off the reserve, and hunting was not a good reason. And you were only allowed X number of hours off the reserve, right? Say a relative died in Long Plains, and it took six hours for you to get over there by horse and buggy.

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That's really pushing a horse and buggy. I've heard stories where they say, 'Well, if you want to be cruel to your animals, you could make it.' But most people didn't, and you had to be back here, back on the reserve, and if you weren't, the police would be sent after you, and they would throw you in jail.... Even when the Indians didn't like what was happening, there wasn't much you could say: you'd end up in jail. Usually, it was the men that were thrown in jail because they were the ones that did the labour.... They could throw you in jail for up to three months, and your family wouldn't have any way of getting any kind of food."

Treaties were also broken by the federal government, which took away lands promised under treaty and exchanged them for less desirable lands, often forcing entire communities to relocate. For Gaubiskiigamaug, Yellow Quill requested lands along the Assiniboine River known as Indian gardens. This location had cultural significance for the community, and it was a site they regularly returned to and maintained for its natural abundance of food. However, after signing Treaty 1, the government realized these lands near present-day Rathwell, Manitoba, were more valuable as agricultural land than previously thought. In character, they asked Gaubiskiigamaug to move to the Swan Lake region. Yellow Quill wouldn't agree to this. So, the government worked to starve them out, restricting hunting, using the pass system to prevent anyone from leaving the reserve, preventing community members from trading or bartering with any settlers, and providing meagre, contaminated rations infamously referred to within Gaubiskiigamaug's Oral History as "green pork."

The starvation strategy worked and Gaubiskiigamaug community members were eventually moved to Swan Lake. However, the government then realized that the area around Swan Lake also had potential as productive agricultural land. So, without informing, consulting, or acquiring the consent of Gaubiskiigamaug, the Federal government sold part of the reserve

lands, replacing them with an equal number of acres near Lloydminster, Saskatchewan, which were inaccessible to the Gaubiskiigamaug community.

There are many ways treaties signed between the federal government and First Nations across Canada were broken, particularly regarding how land would be shared and managed. Promises around the original understanding of shared responsibility for the land have been among the most impactful. Scott explained, “*Under treaty, they said they would not deny access, so the land was a shared responsibility.*” The reality today, however, is one of racial segregation and a landscape broken up by many jurisdictional “lines on the ground,” from transportation, industrial use, and private property boundaries, combined with a legal system that protects colonial interests over Indigenous ones.

Government systems that restrict Indigenous people from access to their traditional lands and, resultingly, from traditional land use as well as traditional land management practices have created some of the most significant tensions between Indigenous and settler communities. This history has led to a strong sense of unfairness and loss at Gaubiskiigamaug. It has contributed to losses of Traditional Knowledge, cultural practices, traditional sources of food, and land-based education systems, to name a few. It has also challenged the building of neighbourly relationships between Ojibway and non-Indigenous neighbours who have differing ideas of who the land belongs to, how it should be used, and how it should be shared, leading to feelings of distrust and animosity as well as the perpetuation of racial tensions. These tensions extend to the treatment of wetlands.

As a result of broken treaties, First Nations have been shut out of decisions about their traditional lands and waters. With the establishment of colonial governments, control of water became based on ownership of land and capital, moderated by societal and political power and

privilege, and resultingly precluded Indigenous systems of land governance and management. Indigenous Nations were also shut out of the economy and, by extension, over control of land or water (Scott, personal communication; Stunden Bower, 2011; Carter, 2019).

The wet prairie landscape, including areas around Swan Lake, has been transformed by interactions between farmers, experts, and various levels of government jurisdiction and the dynamic nature of the land itself. Meanwhile, the Ojibway people have had little impact on colonial landscape transformation (Stunden Bower, 2011). A primary reason has to do with the process of devolution. According to Scott, *“the federal Crown has been devolving its constitutional responsibilities to the provinces and lands reserved for the benefit of Indians is part of that Section 91, 24.”* He explained, *“The devolution process started shortly after the treaties were signed, and they started off-loading their constitutional responsibilities to provincial jurisdictions.”* However, provinces *“don’t have a constitutional responsibility [to Indigenous Nations].”* According to treaty agreements around shared responsibility, the Ojibway people were supposed to have a say in land use and management systems throughout their traditional territories, on and off reserve, alongside non-Indigenous Peoples (Scott). The reality has been far different. Scott explained, *“Watching what’s going on around us and trying to protect ourselves from what the farmers are doing. We don’t have a lot of say in that.”*

Locked into Systemic Dysfunction and Injustice

Early administration of land allocation and transportation development designed systems to do so that have created legacy effects experienced today, such as sub-optimal drainage and road patterns (Reed et al., 2024; Stunden Bower, 2011). These were motivated by a desire to achieve extensive and hurried development during early colonization by an administration yet unfamiliar with the landscape (Stunden Bower, 2011). For example, centralized and remote

government departments, remote from the environments they had jurisdiction over, opted for an administratively efficient system of land allocation and transportation development, the “grid-based land management system established in 1872 by the Dominion Lands Act” (Stunden Bower, 2011, p. 21). This grid-based land administration system was demarked by the Dominion Land Survey and followed suit with the approach in the American west, contributing to “the international land rush that helped to define the modern world” (Stunden Bower, 2011, p. 21). This system was developed without knowledge or consideration of the land’s social and ecological dynamics, varied topography, and natural flows of water, forcing an abstraction over people and the land that did not match well with the lived reality on the ground.

Early during settlement planning, a need to accommodate landscape patterns was recognized. One provincial engineer at the time, F.E. Umphrey, argued that “if environmental conditions had been the primary determinant in the province’s early road-building efforts, ‘we would probably find many of our roads leaving the right angled section line location for angular location following the sand ridges and higher land, and our drains following the lower lands where they should be, if required at all’” (as cited in Stunden Bower, 2011, p. 23-24). However, the grid system favoured by government officials in Ottawa won out (Stunden Bower, 2011). The choice was biased by competing interests and ideologies between people who occupied the landscape and those who wanted to develop the landscape.

The grid system has proved “costly and labour intensive” despite initial assumptions that it would maintain itself once constructed (Stunden Bower, 2011, p. 19). Grid roads involve a combination of typically raised roadways and the accompanying ditches that facilitate and necessitate artificial water drainage activities and patterns, restricting the natural water flow. Ongoing work is needed to remove sediment that builds up within drainage ditches after being

flushed from cultivated soils of surrounding fields. The grid geometry of straight, perpendicular lines goes against the natural water flow, contributing to regular road washouts and culvert failures. In addition, the grid-based land ownership system incentivized additional drainage on privately owned sections of the grid so that individual property owners could maximize the productivity of their land. Unfortunately, uncoordinated drainage efforts began to create “downstream effects,” unintended consequences for neighbours (Stunden Bower, 2011, p. 25). The grid road system, designed to make rapid settlement administratively easier, created a difficult pattern to conform surface drainage to and has contributed to legacy effects of wetland loss and drainage, such as flooding and erosion problems ever since.

Making decisions through the lens of seeing the plains as primarily an agricultural landscape was another dynamic locking in dysfunction (Stunden Bower, 2011; Carter, 2019). Administration teams developed to accommodate rapid settlement were focused on creating a landscape designed to optimize agricultural production. The cost was losing sight of other landscape functions and values. The total costs of this are only now being realized and include costs to the environment, local communities, regional governance, and First Nations (Stunden Bower, 2011). These dynamics are sometimes described as structural determinism or the “structural legacy of colonialism” (Reed et al., 2024, p. 32) or as wiindigo infrastructures by Indigenous scholars LaDuke and Cowen (2020).

In contrast, “*Knowing the environment and how it behaves*” is essential to traditional Ojibway systems (Scott). For Scott, “*part of my upbringing was [to learn] how do I live within the environment that exists? How did the old ways deal with certain situations? And then, how are the things that are happening today? How is that going?*” Answers to these questions are obtained through intimate landscape knowledge and informed by Traditional Knowledge to adapt

to changes in dynamic landscapes. In this way, experts forming traditional Ojibway governance systems make decisions considering how everything on a landscape, including plants, animals, waters, and people, functions as a whole (Scott, personal communication). Scott explained, *“We don’t separate land from water – to us it’s one big piece, and we don’t separate the wind and the thunder and the lightning and the rain either. It’s all one thing to us, as traditional people.”* In this view, land management and governance work to optimize the landscape as a whole rather than for a narrow range of land uses incentivized by a global economic system out of touch with local landscapes.

As Ojibway scholar LaDuke explains, as cited by Leonard et al. (2023), Indigenous systems are based on harmonization with natural systems as enabled by “intimate knowledge of place,” allowing self-organizing cycles of renewal to perpetuate the natural systems upon which human systems are continually adapted to co-perpetuate with (p. 7). As Leonard et al. explain, Indigenous systems are further embedded within human and ecological networks of relational accountability, creating systems based on holarchy rather than hierarchy (2023).

Given that Indigenous systems were firmly established on the landscapes intended for colonial settlement and that they were successfully operating in sustainable ways, one may justifiably wonder at the lack of representation and influence of these systems present today. How and why were they so thoroughly erased? Part of the answer is that this erasure has been a goal guiding how colonial systems have been designed (FNCFCS, 2022). Another part is that colonial planning and governance structures are arguably designed to perpetuate colonial systems (Patrick & Baijius, 2021). The construction of modern and colonial infrastructure has been part of erasing and replacing Indigenous land and water relations because the goal of settlement was to reshape

how humans related to the land itself – transforming human-land relationships from reciprocity to relationships of control and extraction (Linton, 2010).

As already argued, the root cause of modern wetlands issues and downstream effects, such as nutrient overloading in lakes, can be connected to the colonial worldview's tendency to view the world through abstraction. These abstractions of human-land separation create a false representation of the big-picture decision-makers act within. When multiplied by all sharing colonial thinking, these misconceptions have locked colonial systems onto a path of dysfunctional relationships with lands and people (LaDuke & Cowen, 2020; Reed et al., 2024). Through the lens of colonial abstractions, lands and waters have been transformed into resources isolated from the social and ecological contexts (Linton, 2010). With blinders of abstraction on, decision-makers are free from considering the bigger picture existing across scale and time about the real-world implications of draining a wetland when that decision is occurring *en masse* – implications to the muskrat, the goose and the beaver as well as to all those who use and will use wetland areas as places to harvest food, medicines and materials needed to sustain life. This thinking has resulted in locked-in inequality generators such as reserves and the Indian Act, which perpetuate tensions between Indigenous and non-Indigenous communities in Canada and further perpetuate oppositional relationships between humans and land.

Chapter 4, Conclusion Part 1

We cannot ignore the historical context for today's tensions between Indigenous and non-Indigenous people nor between people and wetlands in modern systems, as this history has shaped where we are today. Resultingly, this context is essential when talking about wetland conservation or restoration. More, tensions between humans and wetlands and between

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Indigenous and non-Indigenous people are connected (Reed et al., 2024). How we treat the land is reflected in how we treat each other.

From the beginning of colonization, tensions have arisen between humans and wetlands and between settlers and Indigenous communities, with implications for human-wetland relationships in the study area. Furthermore, this section demonstrated how these tensions can be connected back to the systems and processes of colonization itself. Examining the role of power and control in shaping today's human-wetland relationships in the Swan Lake region provides essential context for understanding differences in worldviews and decision contexts between Ojibway and non-Indigenous communities in the Swan Lake region. Next, I focus on tensions existing between individual Ojibway and non-Indigenous worldviews and decision contexts, especially when informing decisions about wetlands.

In summary, the colonization process, through establishing the Western worldview where humans and nature are separate, accompanied by a prioritization of individual human economic profit over wider considerations of wellbeing for communities and environment, has led to a modern-day tension between land-as-resource and land-as-home. This change has come at an enormous cost to Indigenous Peoples, especially as their cultural responsibilities and identity in relation to the land was a non-consideration within Canadian governance systems. The dynamic of land-as-resource being valued over land-as-home also comes at a cost for non-Indigenous people, such as those in the Swan Lake region who reported loss of local heritage sites and decreased quality of living in their region due to landscape changes. Summarily, colonial structures have produced a decision environment favouring land-as-resource at the expense of land-as-home, creating an oppositional tension between these two aspects of human-land

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relationships. Resultingly, this decision environment has and continues to shape the land as reflected in the Swan Lake region, creating environmental as well as social costs.

Chapter 4, Part 2: Decision Contexts for Individual Land Users

Chapter 4, Introduction Part 2

In this second part of the thesis discussion, I take a closer look at individual land users' decision contexts and the external and internal worlds that make them up. Direct quotes and paraphrased summaries from the interviews facilitate the comparison of perspectives from Ojibway and non-Indigenous land users based on the land use categories summarized in **Table 1**. Of note, many participants reported experiencing value conflicts created by oppositional motivators or incentives structured into the meeting of their internal worlds (worldviews and values) with their external worlds (their economic or political environments, for example). In the final section, I describe these value conflicts as individual experiences in shared contexts.

Indigenous land users shared a cultural worldview and had a similar collective perspective on the importance of wetlands. For this reason, I detail individual decision contexts at Gaubiskiigamaug as occurring as parts of the collective. Notably, individual perspectives at Gaubiskiigamaug primarily varied based on their role or responsibilities within the Gaubiskiigamaug community. In contrast, non-Indigenous land users' worldviews differed more strongly. Some expressed an orientation of concern for the environment, others an orientation towards production maximization even when including environmental loss, while others were experiencing a shift in worldview towards more environmentally conscious decision-making. To accommodate this diversity of worldviews amongst non-Indigenous land users, I compared three main categories of non-Indigenous worldviews based on the worldview orientations mentioned above and as well as based on land use type. Land use types are separated into three categories: pasture-raised producers, crop producers, or mixed farmers producing a combination of pasture-raised livestock and crops.

Non-Indigenous Decision Contexts in the Swan Lake Region

Farm Operations

According to several participants, crop farmers tend to view wetlands as a financial cost for various reasons. One of the main reasons is that wetlands create inefficiencies in farm operations. Hacault explained that *“if there is a wetland in the middle of a half section or whatever, landowners will do their best to get rid of it. It’s all about broad-acre farming and going through everything. Efficiency drives everything. I’ve been as guilty as the next guy over the years. If you can drive through it, you make more money.”* P04 explained how draining lands is *“about maximizing acres,”* saying, *“You’re paying rent on that land and paying tax on that land, so you want to make it productive. You try to make every acre of the land you own,”* adding that moisture variabilities within a field caused by small, ephemeral, and semi-permanent wetlands are *“time-consuming and expensive, so you try to eliminate that as much as you can.”*

For these reasons, draining wetlands improves sectional control, saving operators time and money even when drained lands are not very productive. According to Hacault, even when a wetland area has *“been drained and tiled...it’s still not really that productive, but you go through it. Efficiency rules the day.”* P02 explained, *“We’re not only talking costs, but we’re also talking hindrances as well.... Let’s say you’ve got a circle in the middle of a square field. Going around that circle for everything you do during the growing season is a big inconvenience. It takes time; time is a big one, and you’ve wasted inputs and money. So, if your time is money, it all comes back to the dollar anyway. And you have overlaps and that’s where sectional control for people that have all these wetlands in the middle of fields, sectional control is huge.”*

Wetland areas, whether the riparian areas around more extensive wetlands or areas within ephemeral and semi-permanent wetlands, also create unpredictability in farmland production,

causing the number of productive acres to change depending on yearly weather conditions. This unpredictability can cause difficulties with planning and paperwork for farmers. P04 explained how draining wetlands and installing tile drainage *“eliminates a lot of paperwork because the government wants to know if you’re going to seed ninety acres of a 100-acre field.”* He continued, *“[Without drainage] your acres fluctuate a lot. ‘Maybe-acres’ is what I call them; maybe you get them, and maybe you don’t. And that just makes everything a lot more difficult.”*

A few additional ways participants viewed wetlands as a cost include because they attract waterfowl *“that feed on our crops”* (P02). Wetland restoration is also a cost if land is already cultivated, reducing the farm’s productive acres and causing lost profits annually. As Hacault explained, *“I would think most of the producers, as long as it doesn’t affect any cultivated land whatsoever, are in favour of wetland conservation,”* highlighting that in his view, most farmers are not against wetland conservation or restoration themselves except when these present losses to their income whether through creating inefficiencies in farm operations or by causing lost productivity. He explained, *“If there are areas where there can be some water retention that doesn’t affect cultivated land, then they’re pretty much in favour of it.”* This view is reasonable from a financial perspective, but it creates an inability to restore natural features on cultivated land (Vanrobaeys, personal communication). In this way, financial constraints are a significant limitation on landscape or wetland restoration in many agricultural regions, such as those in southern Manitoba where cropland dominates.

Regulations

Non-Indigenous participants also commented on the regulatory environment they experience regarding wetland drainage. Various issues around current regulation and enforcement of wetland policy and law in Manitoba were observed. Some observed inconveniences and

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frustrations they have experienced with current wetland regulations affecting the efficiency or productivity of their operations. Contrastingly, others observed that how current wetland regulations are enforced decreases their ability to protect wetlands from drainage or other impacts. Some participants also commented on some things they appreciated about current regulations, such as how they have become more streamlined and how many are voluntary or involve self-reporting. These insights are detailed below.

According to some study participants, current wetland regulation in Manitoba presents inconvenience and frustration to crop farmers over livestock or mixed (both livestock and crop) farmers. P02 said, *“We’re providing the food that society eats, and I think farmers are pretty darn good at it... we’ve become very efficient, and then they go and throw a few more rules on,”* adding that as additional regulations are added, these affect a farmer’s bottom line by adding inefficiencies and increasing operation costs. Another participant, P04, observed how current regulations often require some negotiation to find a middle ground between his goals to maximize the productivity of his cropland and current wetland regulations. He used a specific example from a drainage project on his land, sharing that after considerable negotiation, *“they let us control that small area but not completely drain [the] wetland. So that is something that takes a lot of time to establish and find common ground in.”* He added that these negotiations also have implications for social relations in his community, adding that *“you keep your neighbours happy, and you keep the old, retired guy up the road that loves to duck hunt or whatever happy. You can’t just do whatever you want.”*

However, P04 felt that regulations have become more specific and more transparent on what can be drained or not, whereas in the past, *“there was a huge grey area on what you thought you could do, what the locals thought you could do.”* P04 added that this increased

clarity in regulations has reduced social tensions among neighbours. He explained, *“Years ago, when there was no regulation on it you were kind of on your own for what to do. Nowadays, with the government having a hand in what you’re allowed to do and what you’re not allowed to do, there’s not much of a grey area anymore. So that just streamlines everything a lot more.”*

Changes in drainage regulation have been accompanied by changes in social perception of wetland drainage and increasing adoption of newer technologies such as drain tile and public acceptability of converting natural lands to cropped lands. Participants referred to this trend as maximizing productivity (or maximizing acres). Maximizing productivity was described as increasing landscape economic productivity as much as possible wherever current technologies and regulations allow. P04 explained, *“For years and years, we were the only ones who were doing it [maximizing acres], and it kind of felt like you were getting picked on just a little bit. But now everybody is doing it, and the government has more guys regulating it because when we first started, there were no regulations. But...we’re not the only guys taking down trees and building tile drains nowadays. The whole industry is doing it.”* P04 added, *“As long as it's within government regulations, that’s what you do. It’s the way the industry works nowadays...you’re never going to get rid of everything, but you’re certainly going to maximize what you can do as far as local municipal laws.”*

Some policies are carried out through voluntary programs like the environmental farm plan. P05 suggested that, in her view, voluntary programs are less resisted by farmers because they can participate *“without the fear of someone coming in and saying you’re doing it wrong, or you can’t do this, or you’re going to be fined for it or whatever.”* P05 also felt that many farmers are fearful of the current regulatory environment around wetlands or the environment in general because they fear fines or being shut down altogether, both of which can put a way of life and

livelihood at risk. This fear leads to resistance, according to P05, leading her to suggest that voluntary programs might be more effective in the long term. She said, *“It’s just educating people, and then they learn that they want to do it rather than being forced to do it, and I think that makes a big difference as well.”*

In addition to the concerns many farmers have with current wetland regulations, as mentioned above, several participants noted that most of these regulations depend on locals reporting on their neighbours and are not otherwise monitored. In this situation, neighbours can either report on each other or keep the peace. This enforcement structure reduces the effectiveness of regulations as many farmers are reticent to create conflict with their neighbours, according to P05. However, P04 described how, in the past, this type of social enforcement may have been more effective. He said, in the past, *“You kind of had to do what..., they call them road farmers around here, the kind of guys that are just driving up and down the road with the coffeeshop rules or whatever.”* However, in his view, there is more acceptance today of draining up to what is allowed under current drainage regulations. P04 said, *“Now the government has established people, and there are professionals in the field that regulate stuff.”*

Social Environment

Participants noted that current cultural norms encourage wetland drainage, and expressing alternative ideas is challenging. Porteau said, *“I think [wetland conservation and restoration] is... a hard sell in many ways. Because the way trees are knocked down and old yards are ripped out. It would really be a hard sell right now.”* P01 added that wetland consolidation, the practice of draining multiple smaller or ephemeral wetlands into one reservoir, is of more interest than outright conserving existing wetlands because most farmers *“are more interested in irrigating and getting more water than they are in saving water on their land. I know [wetland*

conservation] would be a pretty hard sell.” In this environment, expressing alternative ideas on farming and managing land can have negative social repercussions. P05 explained how keeping the peace between neighbours is necessary, saying, “We live beside grain farmers, and I mean right beside. And we have cattle, so we have to respect the fact that if our cattle got out onto their property, which has happened, they have been really good about that...it may come a time where the cattle get out, and if everything is peaceful you can work through it, but if it’s not then that makes it difficult.”

Part of the challenge in keeping the peace between neighbours includes a long-existing tension between livestock and crop farmers. Crop farmer P02 said, *“Especially in the case where one of [the neighbours] is a beef farmer where his assets are in a different form than the grain guy, and those two don’t always mesh, and this goes back generations.”* In contrast, participant P05, a cattle farmer, shared, *“I don’t know if there is a whole lot of support for wetland conservation or restoration. The ones that support it are probably small, little beef farmers who are retired or just want to have the cattle and don’t really have a lot for grain. Bigger grain farms are what most of the land is around here, so there’s not a whole lot of support. It’s frowned upon, like ‘you’re crazy for not doing this’ or what have you.”* To keep the peace, *“people just know when not to bring that discussion up because it could lead to an argument. As far as being able to talk...it’s still friendly and everything, but [land] management isn’t brought up.”*

These cultural norms have led to a stigma around joining conservation groups. One participant explained, *“We can do things we feel are right, but if we get involved with something [like that] ... you can cause rifts that way. We have neighbours all around us and some are very environmentally conscious, but others are not at all. But because they are your neighbours, you don’t want problems.”* In this environment, it can be challenging for farmers who are more

environmentally minded to build a community of like-minded producers. P01 explained that it is “difficult when families are scattered around the province, it's quite a large area.” These geographic challenges can also make it difficult for farmers to try new environmentally friendly practices as most prefer to talk to someone who's done it before. P02 explained, “first, I'd find someone who'd done it and find out the good, the bad and the ugly. And that's the thing, I don't know if it's being done in other parts of Canada but not a whole lot about what we're talking about is being done in Manitoba yet.”

Despite existing hesitations for some farmers to express pro-environment views such as being in favour of wetland conservation or restoration, many participants also viewed PVWD as having made many bridges and trust relationships within rural communities within the Pembina Valley region. When asked where they might go to get reliable information on conservation programs or other programs related to wetlands, all participants were aware of PVWD and described it as an organization they would trust. Hacault described PVWD as being trusted because they have “been at this, and they have gathered information and done extension work for a long period of time. It's the go-to place.” In contrast, other conservation organizations, such as DUC, tended to be seen with more distrust and as representing a more urban agenda rather than reflecting rural interests. P02 said, “I find with Ducks Unlimited sometimes it works and sometimes it doesn't, and the government gives DUCs the money, and then they have to administer it...some of that kind of goes against certain farmers.” However, overall participants were not completely against DUC programming. P02 added that “the cover crop or winter wheat program that they had, that was very good. Giving us incentives to grow fall seeded crops and that, that's not water retention but I thought that was a good program.” And P04 said, “If there

was a financial gain to sign it over to Ducks Unlimited for a couple of years, I'm sure we could do something. Even if it's just to pay the tax money that you're out every year."

Some participants shared that improved recognition from the urban public could be a motivator for farmers to adopt new practices. P05 said *"I think recognition would be a huge incentive to do stuff, to know that other people don't view you as a terrible, environmentally harming person. Like, 'you own cattle? Oh, you're terrible people.' A lot of people do think that."* She continued by suggesting that reducing the stigma many farmers feel from urban society even when they take significant measures to protect or restore the environment *"would be a huge incentive. Educating not just us but the people that think we're destroying the environment when we're actually helping it."*

Structure of the Global Agricultural Industry and Economic Environment

Another important element of non-Indigenous farmers' external decision environments is the structure of the global agricultural and related economic systems. There are many ways this system influences farmers' behaviour. However, a big one is a continuous increase in land prices. As land increases in value, it creates an incentive to increase the productivity of acres a farmer already owns as opposed to acquiring new lands. P02 explained, *"The only reason I'm doing it [drainage and consolidation for irrigation] is because land is becoming six to seven thousand dollars an acre, and rather than buy more land I'd rather make the land I have better."* Porteau also observed that *"it's the value of land"* that creates a disincentive for conservation of natural lands such as wetlands. He explained *"there's such a demand for land, every cultivated acre, and there are still acres being drained to farm."*

Along with increasing land prices, participants reported that their profit margins are continually narrowing, creating an incentive to expand or maximize their operations. As P04

described, *“Guys are just maximizing on what they own because there isn’t that much money left when everything is said and done”* leading to the view that *“if it is an acre that you own it needs to be in production.”* And with smaller profit margins comes a trend towards larger farms in a process known as farmland consolidation with bigger players buying up land to keep up with pressures to grow, contributing to an environment where smaller farmers are pushed out of business. P04 explained, *“There used to be a whole lot of small farmers around, but most of them are not here anymore. Most of them have sold their farms and rented out their farms. Every farm operation is getting bigger these days. There is less and less of the smaller guys around and the bigger farms I think, are more open to trying to expand what they own and farm.”* These bigger farms in turn have more financial capacity for maximizing acres, converting more natural lands to cropped lands. P04 said, *“the land gets resold to bigger farms that have the means of doing something about those wetlands. Like I said you don’t have to drive very far to see that we’re doing what everyone else is doing.”*

Along with the trend to bigger farms and acre maximization, there has been a trend towards more farms growing solely crops rather than farms that raise livestock or produce a mix of crops and livestock. P01 said, *“There are not that many cattle farmers out there anymore. Especially in this area, there aren’t many.”* While P05 noted, *“A lot of people have been getting out of cattle because there just isn’t money in it. Not only that, but you also basically lose a lot most years. You either need to have a job off the farm or grain to have cattle.”* And fewer cattle farmers mean less interest in keeping wetlands as having livestock creates an incentive for keeping wetlands around as sources of drinking water and hay lands. P02 does not keep wetlands around *“because I don’t have livestock, I don’t have the need there.”* Porteau explained, *“I think there are lots of people doing lots of good things, but it does make a big difference if I have a use*

for it. I suppose someone who has no cattle has no use for slough hay. It has more value [for us] because we have cattle.”

Time and Capacity

Another critical factor in farmer's external decision contexts is that farming is time intensive, making it challenging to consider land management activities outside activities essential to keep their farm running. For example, land stewardship activities such as wetland restoration take time and don't produce a profit, which can make them a low priority. As Porteau explained, *“It's the whole time thing, between seeding and spraying. When is that going to happen? There are a lot of good ideas out there, but when are they going to happen?”* Demands on farmers' time can make concern for land issues besides those directly related to production low priority. For example, P04 observed how he had seen the degradation of Swan Lake and shared some concerns about it, but due to demands on his time with farm management, *“I don't have time to do stuff with the lake. I just know it is far from what it used to be.”*

Farming also has time-sensitive tasks during crucial times of the year, such as calving season, seeding, or harvest. Weather and climatic conditions also affect how farmers plan their time and decide which tasks are a priority by influencing what is possible to do each season. When it comes to caring for wetlands through installing and maintaining remote watering systems, for example, one participant described how *“just finding the time to do it”* can be a challenge, *“and that can be influenced by the weather... if it's all wet and boggy around it or freezing.”* In contrast, wetland drainage is also affected by time capacity because draining wetlands or installing drain tiles is time-consuming and costly and takes the right tools and equipment. Sometimes, lands are left undrained because of these logistics.

Financial Incentives and Support Programs

Financial incentives were described as one of the most significant factors in a producer's external decision context. Farming is a business, and producers are motivated to maintain the long-term financial viability of their farm operations. As P04 said, farming is *“a long-term commitment, so you don't want to compromise anything that you own, that's for sure.”* In the words of another participant, Porteau, *“Ultimately, I would say most people want to do what's best for the environment conservation-wise...But ultimately, dollars and cents trump a lot of factors. Maybe they shouldn't, but they do anyway.”* P02 said he is *“very open”* to practices that benefit wetlands, but *“it can't be just for the environment; it has to make sense. It can't cost us money. It has to have a profit even if in the long run.”* Unfortunately in terms of wetland conservation or restoration, it is difficult to generate profit from wetland habitats.

Regarding the size of incentives, P02 said, *“Fifty percent would get my attention. Anything less...we always find that less than fifty percent when you're dealing with incentives and regulations...you usually have more hoops to jump through if you have any kind of government assistance.”* He emphasized that incentive programs are often associated with delays and other costs related to dealing with additional bureaucracy, *“So, with any project, we always [assume] that twenty percent goes back to the government or is wasted, and you only start getting benefits after that with the possible delays and everything.”* However, P04 felt that even if a financial incentive is enough *“to pay the tax money that you're out every year”* that could be enough to motivate leaving some lands in their natural state. Additionally, P05 described how financial incentives can be especially helpful for cattle farmers who face a more challenging market in which to make a profit. She said, *“A lot of government programs...give people*

incentives to do things to protect the environment. A lot of those incentives go to cattle farmers as well, which is a bonus because you make so little...with cattle income.”

Financial incentives can also be decisive when wetland-beneficial projects such as wetland enhancement or restoration cost money in addition to reducing farm profitability. Some producers explained how financial incentive programs make many of these decisions possible. Porteau predicted, *“If you’re talking about moving dirt or anything like that, if you can compensate for the cost I would say the project is likely to happen a lot quicker. If there is some way to recoup some of your costs.”* And for some projects, *“it doesn’t happen unless some costs are covered.”*

Further, uncertainty around cost-benefit projections often shared by the government or non-profit organizations can hinder decisions to protect, conserve, or enhance wetlands. Porteau said, *“You can hear the commercial, but it’s hard to know how it will work for your farm. I’m sure there’s all kinds of numbers about the value of wetlands, but to translate that into how they can help your farm is a hard number to come up with.”* Another barrier can be a lack of awareness about what incentives might be available for projects that are not immediately related to the productivity of their farms and are not at the top of their minds. Porteau explained, *“It’s more that people don’t realize what they can do or what could work in their situation. It really does take a certain mindset to know where on my farm I could hold back some water.”*

Relationships with the Urban Public, Government, and Conservation Organizations

Finally, farmers' relationships with the urban public, government, and conservation organizations also influence their decisions regarding environmentally beneficial practices. In general, crop farmers tended to distrust conservation organizations such as DUC more. In

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contrast, livestock farmers tended to have a more trustful relationship, connected to greater compatibility of their operations with conservation programs and available incentives. In comparison, watershed districts tended to have the benefit of more trust with farmers in general, in part due to the voluntary nature of the program but also because of their knowledge and expertise. Porteau said, *“They [the watershed district] would have the technical knowledge needed. They would know how to go about [wetland projects] and not cause more problems than you started with.”*

In contrast, some farmers expressed concern that conservation organizations reflect the interests of the urban public rather than farmers, driving policy that makes it harder for farmers to make a living. For example, P02 said, *“It’s changing quite rapidly what rules and regulations are relevant to wetlands. And I don’t know the latest, but from what I gather, if you want to take a wetland away you have to pay money to DUCs or some other organization so they can re-establish a wetland somewhere else, and it’s very costly. I can see how to a normal urbanite that looks fine, but to us here it doesn’t.”* A perception that conservation agreements allow public access on private land is another barrier for some farmers to collaborate with conservation organization programs. P04 observed, *“there is definitely a lot higher traffic in there [wetlands] when you do sign it over to Ducks Unlimited because it is opened up to the public and they don’t have to ask for permission so it’s a total free for all for all.”*

Landscape Contexts

Many external decision factors farmers face are specific to interactions between local landscape features, farm type, and size. For example, as mentioned, producing livestock is a significant factor in whether wetlands are considered valuable or a nuisance. Livestock farm operators have motivations to maintain wetlands as sources of water and hay, while crop farms

are incentivized to drain wetlands to improve productivity. Farm size determines what is possible in terms of affordability – for drainage and wetland restoration and conservation-type projects. However, both farm type and size depend on the geography specific to the farm when determining whether these factors will influence drainage or conservation of wetlands. P01 explained, *“A lot of lowlands produce good grass for hay land or pasture. There’s always something growing there because the moisture is there. A lot of this low land is good for cattle farms because with the low land, there’s moisture, and the grass continues to grow...even in the dry years, you can rely on it.”* Meanwhile, these lowlands are difficult or impossible to cultivate. Given these geographic characteristics, livestock farmers are more likely to purchase lowlands and ravine lands that are more conducive to cattle farming. In contrast, crop farmers are more likely to avoid them. In this way, the land itself, in turn, influences the type of farming practiced there. P01 explained, *“The pastures we [rent] are usually water runs that they can’t [cultivate], or it’s just so hilly that they can’t work it. So, if they can’t work it and they can get a few bucks from renting pasture, then that’s what they do. It’s seen as wasteland on their land, and it’s perfect for us, so it’s a good fit.”*

Beyond farm type and size, the relational networks of a landscape add another layer of geography that influences decisions about wetlands as expressed through synergistic land-sharing agreements based on kinship (family and friends) or geographic proximity. Hacault provided one example: *“My neighbour rents pasture from an actual cereal crop farmer, and the only reason it’s still in pasture is that the guy could farm it but chooses not to because it’s fragile land. It’s not really a swap or anything, but it’s just a mutual benefit to each other. The guy needs pasture, and it turned out to be high-quality pasture, but it’s poor-quality [crop]land. I always suspected that the guy would break up that pasture, but it’s just been left. So, I don’t know if you would*

really call that collaborative or if it's just synergistic." P01 shared another example where local crop farmers ask them to rent low-lying, wetter areas that are difficult to cultivate. She said, *"That's one thing with all of these grain farmers, with their runways and low areas, they ask us if we want to cut it because they like it cleaned up. So, we do get a lot of hay that way."*

Decision Context at Gaubiskiigamaug

At Gaubiskiigamaug, the external environment in which land use and management decisions are made is heavily influenced by colonization's extensive legacy and current effects. The Indian Act, reserve system, and peasant farming policies, among others, have made up today's context in which decisions are made. For example, to Scott, the reserve system and governmental abuses of power are all influential in why Gaubiskiigamaug is located where it is rather than at the community's original preferred lands along the Assiniboine River (Scott, personal communication). Although these preferred lands were initially allotted to the Gaubiskiigamaug in the original treaty agreement, they were starved out at this location through restrictions on hunting and rules preventing them from killing and consuming their livestock while also withholding promised food resources. These abuses of power took place to move Gaubiskiigamaug to what was seen, at the time, as less valuable agricultural lands along the Pembina River. However, the move has meant that the community has lost control over managing valuable traditional lands, including wetlands from which the community traditionally harvested food and medicine.

Furthermore, people at Gaubiskiigamaug have been concerned all along about the ways they have seen agricultural activity impacting the landscape. However, they have been largely cut off from having a voice, let alone a decision-making role, in how agriculture has been practiced, how it has changed the landscapes in their traditional territory, and, thus, how lands and waters

have been affected on their reserve lands (Scott, personal communication). These themes and external contexts informed by cultural influences and the community structure at Gaubiskiigamaug will be described here.

Impacts from Historical Lack of Authority Over Reserve Lands and Traditional Territories Under Colonization

Until recently, government representatives made decisions on behalf of First Nations, including Gaubiskiigamaug, taking away agency over their lands. First Nations in Canada are now regaining some control over the governance of their lands through changes to Canadian legislation, such as the Framework Agreement on First Nation Land Management Act (2022). However, First Nations land management is still restricted by both federal and provincial jurisdiction, limiting traditional governance systems (Scott, personal communication). Land governance and management systems at Gaubiskiigamaug are, therefore, still in their early formative stages at Gaubiskiigamaug. *“We’re coming late to the kitchen table is what I’m saying because we were never allowed to be a part of [colonial systems of land governance and management],”* Scott said, adding that until the expulsion of the Department of Indian Affairs in 1996, all land *“decisions were made by the federal Crown on our behalf.”* This act precipitated the writing of the First Nations Land Management Act (1999), as other First Nations across Canada followed Gaubiskiigamaug’s example. The FNLMA was formally adopted at Gaubiskiigamaug in 2010, putting the responsibility over Gaubiskiigamaug’s lands back under the community’s jurisdiction. However, the period of an absolute lack of control over community lands led to a breakdown in traditional land management and governance structures at Gaubiskiigamaug, according to Scott.

In Scott's perspective, new changes to the policy allowing First Nations some control over their lands *"make us believe that we're having some influence, but really, we're not. This is what I mean. We're still dealing with our land like it's under the Indian Act. It's not really happening. There is no mechanism by which traditional land use, such as the way we used to farm, or those kinds of things are not there."*

Impacts from Historic Barriers to Collaborating with Neighbours and Racial Tensions

Another legacy of colonial coercive control methods has been the barriers to Gaubiskiigamaug collaborating with non-Indigenous neighbours and other Canadian governance jurisdictions. According to Daniels, legislation in the past *"prevented full partnerships involving First Nations."* For example, section 30 of the 1876 Indian Act included a trespass law that disallowed non-Indigenous people from entering reserves to prevent non-Indigenous Canadians from truly knowing what was happening on reserves (Scott, personal communication). Meanwhile, the pass system disallowed Ojibway people from leaving the reserves (Scott, personal communication). Despite *"secret, behind the bush deals with local farmers,"* official collaborations and agreements were disallowed by many different policies *"within the history of [Canadian] government and its relationship with Indigenous people that prevented us from working together"* (Scott). *"It was about power,"* Scott explained. These examples show how First Nations had no authority over their lands.

Today, however, recognition of the need and value of including Indigenous communities in land governance is increasing within non-Indigenous sectors of Canada. In Manitoba, for example, recent changes to The Watershed Districts Act (2022) now allow First Nations to partner within Watershed districts, a provincial program they have historically been excluded

from, now allowing them to collaborate with surrounding municipalities on watershed-scale conservation initiatives (Greenfield, personal communication). However, racial tensions still present a challenge. Scott explained how remaining barriers include how Indigenous people are often viewed as *“Indians with Indian problems,”* preventing non-Indigenous Canadians from seeing some of the concerns Indigenous people have as relevant to them and limiting interest in collaborating with Indigenous communities.

Another issue is a lack of formats and opportunities for creating Indigenous and non-Indigenous partnerships. Scott said, *“Now they’re saying, ‘let the Indians fix it, and we’ll just support them...’ rather than [saying], ‘let’s all do this together.’”* Scott explained how, in Ojibway tradition, it is seen as imperative that all living on a landscape contribute to collaboratively making decisions about the land. He said, *“We need people to sit and...we use that word Council. Right? We sit together, anybody that had knowledge about anything was brought into Council, and we talked...until we solved the problem.”* Scott added, *“It is important that we be brought into the conversation,”* emphasizing a need to create formats for Ojibway and non-Indigenous neighbours to discuss land issues and make land governance decisions together in an equally representative way. Doing so can shift governance structures towards enabling responsibility for the land as understood in the Ojibway worldview – rather than focusing only on governing to enhance the economic productivity of land.

Gaubiskiigamaug Councilmember Esquash reflected on how, in his view, rebuilding cooperation between Indigenous and non-Indigenous people in Canada is just beginning. He said, *“I think what it has come down to is that for a lot of years we were not involved in a lot of the surrounding projects. We were always left out. I don’t know whether they just didn’t think we understood or knew about anything...it could’ve been for a variety of reasons, whatever they may*

be. I think what has happened now is that a lot of these projects and the people doing these development projects have started to have to consult us based on the laws now with consultation in Canada and the province. They have to look at us in a different light now.”

Loss of Traditional Lands and Knowledge

Loss of Traditional Knowledge and language, foundational parts of traditional Ojibway land management, also strongly impacts how wetlands are used and managed at Gaubiskiigamaug today. This loss is connected to the external contexts of how lands and waters have been divided into private ownership parcels under colonial systems. Traditional land use and management in Ojibway culture depends on being intimately aware of landscapes (including waters and water systems) as wholes rather than as separate parcels of land as in the Western view (Scott, personal communication). However, the many boundaries and barriers crisscrossing landscapes under colonization prevent this awareness of the land, leading to making decisions based on limited knowledge of a landscape. Furthermore, no provincial or municipal laws currently protect Indigenous traditional lands and culturally significant sites, including harvesting and hunting sites such as Indian gardens if they are on private lands (Scott, personal communication; Shebahkeget, 2024).

A lack of familiarity with lands and waters as whole systems also impacts the ability of Gaubiskiigamaug members to fully observe and understand the impact of chemicals and modern agricultural practices on these systems, essential knowledge needed to adapt Ojibway systems to this new land context. *“What we couldn’t keep up with is the chemicals,”* Scott said. This lack of knowledge creates difficulties in understanding all the trade-offs a particular decision involves necessary in traditional land management structures. An external environment complicated by various chemicals and substances circulating in the environment makes for tough decisions from

the Ojibway viewpoint, which depends on profoundly understanding the interconnectivity of an environment (Scott, personal communication). Esquash explained, *“That’s when decisions get tough. When something we do impacts something else [and we can’t understand the full impact]. You see the good, but what are the negative side effects of it?”* This lack of understanding goes as far as preventing traditional land use practices such as harvesting food and medicine from the land due to the uncertainty around the effects of chemicals and how these might impact people’s health. Even drinking from springs and other waters of cultural significance is limited because *“we have to learn about some of the chemicals that are being put on land and how they affect water; all of our lives are around water....”* *“So those things that we did before, that we can easily do now, but we don’t because we don’t have that full understanding about how those things connect with one another”* (Scott).

Lack of Representation for First Nations in Provincial, Municipal, and Watershed Governance

Another highly relevant external context for decision-making around wetlands is that First Nations have no influence at municipal or provincial levels. In fact, Indigenous engagement in land governance decisions is the exception, not the norm (Patrick & Baijius, 2021). This means that the way wetlands have been drained, changed, and contaminated throughout Ojibway traditional territory does not reflect the values or preferences of Gaubiskiigamaug because they were excluded from these decisions (Scott, personal communication). Even new allowances in The Watershed Districts Act (2022) are limited to the involvement of First Nations through stakeholder consultations (Greenfield & Scott, personal communication). Scott explained, *“It’s the same thing with farmers draining these little pothole lakes. Whereas we would say, ‘No, that’s not acceptable. You got to leave these little lakes in place because they have a role to play*

in filtering out those damaging things like pesticides.’ But that’s never going to happen because the provincial Crown won’t recognize that. We can’t make a law that says that will no longer happen in our territory.... We can do that within the boundary of the reserve, but there are still creeks and rivers and everything else coming into the reserve.” “And in municipalities, farmers have a lot of power,” Scott explained, “because they can throw out a municipal Council.”

Similarly, governments at the provincial level represent non-Indigenous majorities within their jurisdiction.

Economic challenges and poverty on the reserve also limit the ability to make decisions that might sacrifice the community’s financial income, putting Gaubiskiigamaug’s decision-making under the influence of colonial rather than traditional Ojibway economic systems. Scott explained, *“When people live in poverty, they don’t think about things like that [wetland conservation].”* He continued, *“Poverty does that to somebody. And those people, like even within the boundaries of our own reserve, we can’t do what we want. Even by the authority of this Council. Because they’re Indian Act Chief and Council [rather than a traditional government] And that’s another reason why our people are removed from the land. Because they want money from land leases,”* referring to lands rented out for crop production.

Incompatibility of Colonial Systems with Ojibway Systems

Gaubiskiigamaug decision-makers currently face an external decision structure shaped by colonial systems set up to accommodate global economic structures and agreements between other colonial nation states, at the cost of many local, often Indigenous, economic and governance systems such as Ojibway systems (Patrick & Baijius, 2021). Further, colonial systems are set up based on the worldview of land as a resource to be controlled and exploited by humans with ownership rights (as granted by the colonial systems themselves) and based on the

concept of separation between humans and nature (Linton, 2010). These perspectives conflict with many Indigenous worldviews, including Ojibway, where ecological systems are seen as inseparable parts of interconnected human-land systems and where it is understood that natural systems have agency and rights, making humans responsible for acting in a respectful way in how they use and interact with natural systems (Latulippe & McGregor, 2022; Pasternak et al., 2021). As a result, traditional Ojibway and colonial governance systems are incompatible.

Colonial systems prevent Ojibway systems of cyclic movement and nomadic lifeways, tending lands and waters within shared territories as if they were continuous gardens (Anderson, 2005; Scott, personal communication). In this way, the traditional roles and knowledge of Ojibway environmental experts have become obsolete, putting Ojibway ecological knowledge and expertise at risk. These changes have also put the land, including wetlands, at risk. As Scott described, *“That’s why we were nomadic, so you wouldn’t wipe out an entire area, and it could recover the next year. There was always a person in charge of that. I guess you could say our early conservation persons. Everybody within each of the sub-tribal groups would have those kinds of skilled people within them that knew about plants and somebody who knew about big game hunting and so on. Those were the people that held Council, and they would be the ones who made decisions about land use. Because you had to survive, so you didn’t kill everything in sight.”*

In the past, Scott explained, *“We would make decisions by considering all those factors. Being concerned about animals. Being concerned about chemicals. Being concerned about wetlands. And understanding what we used to use those things for.”* In contrast, today, decision-makers come from colonial systems that perpetuate reductionist thinking, limiting decisions to consideration of a few factors, usually those with the most significant economic impact, without

consideration of other factors that equally affect resilience, the land, and ability for future generations to survive on the land (Breen et al., 2018). Scott explained, *“Students are dealing with theories in universities without them actually being on the ground. That’s a problem. And all of those scientists that are running around out there today, they come from that system. And again, scientists have a tendency to break things down to its minutest little point, right? And then say, ‘that’s the fact.’ Well, that may be a fact at the point you’re looking at it, but it’s not a fact when you look at it of the whole area, with all the environmental things that connect with each other.”*

According to Scott, this type of reductionist decision-making limits research and development in areas of interest to First Nations, such as their traditional ways of using and managing wetlands. *“It’s the same way scientists look at us when we’re trying to work with them,”* Scott said. *“Not everybody, but a lot of them. They dismiss us because they’re studying their one little issue”,* writing off Indigenous people with concerns, saying, *“There’s an Indian with an Indian problem.”* In these ways, Scott explained, by restricting traditional land use and management, colonial land management systems *“diminish our ability to be human beings in Canadian law”* because these activities and accompanying Traditional Knowledge are seen as what creates identity and meaning from a traditional worldview within Ojibway culture. Colonial systems create barriers for the Gaubiskiigamaug people to act on their responsibilities for wetlands as they are understood traditionally.

The incompatibility of colonial systems with Ojibway ones further extends to education, making it difficult to pass on Traditional Knowledge. Scott explained, *“That’s my job in life [to use land-based traditional teaching methods], that’s what I was taught to do.... But that provincial school system and that structure doesn’t allow me to do that. It’s like I have to comply*

with their way in order to teach, so what's the point of that if I can't teach the way I'm supposed to learn?" Furthermore, it is difficult to pass on Traditional Knowledge, meaning that even at Gaubiskiigamaug, making decisions informed by Traditional Knowledge is difficult.

In conclusion, most external factors shaping the external contexts that affect decisions about wetlands at Gaubiskiigamaug relate to the process of colonization, making it integral to understand this history to fully understand the environment of motivators and barriers faced by Ojibway land managers and land users at Gaubiskiigamaug. This history includes a lack of authority over reserve lands and traditional territories under colonization, leading to barriers in collaborating with neighbours, loss of lands and Traditional Knowledge, and economic challenges that limit priorities to ones of survival. More, the incompatibility of colonial systems with Indigenous ones has led to First Nations being underrepresented in municipal or provincial governance, and the dominance of Western or colonial thinking makes Ojibway perspectives nearly irrelevant in today's land governance systems.

Responsibility to Protect the Wellbeing of Community Members

A critical external decision factor at Gaubiskiigamaug when it comes to any decision about land and wetlands is that community leaders are responsible for protecting the wellbeing of community members, whether as Chief, Council, or staff. Moreover, those in traditional roles within the community, such as Elders and Traditional Knowledge experts, also hold this responsibility. As Esquash explained, *"For us, we're always looking out for, again, first and foremost, it's about the community membership. We need to make sure community members have a secure and safe water source; we need to make sure that our people are housed well."* This dynamic means that individual decisions at Gaubiskiigamaug are usually made considering a larger collective context rather than focusing on a single individual's or family's wellbeing.

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Part of being responsible for a community's wellbeing is a need for consultation. Daniels explained, *"We need to involve community members [in decisions about the land] because there are community members that use the lands for different reasons whether it be ceremonial, hunting or harvesting plant species."* As far as wetland restoration and enhancement is concerned, P03, a staff member at Gaubiskiigamaug, added, *"I think our community members are open to it [wetland enhancement or restoration projects], as long as they are informed about what it is and how it's going to benefit the land itself in the future. I know that some of the people were really suspicious about when they were doing the retention pond here. A lot of people still don't know about it, so there needs to be a lot more communication from our lands department about what activities they're doing and how it will benefit us."*

Protecting the ability of community members to take part in traditional land use practices is another important consideration in collective decisions. Daniels detailed how these practices are part of their heritage and culture and contribute to valuable memories for many community members, leading to decisions made to protect these practices. He said, *"I would go with my grandmother berry picking chokecherries or saskatoons, wild strawberries or raspberries,"* and it is these traditions and activities that motivate him to protect certain areas of natural habitat within his community. For Elder and traditional land user Scott, *"For a guy like me, a traditional person, I don't like that idea of draining land just for agricultural reasons. I don't like that idea. Tractors have good steering wheels. They can go around them. That's my thinking. Like, we need duck habitat because that's part of our lives. We eat duck. We need wooded areas because we eat deer and rabbits and whatever else is in there."* For these reasons, Gaubiskiigamaug has policies that limit the use of pesticides on reserve lands that are rented out for agriculture *"for the protection of the fruits and other medicines that are out there too."* As Daniels described, not

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only are protecting and conserving wetlands seen as necessary at Gaubiskiigamaug, but they are also protecting them from contamination or pollution because of the many plants and animals in them that are used as a food source and for medicine.

Further, protecting natural areas such as wetlands is seen as necessary for protecting the ability of their community to heal from the intergenerational traumas caused by colonial policies such as the peasant farm policy and residential schools. Natural areas are essential to promote land-based activities in the community for the healing and health of community members and youth. P03 explained, *“One of the concerns for our families and our communities is that we are losing our ways, our cultures, our traditions, and stuff like that. So, what we try to do is part of assisting in healing our families from intergenerational traumas...we want to bring back some of the activities.... that are relevant to our former ways of life and that give value and meaning.”*

Additionally, Gaubiskiigamaug leaders are not only concerned about the impacts of their decisions on their community members. Potential impacts on their neighbours are also considered. Esquash explained, *“When you look at water, it doesn't matter what colour you are, what Nation, what municipality, what government you're from; if you don't have good drinking water you will perish. Everybody needs good drinking water whether it's a First Nation or a Caucasian or whoever, they need water to survive. If you don't take care of that, and you damage it, man it takes a long time for it to get better. That's how we look at things, right? Trying to make sure that things are good for everybody.”*

Responsibility to Care for the Wellbeing of the Land

Along with human needs, land decisions at Gaubiskiigamaug are made considering all impacts on the land. The wellbeing of the land is seen as tied to the wellbeing of community members. Esquash explained, *“Again, we try our best to make sure the impact on the*

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environment or our land, that we make sure that it's not going to wreck the land. Always taking that into consideration." Daniels said, *"We have to consider even for the wildlife.... We have to look at ensuring there's conservation for them and their living areas because they are needed."* P03 shared that she is *"worried about the wildlife that made it their home and now they don't have it... the loss of their habitat"* due to current land modification practices such as wetland drainage and removal of other natural areas.

Decision-makers at Gaubiskiigamaug also consider the impacts on other waters and water systems interconnected with wetlands, such as aquifers, springs, streams and lakes. Gaubiskiigamaug decision-makers are concerned about the aquifers located beneath their reserve lands because they feed wetlands that are a primary source of water for the community as well as for animals raised by the community, such as bison and horses. Protecting wetlands is seen as a vital part of protecting the aquifers. Daniels described, *"Swan Lake is located on two natural aquifers, so we see those small wetlands and gullies or waterways or coulees as connected with the aquifers as a filtration system from the land water to the underground water."* Another part of the water system at Gaubiskiigamaug is Indian Springs. Daniels shared that *"water comes out of the ground there and forms a spring right inside the buffalo compound, so they have access to water year-round."*

This concern for the environment as a whole, including water, plants, and animals, can be seen in the landscapes surrounding Swan Lake. Daniels said, *"I do notice at Swan Lake First Nation, when you're driving in coming from any direction, when you get closer to the community you notice more trees. I think with the community as a whole, we're into keeping the trees there and minimally disturbing [the land]."* Daniels further explained how the protection of underground aquifers and natural habitats are examples of how his people see everything on the

landscape as part of an extensive, interconnected system. For this reason, their traditional governance and land management systems are built to make decisions about land as whole systems that need to be cared for so that these landscapes can be relied upon to live.

Even non-Indigenous people are seen as part of these larger systems. As Esquash explained, protecting their aquifers is also seen as beneficial to their non-Indigenous neighbours. He said, *“In farmlands, they’re always worried about pesticides and all the different chemicals in the ground from farming. Always worried about runoff from your water systems and stuff. That is a big thing for us because of our aquifers that we sit on are huge. Those aquifers also are utilized by surrounding communities as well so if it poisons our water, it poisons theirs as well.”*

Part of seeing wetlands as parts of more extensive, landscape-wide systems is to make decisions with the wellbeing of all the roles wetlands play in the environment and human cultures – not just considering the wellbeing of a wetland itself as explained by Tsuji et al. (2023). Esquash detailed, *“I think wetlands have a very important role in the ecosystem. You look at the wetlands; they affect the animals, the birds, the bugs, migrations. For us, I think it is truly important to us First Nations people. We existed off the land. What we survived with was from the land. So, if you had a wetland area, that was, say, the duck’s habitat or something, if you took it away, that would not come back, and therefore you would be without that food source. So, I think wetlands were, and are, a major part of our existence as First Nations people. We even harvest a lot of medicines and stuff like that from the wetland areas. Some of these medicines and stuff grow and thrive in the wetlands; if you were to remove that area, you would probably decimate that medicine. Therefore, you would have to search and find a different place where it grows but that in itself would be a chore to find again. I know of one place in our community that is surrounded by fields, and there was a pond in the field. It wasn’t a drainage pond, but it was a*

pond that was there for years. Now, growing up as a young child we were told about this pond and how there was a certain medicine in it that thrived and grew lots and was abundant there. They did a study, and they were checking the wetlands to see if they were impacted by pesticides or anything like that. When they went to check the water there, they discovered that pesticides poisoned the pond and the water, so we couldn't harvest the medicine because the poison was in the medicine itself."

As Gaubiskiigamaug lands department staff member, Rhonda Cameron, explained, "Our community is dedicated to protecting the environment and doing what is best for the environment," adding, "People in our community have a high concern for our environment; the land is very important to us. It is our foundation. Without the land, we have no future here. If something happens to the land, it impacts our whole community and our way of life." Moreover, as Elder McKinney explained, caring for the environment is part of the traditional way of life at Gaubiskiigamaug, which is why environmental considerations such as the wellbeing of wetlands should be a high priority in the minds of Gaubiskiigamaug decision-makers. He said, "We need to understand what's happening in our environment with our lands and our animals and all that. What Mother Earth, the creator, gave us. That's very important to us because my parents always told us that's how they made a living years ago, our ancestors, off the land. If we hurt the land, the land is going to fight back, they used to say, and it's true with what you see now. Mother Earth is hurt and fighting back, and same thing with the animals. That's what I see, what's going on."

Shared Contexts

Worldviews and internal worlds substantially impact the decisions, behaviours, and actions that affect wetlands (Kaplan, 2011). However, the worldviews or mental models that form

our internal worlds do not exist in a vacuum, separated from the external contexts around us. Instead, they are shaped, in part, by our experiences in social and combined social-ecological environments, creating, for each, an individual experience of a co-created external context. In this, they sometimes create tensions between internal and external worlds, presenting challenges for decision-making at the individual level (Lavau, 2013; Wilson & Inkster, 2018; Yates et al., 2017). In this section, I examine the experiential differences of internal worlds *in context* of the external worlds they exist within between Ojibway and non-Indigenous land users.

This section will first describe the shared nature of land users' decision contexts in the Swan Lake region, including shared land and waters, dominant economic and governance structures, and a shared history. Next, it will summarize differences in how Ojibway and non-Indigenous land users uniquely experience this shared context as internal worlds, both collective and individual, interact in a shared context.

Despite different experiences and perspectives, Ojibway and non-Indigenous land users in the Swan Lake region share a landscape, a colonial history, and colonial governance, economic, and legal structures that make up their decision contexts. Before colonization, the landscape surrounding Swan Lake was made up of “*woodland areas and open meadows*,” where open, grassy areas interspersed with forested and shrubby areas, typically along ravines and waterways (Scott, personal communication). Early settler reports described the topography as characterized by “marshes and bogs, separated by low ridges” (Stunden Bower, 2011, p. 19). Wetlands were plentiful and integrated with grassed and forested ecosystems. Furthermore, before drainage, moving through and around wetlands was part of life, so these became intimately familiar parts of the landscape (Hambley, 1950; Scott, personal communication; Stunden Bower, 2011). These pre-settlement wetlands were highly valued by the Ojibway and other Indigenous Peoples, early

traders, and European travellers alike because they were abundant with edible and medicinal plants, waterfowl, and other wildlife used for food. They were also the primary water source on the plains, which were nearly devoid of lakes and where many smaller waterways dried up during dry seasons. In fact, for early settlers and traders, occupying lands which would today be considered poor or undeveloped due to the presence of wetlands was often the only feasible option for survival (Stunden Bower, 2011).

On this landscape is a shared history of colonization. It is a landscape still being transformed by a transition from Indigenous systems of human-land relationships to modern or colonial ones. The infrastructure of this transformation can be seen in the grid-patterned road and drainage systems, industrial agricultural practices such as removal of natural habitats and increasing the drainage capacity of land, as well as in water systems consolidation in reservoirs and constructed channels (Stunden Bower, 2011). All these processes have created and continue to create further change in the movements and behaviour of plant, animal and human life on the landscape; in the movements of nutrients and sediments between soils and waters; in flows between surface and groundwater; as well as in dynamics within and between ecosystems and combined socioecological systems (Baulch et al., 2021; Hambley, 1950; Rashford et al., 2011; Scott, personal communication). Describing all these changes individually is, of course, outside the scope of this thesis. However, my point is that the people I interviewed have shared a time, landscape and social context of unprecedented change generated by the ongoing colonization process.

Throughout this era of transformation, modern land abstractions of discontinuous boundaries separating land and water into jurisdictions or bundles of private property rights has been laid over a continuous landscape. These landscapes were previously boundaried or

delineated as territories through understandings of relational coherence within Indigenous frameworks (Scott, personal communication). Modern land delineations have made dynamic landscapes legible within modern decision structures and aided the settlement process (Willow, 2013). However, these abstractions have also tended to make land and water systems perceived as static, masking the dynamism of the complex, natural systems they represent (Bear, 2013; Linton, 2010). This change in how land is conceptualized has also impacted how decisions are made about land, which has important implications for wetlands. However, it also has implications for the individual experiences of a shared context. For example, throughout much of the process of colonization, individual non-Indigenous landowners have had the right to remove individual wetlands (more recently, within some parameters and restrictions); however, these decisions have overall lacked awareness or consideration of the cumulative impacts across a watershed or region (Baijius & Patrick, 2019; Breen et al., 2018). Meanwhile, Ojibway people who traditionally use land have largely been prevented the right to make decisions about land, whether in their reserve communities or their traditional territories and rather have had to witness the landscape-wide impacts of decisions made within narrow scopes of consideration and directly experienced loss, grief and harm as a result.

In contrast to colonial ways of thinking about land, landscapes are very much not abstract or static. Instead, landscape boundaries act more like zones of transition, exchange, and emergence, simply differentiating between areas of coherence rather than acting as demarcations of separation, thus creating dynamic, self-organizing landscapes (Bear, 2013; Capra & Luisi, 2014; Walter-Toews et al., 2008). While modern nation-state and economic systems engage forces of striation to enforce abstract boundaries separating lands from waters, places into parcels of ownership, etc., natural land and water systems persist as they continually re-introduce

dynamic movement and transformation within the abstracted, striated boundaries laid overtop them by colonial or modern systems (Bear, 2013; Linton, 2010). This dynamic has introduced a conflict-oriented relationship between modern or colonial and natural systems while suppressing Ojibway relationships with land characterized by reciprocity and respect for the dynamic nature of land.

Ojibway Experiences in a Shared Context

The views shared by participants from Gaubiskiigamaug tended to be similar; however, different community roles created different experiences of a shared external decision context among Ojibway participants. Below, **Table 4** examines the interaction of Gaubiskiigamaug worldviews in a shared external decision context, including conflict with dominant colonial perspectives, and summarizes the related experiences of Ojibway participants.

Worldviews

Table 4: Ojibway Worldviews and Experiences in a Shared Context

	Ojibway Worldview	Contrast with Dominant Worldview in Shared Context	Ojibway Experience in a Shared Context
1	Humans are part of nature.	Humans are separate from nature. Nature is a resource to be controlled, owned, and used by us without kinship responsibilities to nature.	Difficulty enacting traditional responsibilities for lands and waters in traditional territories makes it difficult to pass on Traditional Knowledge, skills, and languages.
2	Land is the dominant organizational system, shaping human systems of	Land is shaped to conform to colonial economic systems and government administration, creating a	Landscapes were re-shaped to conform to colonial systems, making Ojibway knowledge and

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	knowledge, education, governance, etc.	conflict-oriented relationship between these systems and land systems.	systems of land use, management, and governance obsolete, resulting in a disconnection from cultural practices and knowledge.
3	Land is inherently relational and shared; it cannot be owned.	Land is owned; it can only be accessed through rights via citizenship and ownership.	Traditional rights and connection to land, even though recognized within treaties, are degraded and often prevented. Thus, traditional relationships between people and land are broken.
4	Rights are distributed amongst all beings within human-nature systems and are interconnected with interrelational responsibilities.	Rights occur within a hierarchy and can be obtained through force, power and control.	The rights of lands and waters, which Ojibway people traditionally held a responsibility to uphold, are erased, separating people from responsibility for the land.
5	Being able to observe and be aware of the land, then adapt and respond to it, is essential to being human.	The land must be managed and controlled to serve humans and human systems.	Ability to observe the land taken away. The ability to pass on and access Traditional Knowledge needed to interpret land observations through a traditional lens is challenged. The ability to respond is restricted by colonial governance and legal systems.

Note: The Ojibway worldview contrasts the dominant colonial worldview and Ojibway experiences in this shared context.

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Based on their experiences in a shared context of a landscape transformed by colonization and colonial systems, Ojibway participants expressed several concerns. The first was for the plants and animals that need natural habitats. Esquash said, *“It is truly important to us as First Nations people. We existed off the land. What we survived with was from the land. So, if you had a wetland area, that was, say, the duck’s habitat or something, if you took it away, that would not come back and therefore, you would be without that food source.”* P03 expressed that she is *“worried about the wildlife that made it their home and now they don’t have it...the loss of their habitat.”*

Connected to the loss of habitat and wildlife, concern for the continuation and ability to practice traditional land use was common. P03 observed that at Gaubiskiigamaug, *“One of the concerns for our families and our communities is that we are losing our ways, our cultures, our traditions.”* Yet, as a community, *“we all have the same dream and goal that our kids will always have a place to call home and lands they can use that are still for traditional and cultural use. And that they’re still able to carry on the fishing, hunting, gathering, and trapping.”* For these reasons, continued access to intact and healthy natural lands and waters for traditional use and land-based educational purposes is essential to people at Gaubiskiigamaug so they can carry on their culture, traditions, and knowledge. Towards this, the ability to care for the land as a whole, to make observations across a landscape and to be able to actively participate in making decisions for management of landscapes as a whole is important to people at Gaubiskiigamaug (Scott, Daniels, Esquash, P03). This would allow the training of new generations on how to care for the land as a whole, not just look within set boundaries (P03). It would also preserve the ability to continue the harvest of traditional medicines, materials and foods and enhance the

ability of the Gaubiskiigamaug community to adapt to changing landscapes in the face of climate change and continued economic, governance and technological change (Scott).

Community Roles

Perspectives at Gaubiskiigamaug also depended on participants' roles in the community, as summarized in **Table 1**. Councilmember Esquash described how the Chief and Council must consider all needs of their community members. He said, *“First and foremost, it’s about the community membership. We need to make sure community members have a secure and safe water source,”* and *“we need to make sure that our people are housed well.”* The Chief and Council are responsible for balancing all the community's needs, including education, housing, and economic development, as well as considering the impact of their decisions on the land for future generations (Esquash). Importantly, it has only been relatively recently that Gaubiskiigamaug community leaders have been able to have a say in the management of their lands. Scott shared how, until the (late 1900s) Canadian government representatives known as *“Indian agents made their decisions. If the Chief and Councils disagreed with the Indian agents, they were removed until somebody came in and agreed with them.”* Esquash explained how *“A lot of those decisions were made way back in the day of the 1940s and 50s where we didn’t have a say on what was placed on our land and what wasn’t,”* adding that *“we have to repair some of the damages that were done, not by our choice of course but we still have to deal with it now.”*

Today, Gaubiskiigamaug Chief and Council face the challenge of balancing the environmental values of their community members within the context of today’s colonial economic system (Patrick & Baijius, 2021). For example, the Chief and Council try to balance economic decisions based on all costs to their community, even culturally important ones that are difficult to quantify. Esquash explained, *“When I say cost, I don’t just mean dollar cost but in*

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terms of what you're doing. Everything affects everything in the ecosystem. Therefore, when you go in and drain a slough, and you backfill it in with a bunch of dirt you've now carried out the displacement of animals and wild habitats. You've changed the environment. The hurdles become the question of how is what I am doing today going to make it worse for tomorrow? But again, it is hard because, in this day and age, everyone is so consumed with the almighty dollar.... Sometimes economics get in the way of making good decisions."

Daniels explained how the lands department is responsible for overseeing the community agricultural land leases, land management, land use planning, community consultation on land planning and development projects, as well as partnering with *"other organizations at provincial, National and also international territories"* on initiatives concerning lands and waters in their traditional territories. For example, Gaubiskiigamaug has been involved with the Tri-Lakes Development Group, as well as the Federal Government's Agricultural Living Labs program in the Swan Lake region (Agriculture and Agri-Food Canada, 2023; Sawatzky, 2021; Scott, personal communication). Further, according to Cameron, lands department staff at Gaubiskiigamaug are also responsible for overseeing the care of the community's animals, such as the bison herd, and community programs for raising chickens, rabbits, and garden produce. These responsibilities make the lands department accountable to the many ways community members use land, in addition to overseeing the land leases for agricultural production that provide revenue to the community and coordinating with groups and organizations outside of the community. These diverse responsibilities make it difficult for land department staff to meet all the expectations of the groups they are accountable to.

Importantly, from the perspective of Traditional Knowledge holders and land users at Gaubiskiigamaug, it is felt that traditional ways of using, managing and governing land are too

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often left out or marginalized in community decision-making processes that operate in a context where they need to conform and comply with colonial systems. For example, according to Scott decisions need to be made considering all the ways things interconnect and interact across a landscape. He said, *“The way we view it as traditional land users... those little sloughs, everyone is draining those. The deforestation practices, that again is starting to happen. And you have these mega hog-barn, chicken and hog operations where they just have huge amounts of waste materials being put out...those things concern us. All of that is tied to how that’s affecting water. Not only potable water but those lakes and streams, those things that we use from those lakes and streams. And the loss of habitat for the little creatures.”* However, he expressed concern that this big-picture view, important from a traditional perspective, is too often left out of Gaubiskiigamaug's decision-making, saying, *“I don’t know if [the traditional ecosystem perspective] is up there at all. You hear it, but do they actually understand what it is they’re saying when it comes to environmental issues that we should be concerned with?”*

Scott shared a recent example: *“The pipeline goes over our aquifer, and rather than dealing with the issue of protecting the aquifer, we accepted money. A few bucks to do water monitoring rather than protecting the aquifer by getting the pipe off that aquifer. So, these are the differences in values that a traditional person like myself will have compared to the administration of the band.”* According to Elder McKinney, *“The problem with the way we’re dealing with land is it’s no different than the way we were dealing with it under the Indian Act.”* According to Elders Scott and McKinney, more work is needed to ensure that the ways lands are used and managed at Gaubiskiigamaug reflect the traditional values, knowledge, and systems of their Ojibway culture. However, according to a lands department staff member, resolving tensions between the department’s diverse responsibilities towards the community is difficult due

to conflicting influences between the community's traditional land use and governance structures and the current economic and legal environment the community is situated in as a colonized Nation (Cameron). Nevertheless, according to Cameron, *"There is a lot of interest from community members in learning about environment and conservation practices. For example, composting, recycling, and repurposing material."* In Cameron's perspective, community events on these topics are usually well attended, showing ongoing interest from the community in finding ways to adapt their cultural values and connections to land within their modern context.

Non-Indigenous Experiences in a Shared Context

In the interviews, some non-Indigenous land users tended to have worldviews more synchronistic with the colonial systems dominant in their shared decision context. For example, the ideas of human-nature separation and the economic valuation of land were common. However, non-Indigenous participants had a greater diversity of perspectives on wetlands than was shared among their Ojibway neighbours with some advocating for non-economic values of land and seeing intrinsic value in wetlands. Among the non-Indigenous producers I interviewed, type of land use was the most significant determiner of differences in worldview and experiences of the shared decision context. During analysis, I separated the worldviews of non-Indigenous participants into three orientations, summarized below in **Table 5**. These orientations are described here as 1) environmentally conscious, 2) focused on production maximization, and 3) experiencing a shift in worldview orientation. Afterward, in **Table 6**, I summarize the contextual experiences based on type of production amongst the non-Indigenous producers I interviewed, particularly as livestock, crop and mixed crop and livestock farmers.

Worldviews

Three worldview orientations emerged from the interviews with non-Indigenous land users in the Swan Lake region. To summarize these, I have described them as 1) environmentally conscious, 2) focused on production maximization, and 3) experiencing a shift in worldview orientation.

Table 5: Non-Indigenous Participant's Worldview Orientations and Experiences in a Shared Context

	Non-Indigenous Land User Worldview Orientations	Worldview Description	Experience in Shared Context
1	Focus on balancing environmental wellbeing with the success of land use practices.	Their goal is to modify farm practices so that the environment's wellbeing is maintained. Success is viewed as improving efficiency and production alongside increasing environmental benefits or finding ways to mitigate environmental harm.	They are concerned about being seen as outsiders in their community for farming in ways that are considered unconventional. They report difficulty finding like-minded communities and experience challenges in balancing their values with motivators in the economic environment. They experience worries and concerns about the future and the direction of things.
2	Production Maximization focus	They are focused on maximizing the production capacity of their lands to the limits of current regulations and view environmental considerations as costly barriers to achieving this goal.	They consider environmental regulations and policies harming their farm's profit potential. They experience tensions with perceived public expectations for farmers but place a greater value on business success than on satisfying public expectations.

3	Shifting worldview with increasing environmental awareness	Their worldviews are shifting based on their experiences and observations of environmental change. They report becoming more conscious of the need to consider the environment in decision-making.	Participants described various responses to shifting worldviews, including finding new approaches and production methods through trial and error and getting involved in the watershed district to advocate for longer-term, watershed-scale approaches to land management and planning.
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Note: This table compares three tendencies in non-Indigenous land users' worldview orientations observed during the interviews. These include 1) environmental consciousness in decision-making, 2) focus on production maximization, and 3) experiencing a shift in worldview orientation.

For non-Indigenous land users with an environmentally conscious worldview, the goal of their production practices included balancing their farm's financial sustainability with the wellbeing of the land. They tended to view success as improving their farm's efficiency and production alongside increasing the environmental benefits or mitigating environmental harm associated with their farming practice. For example, P05 raised livestock partially due to the positive environmental effects associated with it. She said, *"The pastures promote so many things like the ducks. Ducks will lay their eggs in there, and if you don't harvest it until after they're hatched and gone,"* also adding that *"feed that we use for cattle, whether it be grass hay or hay from around some of the sloughs, helps regenerate it. Like, you're taking a cut off of it which helps it grow back. You're not working the soil around the slough. It would be like a garden where you work your garden, but you just take what you need."* As another example, P01 described her farming practices regarding their environmental impact, saying, *"Hopefully, we're doing more good than harm."*

Combined with considering environmental wellbeing in their farm management, environmentally conscious producers reported experiencing concerns about the future and present condition of the environment. For example, P01 expressed concern that modern farming practices

reduce the land's absorptive capacity, reducing soil capacity to hold moisture and thus the availability of groundwater, as well as water quality due to many of the farm inputs used to increase production. P01 said, *“I’m sure eventually a lot of our wells are going to be no good and where do you dig another well, right? When it’s all the same stuff.”* Additionally, P05 felt that *“the wetlands are just part of it. [We] still need the trees for animals, right? Even little bluffs, like little, tiny spots where there is a little bit of bush, like a little rose bush or brush of whatever, some farmers think, ‘I’m not going to drive around that. That’s crazy. I’ll just plough through it.’ But there is a lot of life inside there, and they just don’t have anywhere to go anymore.”* P05 described her concerns about the future, saying it is just about *“what you want to see.”* Adding, *“If you go out somewhere and you see nothing but dirt, it’s like ‘what’s out there? There’s nothing there!’ You know? You don’t get all the sounds of nature and everything else.”*

Among participants with a production-focused worldview, it was felt that current environmental regulations and policy create an external decision environment where it is becoming increasingly difficult to make a profit as a farmer. P02 said, *“Don’t make it so hard for those guys to scratch out a living around those wetlands. Like, we do put up with hindrances. When you have a wetland, then you’ve got the wildlife and the geese that are there, and if you’re going to force that down our throats where we have to take care of all of that, then you’re just pissing farmers off.”* For production-focused farmers, the goal is to maximize the profitability of lands they own or rent. Participant P04 explained, *“it’s about maximizing acres. That is a big thing. A lot of times, you’re paying rent on that land and paying tax on that land, so you want to make it productive. You try to make every acre of the land you own produce.”* P04 added, *“We’re not farming ducks, we’re farming crops, and that’s just the common ground you have to find now*

as far as wetlands are concerned. You're never going to get rid of everything, but you're certainly going to maximize what you can do as far as local municipal laws."

Despite the close fit between the worldviews of production-maximizing producers and aspects of the colonial worldview, such as seeing nature as a resource to be controlled and exploited, these producers also experienced their farming decisions conflicting with public expectations. Producer P04 detailed, *"A lot of times as the farmer, you're not satisfying too many people with what you're doing to maximize your acres, but at the end of the day, you're there to make money, not keep all the birds flying."* P02 added that the public needs to take more responsibility for supporting farmers to produce in environmentally friendly ways rather than continually burdening farmers with costly environmental requirements that cut into a farmer's bottom line. He illustrated, *"Water retention is really a good thing all in all, and I guess society should pay for more of that if society wants the environment taken care of. We're providing the food that society eats, and I think farmers are pretty darn good at it. We're growing food very efficiently. Almost any food you think of, it's down to pennies that the farmer would take. So, we've become very efficient and then they go and throw a few more rules on."*

Finally, some non-Indigenous participants shared their experiences of having shifts in their worldviews based on observations throughout their lifetimes. These reported experiencing growing need to more aware of the environment in decision-making than they had in the past. For one participant, Hacault, *"I'm old enough to have seen all that and in one area what we did is there was some sort of a wetland with trees in it, willows, and...we kind of destroyed it.... Now we've tiled it all and we're dealing with salinity levels which we never had before because the trees were keeping the water table down."*

And, for producers with growing environmental awareness, their shifts in worldview have led to shifts in land management. For P01, a growing awareness for environmental conditions led to the decision to begin using holistic management. Along the way, changing farming practices has required a long process of trial and error but, in her view, the results have been worthwhile. She explained, *“We’re just starting to see the real benefits of it [holistic management] in the last years. In the first couple of years, it was like, oh, what are we doing? But shortly after that you really see the difference. We can now graze more animals on less land than we would otherwise.”* And Hacault said, *“I’m definitely convinced now, because of what I’ll call climate variability, so we don’t get an argument, just water quality and how we have got to do a better job,”* adding that *“we can save some of this, but we have to do a way better job,”* a perspective shift that has contributed to his advocating for watershed-scale land use planning and joining the PVWD advisory board for his region.

Land Use Practices

Land use type or style of agricultural production stood out during the interviews as a significant determining factor influencing non-Indigenous producers’ worldviews regarding the environment and wetlands. Land use type was also a primary determining factor in their experience within the larger shared decision context experienced by Ojibway and non-Indigenous land users. **Table 6** provides an overview of worldview and experiential differences between livestock, crop and mixed-farm producers.

Table 6: Worldview and Experiential Differences between Pasture-Raised Livestock, Crop and Mixed-Production Non-Indigenous Land Users

	Land Use (Producer) Type	Land Use Type Description	Worldviews Related to Land Use
1	Pasture-raised Livestock Producer	Produce livestock only (among participants, all livestock producers exclusively raised cattle).	Livestock producers tended to be more environmentally conscious and aware of the need for healthy land and water systems to support their livestock. They had less need for cultivated land and more interest in increasing soil health and maintaining low areas as water sources for livestock and to produce hay.
2	Crop Producer	Exclusively produce crops.	Crop producers tended to focus more on increasing arable acres, intensifying production by eliminating natural habitats and reducing wet areas such as wetlands. These motivations were accompanied by less need to maintain land diversity as they did not need water or hay for livestock.
3	Mixed Pasture-raise Livestock and Crop Producer	Both pasture-raised livestock and crop production are significant parts of farm income.	Keeping pastures for livestock provided motivators to keep wetlands and associated hay lands. However, these needs were accompanied by the needs and motivators of crop production. Their focus tended to be on balancing the diverse needs of their farm production. This diversity of production also allowed them to selectively use lands best suited for livestock or crop production rather than being forced to maximize their cropped acres on less productive land.

Several participants, both crop and livestock producers, shared that their views regarding the environment and wetlands are very different and that their perspectives are influenced by how

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they use the land. As Porteau explained, having livestock creates an incentive to keep wetlands as a water source, saying that *“for some of that land if we didn’t have the cows, we’d be more tempted to drain it because for some of them, if you drained them, they would be farmable. But we have a use for them the way things are, so we have no problem leaving them there.”* P02 described the situation, saying, *“If you have cattle, then you have different ideas than if you don’t have cattle. If you have cattle, then you can make your pastures bigger.... If you don’t have cattle, then you try to make your grain land bigger.”* P02 explained how crop farming incentivizes drainage and removal of bush or grassland, saying, *“If you’re a grain guy, you want your fields as big and square as possible. And then what do you do with the corners that are wetland, grasses, or lowland? It’s hard to get a decent dollar from a beef guy to rent it because it’s nooks and corners. So, it’s very different if you have livestock than if you don’t.”* Meanwhile, P01 further explained how livestock farmers are drawn to lands with more variable topography, including natural low areas with more water. These lands are more difficult to crop and have water and moisture-rich hay lands, making them more ideal for raising livestock than crops. P01 explained, *“That’s where all our cattle are. It’s in smaller areas that used to be fenced off because the older farmers said, ‘I’m not going to rip all the trees out, and I can’t get close to it anyway because it’s too wet or too steep’ or whatever so a lot of these little runways do have fence in them.”*

Nevertheless, according to Hacault, with modern equipment and technology, many lands formerly unfavourable for crop farming can now be tamed and transformed for crop farming through draining, grading, and removing trees and bush. This trend has reduced landscape diversity, resulting in less land usable as pasture. As Hacault observed, *“There was always a little bit or a lot of wetlands on the properties up here, but since they’ve been drained out of existence*

the livestock component has already disappeared. So, the diversity on the landscape of wetland-pasture-cropland is now just cropland. A lot of the livestock component has disappeared.”

Overall, cattle producers and crop farmers experienced different perspectives on wetlands and connected their views to how they used the land. P05 explained, *“I think cattle are far better for the environment. Most cattle farmers are a lot more willing to do things for the environment than those who are strictly grain farmers. It’s just not something I want to see. I don’t want to get to that point where so many trees are coming down, or any little bluff anywhere or water is being drained and tiled.”* However, these differences have created tensions between crop and livestock producers. P01 explained, *“A lot of the grain farmers don’t want to work with cattle farmers because sometimes cattle get out, and they don’t want their crops trampled.”* Meanwhile, P02 expressed that *“the mixed farmer has always got a bit of animosity towards the bigger grain guy”* because mixed and cattle farmer’s *“assets are in a different form than the grain guy and those two don’t always mesh, and this goes back generations.”*

Comparison of Ojibway and Non-Indigenous Experiences of a Shared Context

Throughout the transformations of land and human-land relationships that have occurred during colonization, the experience of colonization has been highly different between different communities of people, most pointedly between Indigenous and non-Indigenous, as emphasized in this thesis. However, what has been shared has been the experience of the same landscape being transformed as both Ojibway and non-Indigenous people alike occupy the same landscape in the Swan Lake region. What is not shared is how these groups have perceived meaning from how the landscape has changed, the impacts they have experienced due to these changes, and how their relationship with the land has been changed. These differences are contrasted below in **Table 7.**

Table 7: Comparison of Ojibway and Non-Indigenous Experiences of Colonization in the Swan Lake Region

	Ojibway Experiences	Non-Indigenous Experiences
1	Similar worldviews are shared among community members, although unique perspectives are held based on an individual's role in the community, whether working for the lands department or as a traditional land user, for example. A common worldview led to Gaubiskiigamaug participants sharing a preference for conserving, protecting or restoring wetlands despite economic impacts due to wetlands being perceived as having inherent value.	More diversity of worldviews was shared among non-Indigenous participants, primarily differentiated by type of farming practices. However, more expressed views that conform to Western perspectives (i.e. land is an owned resource, and its utility is in economic production) resulting in wetland's perceived value often being connected to economic factors. This Western perspective placed most non-Indigenous decisions about wetlands within a framework of cost-benefit comparisons.
2	Indigenous participants shared a culture, a traditional background, and a history as a community. These shared experiences created a community identity and a collective sense of belonging to place. This cohesion motivates making decisions about the land and wetlands based on the needs of different community members, neighbours, and land and water systems within Gaubiskiigamaug's larger traditional territory.	Non-Indigenous participants interviewed came from diverse European cultural backgrounds and had unique family histories and personal worldviews shaped, in part, by the way they use the land. They also tended to own land privately rather than sharing land as a community. Followingly, there was a greater focus on private interests in terms of land management. Overall, most non-Indigenous participants were primarily concerned with the condition and future of privately owned lands. However, some were also concerned about the condition of the landscape around them as a whole.
3	Gaubiskiigamaug is a Nation within a Nation, making the community unique compared to the municipal jurisdictions surrounding Gaubiskiigamaug reserve lands. However, although Gaubiskiigamaug's sovereignty as a Nation is acknowledged through treaties,	Contrastingly, non-Indigenous Canadians are citizens of the dominant governance, legal and economic structures they are part of, reducing the jurisdictional complexity they experience. Their interests are also reflected within municipal and provincial governance systems. These differences

	the Canadian state has not respected this sovereignty. In its fiduciary relationships with the Canadian government, Gaubiskiigamaug, as with other First Nations, has a conflict-based relationship with the government by which its lands have been colonized. These conflicts and incompatibilities reduce Gaubiskiigamaug's agency over lands and wetlands.	make it easier to carry out individual preferences and decisions regarding wetlands compared to Ojibway participants.
4	The experience of colonization at Gaubiskiigamaug was very different from that of their non-Indigenous neighbours. For example, during the process of colonization, Gaubiskiigamaug, along with other Indigenous groups in Canada, experienced their lands being appropriated, starvation and isolation policies, among other coercive measures to remove lands promised during treaties from their reserve as well as to attempt cultural genocide to erase collective identity as the Ojibway Nation. Gaubiskiigamaug was also prevented from making their own decisions about lands, including wetlands, during early years of the reserve period and is now in the process of attempting to re-form collective governance models that accommodate their colonized context, existing within colonial systems, as well as accommodating their Traditional Knowledge and value systems and working to translate these systems into affecting beneficial development and restoration of community lands. This means that the ability to make decisions about wetlands has only recently been restored and is still limited by past	The Canadian government needed European farmers to settle the land to support Canada's claims to the land, so support was provided to ensure the success of non-Indigenous farmers, including land drainage and construction of the grid system, in developing transportation networks and accommodating private property ownership. However, non-Indigenous experiences of colonization have also included the challenges of leaving former places of home and identity and working to build a new home in a new place. When it comes to the agency to make decisions about land, financial and other supports have been provided to non-Indigenous settlers to ensure their farming success. The Canadian government continues to support the agricultural industry through various programs and subsidies. However, most publicly funded supports for the agriculture industry have historically supported large-scale, industrialized farming methods while smaller more diversified farms have faced increasing financial challenges. The current economic and agricultural industry also incentivizes continued removal of natural land features such as wetlands, while penalizing the

	decisions and legal and economic restrictions.	conservation or restoration of these features, making wetlands a “cost.” This environment reduces the decision-making capacity of environmentally conscious farmers. Moreover, land rights to privately owned land are upheld by Canada’s legal system, while First Nations have been prevented from owning their lands, which are held in trust. As a result, non-Indigenous Canadians have more agency over land use decisions and ability to modify landscapes, including draining wetlands. Alongside, the municipal system supports collective decision-making for land-owning, non-Indigenous Canadians while First Nations are largely precluded from structures for collective decision-making with their non-Indigenous neighbours.
5	Ojibway and Canadian legal, economic and governance systems are different. In addition, jurisdictional conflicts between provincial and federal jurisdictions cause challenges for reserve lands governance. At the same time, the Indian Act governance system and the traditional Ojibway governance systems are both relevant at Gaubiskiigamaug. These jurisdictional overlaps and competing interests make any decisions about land, including wetlands, complex by creating tensions between different demographics within the community as well as between Gaubiskiigamaug and Canadian governance systems.	Non-Indigenous farmers experience a more straightforward and accommodating governance ecosystem in terms of wetlands-related decisions by not having the complexities of belonging to a Nation within a Nation. However, non-Indigenous farmers with stronger environmental awareness often find their environmental values and financial wellbeing at odds, creating tension between their internal and external decision environments. Alternatively, value-led decisions often come at personal cost to a farm’s potential profitability.
6	Ojibway participants tended to see the land as a whole and see human relationships with land oriented by respect, reciprocity and responsibility. This is known by some	Non-Indigenous participants broadly described rights-based relationships with land as a resource and themselves as private rights holders to parcels of land. However,

as a kinship worldview, or a whole-system, big picture way of viewing human-land relationships. Traditionally, any management or use decision about a wetland would be made from this perspective.	some also had family-based relationships with land passed down between generations, and others described connections and concerns for the wider landscapes around them, such as concern for habitat loss or loss of cultural or heritage sites in the Swan Lake region. However, overall land decision considerations made by non-Indigenous participants were limited by private property boundaries and short-term financial horizons.
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In summary, throughout colonization, the Ojibway at Gaubiskiigamaug, as with other Indigenous Peoples in Canada, have experienced a much more distinct and tension-filled difference between their traditional worldview and the worldview informing colonial structures and systems than settlers and settler-descendants have experienced. For non-Indigenous Canadians, as reflected during the interviews here, economic participation tended to shape their worldviews more than a cultural identity. This difference emphasizes the greater impact of landscape changes on Ojibway cultural identities and relationships with land when compared to their non-Indigenous neighbours.

Another difference between the groups of Ojibway and non-Indigenous participants I interviewed was the amount of variability within the groups. Participants from Gaubiskiigamaug tended to share similar worldviews. The most significant differences in their perspectives and decision-making arose from their roles in the community and consequential differences in their external decision contexts, yet all held to the Ojibway worldview particularly in seeing landscape features such as wetlands as inherently valuable. In contrast, non-Indigenous participants experienced more variability in worldviews and more variability in external decision contexts

based on worldview orientation and agricultural practice type. For non-Indigenous land users, the most significant factor shaping their external decision contexts, as observed during the interviews, was the land use or production they practiced. For example, whether they raised livestock, crops, or both.

Farm type was observed to be connected to farm size and environmental mindedness. Both livestock farmers I interviewed had a strong orientation toward environmental awareness in their decision-making. Mixed farmers tended to have mid to large-sized operations. At the same time, the need for productive pastureland including hay land and water availability for livestock created a stronger incentive for them to consider the longevity and wellbeing of wetlands in their decision-making compared to those who did not raise livestock. Most crop farmers saw wetlands as inherently costly and incompatible with their farm's productivity due to their decision contexts around farm operations and production efficiency (P02 and P04).

However, other crop farmers shared how their perspectives have shifted over time based on their observations of cumulative drainage impacts (Hacault). Some expressed interest in water retention, a practice compatible with wetland restoration (P02), and others expressed how their environmental preferences conflicted with economic drivers (Porteau). Therefore, my goal here is not to paint different forms of agricultural production as “worse” or “better.” Instead, I want to emphasize both that the ways we interact with land and how we depend on it, in turn, shape our decision tendencies or preferences when it comes to land. Alongside, I emphasize that the economic, legal, and other systems we are embedded within shape and impact our decisions in addition to internal processes such as worldviews.

Chapter 4, Conclusion Part 2

In part two of this thesis discussion, I first explored unique aspects of Non-Indigenous and Ojibway land users' decision contexts in the Swan Lake region. Next, I considered how the decision context in the Swan Lake region is shared between Ojibway and non-Indigenous land users. I then compared how different land users experience this shared context uniquely based on their worldviews, community roles, and land use types. Finally, I reflect on several key observations made while exploring shared and unique influences on land users' decision-making regarding wetlands.

The first observation was that Ojibway land users experienced the most tension between their worldviews and the external contexts in which they make decisions. However, they also shared the most similarities with others from their community and enjoyed sharing a community identity. Some non-Indigenous participants had worldviews that complimented colonial economic and governance structures. However, non-Indigenous participants also had a higher diversity of perspectives primarily based on the kind of agricultural production they practiced. For example, having pasture-raised livestock motivated a higher valuation for wetlands' health and sustainability than those who did not. These differences sometimes create tension between non-Indigenous neighbours, creating conflicting motivations between different user groups and differences between worldviews.

Through these observations, I highlight how land use practices tend to shape individual values and, thus, shape unique experiences of conflict between environmental and economic drivers. For Ojibway land users, ways their community has used and relied on wetlands in the past which has had a particularly poignant influence on their cultural view and values for wetlands. For non-Indigenous participants, the ways they currently use privately owned land for

economic production have the biggest influence, particularly whether they have a use value for wetlands in their farm operations or not.

I highlight the importance of understanding each individual's decision context. Each person I interviewed had a unique context that informed their decisions in addition to their personal preferences and worldviews. On this note, several participants commented on conflicts between human and environmental wellbeing being caught between competing economic influences and values, putting personal preferences and worldviews in conflict with the external decision contexts they experienced. This tension was strongest for the Ojibway participants and non-Indigenous participants with an environmentally aware orientation to their farming practice. Additionally, some participants made observations about the land and wetlands themselves having an influence on their worldviews and decisions, causing shifts in their perspectives over time, introducing the agency and relationality of wetlands themselves into this thesis discussion.

Chapter 4, Part 3: Reflections in the Land: Shifting Landscapes, Shifting Worldviews

Chapter 4, Introduction Part 3

Our relationships with wetlands are reflected in the land itself. As emergent parts of complex, interrelated land and water systems, wetlands are shaped by surface and groundwater processes; the connectivity of individual wetlands among other ecosystems; their interactions with Earth systems such as climate and nutrient cycles; as well as their connectivity in hydrosocial systems (An & Verhoeven, 2019; Baulch et al., 2021; Breen et. al., 2018; Gardner & Finlayson, 2018; Hayashi et al., 2016; Hesslerová, Pokorný, Huryňa & Harper, 2019; Vickruck, Best, Gavin, Devries & Galpern, 2019; Zhang et al., 2022). According to Hayashi et al. (2016), it is critical to understand wetlands as integrated hydrological units because their condition depends on their interactions with both human and ecological systems. Likewise, the state of wetlands influences the health of human and other ecological systems (Ekness, 2015).

Part three examines dynamics between landscapes, worldviews, and the evolution of human-wetland relationships. From Western perspectives, examples of feedback and response between human and natural systems have been noted within many emerging disciplines. For example, as a pendulum swing within sociohydrology (Kandasamy et al., 2014); as a web of interactions in socioecological studies (Thiessen Martens, 2022); as coupled human-nature systems in complexity studies (Capra & Luisi, 2014); as socionatural territories continuously emergent through processes of territorialization and de-territorialization within the disciplines of political ecology and assemblage theory (Bear, 2013; Boelens et al., 2016); and as a plurality of ontological waters and watersheds co-evolving through processes of reciprocal causality (Linton, 2022). However groundbreaking these ideas are within Western thinking, they have yet to gain

influence in dominant governance frameworks which favour constructs of human-nature separation and fragmentation of land and waters into discontinuous units (Linton, 2022).

Contrastingly, in the Ojibway worldview, the understanding of humans as being embedded in responsive relationships with all aspects of land is foundational (Scott, personal communication). In this perspective, human communities are embedded parts of larger communities of life around them and, thus, must consider the effects of their actions on all life in decision-making. With this foundational understanding, core aspects of Ojibway governance and knowledge systems address the need to consider how decisions made today will shape the landscapes of the future (Scott, personal communication). As Kimmerer writes, “the truth of our relationship,” meaning the human-land relationship, is written onto the land itself (2013, p. 138). To Kimmerer, today’s landscapes often tell a story about uniformity and efficiency, “a story in which the land is shaped for the convenience of machines and the demands of a market” (p. 138). Contrastingly, in Ojibway frameworks decision-makers must not only consider the wellbeing of current human communities but must also consider the wellbeing of future generations whose landscapes will be shaped by actions and decisions made presently.

After the early dramatic period of landscape transformation during the introduction of colonization, landscape changes have continued to occur in the Swan Lake region. These have continued both in the dynamics between human and natural systems and within worldviews. As elsewhere, shifts in worldviews and decision contexts have occurred in the Swan Lake region in response to the landscape changes caused by the process of colonization. This section first summarizes participants' observations of the current state of human-land relationships, including observed causes and associated challenges. Finally, I summarize participant’s experiences of

shifting worldviews in response to observations of wetland changes throughout their experiences of farming or using the land, introducing the agency of wetlands themselves in this process.

Human-Wetland Relationships Reflected on the Land Today

Colonization introduced a dramatic change in existing human-wetland relationships. From relationships of interdependence where wetlands were valued as sources of food, water and medicine, today's dominant human-wetland relationship has become one centred on landscapes being transformed to enhance their economic potential – often resulting in loss and degradation of wetlands (Rashford et al., 2011; Thiessen Martens, 2022). Widespread drainage of wetlands initiated by federal, provincial and municipal jurisdictions alongside private landowners have reflected this changed dynamic between humans and wetlands (Stunden Bower, 2011). Along with this, as elsewhere, have been dramatic impacts to plant and animal populations wetlands support as well as the water systems they are part of (Baulch et al., 2021; Breen et. al., 2018; Scott, personal communication). Participant observations of several related trends and changes are detailed below.

Continued Loss and Degradation of Wetlands

Both Ojibway and non-Indigenous participants observed that there are increasingly fewer wetlands. Hacaault said, *“They’re all gone. There is zero left of what I would call a functioning wetland,”* meaning smaller, ephemeral or semi-permeant wetlands. Hacaault pointed out that this decrease is also related to the health or quality of remaining wetlands, reducing the ecosystem services remaining wetlands can provide. For example, mainly ephemeral and semi-permanent wetlands have been drained. However, larger wetlands that remain on the landscape are still impacted by riparian zone removal, or removal of surrounding natural vegetation, as well as

contamination, and either flooding or drying out in connection with drainage activity in the surrounding area.

Other observations related to continued wetland loss and degradation included increased invasive species in wetlands, such as hybrid cattails outcompeting native species (Scott, personal communication). These and other changes in wetland habitat characteristics are leading to depletion of insect, amphibian, and bat populations. Scott said, *“You don’t see a lot of bats anymore and yet they were abundant at one time.”* Further, less connectivity of natural habitat areas interconnecting wetland areas is affecting animal movements of species that rely on wetlands, such as waterfowl, beaver, and muskrats. Scott said, *“Even here with the wetlands that we are protecting, you still don’t see those animals migrating across fields.”*

Changes to the Hydrologic Cycle

Another observed drainage effect is that moisture levels across the landscape are becoming more divided by uniformly dry and uniformly wet areas. For example, P05 explained that on her land, *“everything seems so much drier.... Even our bigger sloughs here. One we have had always been filled with water, and you can walk across it now.... This is actually the first year that it has ever been so dry you could walk across it. But definitely, in the last four to five years, we have noticed it getting lower and lower and lower.”* As wet areas are consolidated, some areas are becoming more prone to flooding. P01 explained, *“The wet areas are getting larger, but there are also fewer of them.”* Other participants observed that the landscape is getting dryer overall, along with less moisture storage capacity on the landscape. P03 said, *“It seems like these areas [around Swan Lake] are drying up...because of the man-made structures like the roads and ditches that we’re creating that divert river flow.”* In connection with this, it was observed that aquifers are recharging more slowly. Scott said, *“you look at the aquifers that*

we have now...things are not recharging as quickly as they used to.” P01 reflected on changes to groundwater including possible contamination and expressed concern about the quality and availability of drinking water, saying, *“I’m sure eventually a lot of our wells are going to be no good, and where do you dig another well, right?”*

Homogenization of Landscape and Decreasing Diversity of Land Use

Participants reported reduced land use value for both non-Indigenous agricultural practices and traditional Ojibway land uses. For example, several non-Indigenous participants observed that the landscape in their region is less able to accommodate livestock now than it used to be. Hacault said, *“Typically, there was always a little bit or a lot of wetlands on the properties up here, but since they’ve been drained out of existence the livestock component has almost disappeared.”* Additionally, it was observed that through the shift to increased cultivation, pastures and fencing are being removed along with watering locations, making it more difficult to rotate and water herds. P05 said, *“The cattle are running out of water. I know a lot of neighbours are having to haul water to pastures where there should be water, and we are having to not necessarily haul the water, but...we’re constantly leading them back to water sources whereas we could just move that solar waterer elsewhere to a different slough if there was more water. That way, they wouldn’t have to go over the same trails over and over, which compacts it.”* Meanwhile, Ojibway participants mentioned that traditional land uses that depend on wildlife and waterfowl being on the landscape have been affected by decreased landscape diversity. Elder McKinney said, *“Even trapping out here, the animals are depleting because of the environment. You don’t see as many animals as when I was a kid growing up. Lots of diseases in the animals.”* Chemicals and other pollutants on the land also impact its capacity to support traditional land use. Scott explained how traditional land users are concerned about *“what chemicals are the animals*

eating right? Like even eating muskrat or beaver, those kinds of things. Those things concern us a lot. Ducks, because they're eating off the fields, right?"

Decreasing Quality of Living in the Swan Lake Region

Both Ojibway and non-Indigenous participants observed how wetland issues are related to decreasing quality of living in their region. For example, some participants noted higher winds and increased erosion due to a more open landscape as natural habitats are removed. P05 said, *"The guy beside us took out one hundred and sixty acres of bush, which is a lot, and now you definitely notice the wind."* Other participants reported feeling a sense of loss as natural areas they used to enjoy observing have been removed. P03 described a small lake she used to drive by where *"the trees were removed from around that lake, so now you can see it. And we were saying 'oh my, look at all the birds that have to relocate, and they took down their neighbourhood and stuff.'"*

Some participants also connected a continued loss of wetlands as part of the same process contributing to removal of heritage, historical and culturally significant sites. Porteau shared that *"if there are old farmyards...they are being taken down. Even buildings, like beautiful barns with a lot of heritage but down they go."* P05 even reported that changes to the landscape have begun to make it difficult to remain on her farm as her sense of loss and concern for the future is increasing. P05 said, *"We would like to just continue, but there is so much being destroyed around a person. I can see that starting to affect the future. Even a lot of places where there is land with no trees, we are seeing a lot of wind and dust.... People buy the land and annihilate it. I'm not very confident in that way. The people that will want to buy it will usually want to crop it. If they crop it, then it [natural areas] will be flattened."*

For Ojibway land users, the loss of cultural heritage sites and other culturally significant sites, whether settlements or campsites, traditional harvest sites, and burial sites, is particularly felt as their ability to access most of these sites has been lost through colonization. However, even remaining accessible sites are being affected. The condition of Swan Lake is a prominent example. Esquash said, *“One of the biggest things for us [at Gaubiskiigamaug] is the lake. Swan Lake has been around a long time, but at one time it was a thriving ecosystem. It was a great place for fishing, and there was lots of wildlife, birds, different fish species, and everything else. It was great before. Over the years, just last summer, I went down to the lake and at the lake edge, the water splashed, and I was looking at it...the water is brown, and you can’t see through it, and there are barely any birds. Last winter, a lot of our men tried to go ice fishing on there, and they were catching very limited fish and even the depth of the lake is so shallow. It’s really concerning to see a lake that size that has been polluted and dirtied, and it’s dying.”* Daniels shared that, *“Back in the day, we used to catch jackfish or northern pike. There used to be a fish ladder that went up toward the spring. It’s not there anymore because obviously the lake is too low. But there was spawning happening, there were a lot more fish....”*

Meanwhile, Scott shared that *“We used to have those little freshwater crabs or freshwater shrimp they’re called; they would jam up at a culvert, and there would just be thousands and thousands and thousands, we used to eat those things. I remember my grandmother used to scoop them up with cheesecloth, squeeze them, and dip the cheesecloth in boiling water for a few seconds. Then, you would take it out and eat it. We don’t see them anymore, or you wouldn’t eat them anyway because we don’t know what the hell is in the water. Then, the muskrat habitat, the beaver habitat, the other fur-bearing creatures, the ducks and the birds: all of that is no longer there. There is so much fertilizer in soils, the water level is down, and these bulrushes and other*

weeds just totally grow out of control. They just grow and grow and grow, so it just kind of wipes out all of that population that I just described there. So those are concerns of ours. Whereas in the past, those things would be managed by us, either by fire or by picking the plants.” He added, “Even the medicines we used to use for stuff like that, it doesn’t seem to work anymore. Like that mud pack that we used to have. We can’t find that mud anywhere anymore. Right? And again, it’s because the little sloughs and stuff like that are being drained away. And then we wouldn’t use that mud now any way because of all the chemicals.”

Tension Between Economic and Environmental Wellbeing

Several participants noted that impacts on land and water systems have connections with economic systems. For example, P04 noted, *“There used to be a whole lot of small farmers around, but most of them are not here anymore. Most of them have sold their farms and rented out their farms.... The land gets resold to bigger farms that have the means of doing something about those wetlands.”* Participants connected the shift to larger farms and landscapes with less habitat, species, and land use diversity to economic processes. In this way, economic systems influence decisions about wetlands in landscapes to which the economic systems are non-responsive. P05 said, *“A lot of people have been getting out of cattle because there just isn’t money it.... I have noticed a lot of people selling their herds and going into grain farming.”*

Participants further observed economic drivers to be causing farmland and wetland consolidation as farms become fewer and larger. Alongside, participants noted a movement away from pasture-dependent forms of production, reflecting a move to larger, crop and barn-raised livestock production, resulting in decreased landscape diversity. Moreover, as the landscape is being transformed, it was observed that the diversity of ways people can use the land is decreasing as well. For example, pasture-raised livestock farmers reported that it is becoming

increasingly challenging to find pasture lands and water sources ideal for their operations. In addition, traditional Ojibway land users reported finding it increasingly difficult to access natural lands required for activities such as harvesting plants for medicine.

During the interviews with both Ojibway and non-Indigenous participants, a frequent theme was that today's economic environment tends to motivate land management decisions in ways that clash with environmental and social concerns. Porteau described the situation:

“Ultimately, I would say most people want to do what’s best for the environment conservation-wise. I would say farmers in general want to do that. But ultimately, dollars and cents trump a lot of factors. Maybe they shouldn’t but they do anyway.” P01 further described how the agricultural industry creates incentives for the ongoing drainage of wetlands and removal of other natural habitats, saying, *“Nowadays everything costs so much to do. Farming is more expensive which is why they want every acre that they can work.”* P01 felt that the economic structure is such that short-term financial sustainability becomes valued over long-term environmental sustainability. Yet, she asked, *“If it’s doing harm in the long run, is it worth it? I mean, we all know what these wetlands are there for.... it doesn’t take long to screw something up but to fix something...takes a long, long time.”* Furthermore, at Gaubiskiigamaug, Esquash explained how making decisions with full consideration of costs for traditional land uses and consideration of cultural or traditional Ojibway values *“is hard because in this day and age everyone is so consumed with the almighty dollar.... Sometimes economics get in the way of making good decisions.”*

In addition, increasing land prices and shrinking net profit for farms create extra incentives to increase productivity per acre using measures such as wetland drainage or cutting back riparian or natural buffers between cropland and wetlands. P02 shared how farmers’ net profits have been declining, partly due to policies such as the carbon tax, thus incentivizing

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intensified farming practices that require maximizing crop productivity of acres. He explained, *“We’re growing food very efficiently. Almost any food you think of, it’s down to pennies that the farmer would take.”* Meanwhile, Esquash expressed concern about these economic drivers that incentivize hyper-industrializing entire landscapes because he connected the health and wellbeing of his community to the health of the land. He explained, *“You look at everything that goes on in this world, and at the end of the day, if you don’t have good water to drink, you will not survive. If you don’t have good water to hydrate your crops or plants, nothing will grow. You have to look at how in the name of progress they call it, by knocking down a bush to have a field for crops or filling in a pond so we can have more land – is it really progress or is it regression?”* He added, *“Economics always seems to be the important factor, yet that is the most dangerous way to look at anything. You’re sacrificing a wetland for a few extra dollars? That’s not good. You have to see the real cost of what you’re doing”* suggesting that the dominant economic system does not accurately capture values of transactions between humans and land.

The clash between economic incentives and concerns for the environment and human wellbeing related to the land has created tensions between band administration and traditional land users at Gaubiskiigamaug. Band administration and traditional leaders have competing factors they need to consider when making decisions for the community, needing to balance their community's economic and public service needs with their community's cultural and traditional values. Scott described how these decisions are *“another reason why our people are removed from the land. Because [Chief and Council] want money from land leases.”* In Scott’s view, the economic and traditional land use needs in his community are often at odds.

As illustrated, current colonial structures motivate decisions that transform landscapes in suboptimal ways for ecological and human wellbeing. Even while many residents on that

landscape have concerns about the changes they are seeing, they are still dependent on and active within systems that contribute to these changes. This dynamic is described as structural determinism or the “structural legacy of colonialism” (Reed et al., 2024, p. 32) and as *windigo* infrastructures by Indigenous scholars LaDuke and Cowen (2020). These structures lock in oppositional human-land relationships by building dependency on systems like the global economy that are out of touch with and not responsive to signals from local landscapes, precluding mutually-beneficial integration of human and land systems (Lent, 2017; Linton, 2010). These legacy structures impose opposing motivators within individual decision contexts, placing individual land users into a double bind between the health and wellbeing of their immediate landscape and community and their ability to benefit economically.

Oppositional human-land relationships are rooted in modern systems which have grown from a worldview that views humans and land as separate and sees land as an inanimate resource to be exploited (Linton, 2010). In this view, when the land fights back or responds in undesirable ways to the exploitation it is being subjected to (for example, the downstream effects from excessive wetland drainage, including increased flood and drought risk, eutrophication and threats to drinking water, etc.) it is a call for greater efforts to transform and tame the landscapes around us, further perpetuating an oppositional relationship.

Oppositional Relationships Between Land Users

It is not only human-wetland relationships that have been made oppositional. Oppositional relationships between different groups of land users also exist. In the Swan Lake region, differences emerged between Ojibway and non-Indigenous land users, as well as between non-Indigenous farmers with pasture-dependent operations and those without. Differences between these groups were observed to be particularly connected to land use. From the Ojibway

perspective, Esquash described how *“wetlands were, and are, a major part of our existence as First Nations people. We even harvest a lot of medicines and stuff like that from the wetland areas.”* He illustrated the difficulty traditional land users in his community face in a landscape heavily impacted by industrial agriculture by sharing a story: *“One place in our community that is surrounded by fields, and there was a pond in the field.... Now, growing up as a young child we were told about this pond and how there was a certain medicine in it that thrived and grew lots and was abundant there. They did a study, and they were checking the wetlands to see if they were impacted by pesticides or anything like that. When they went to check the water there, they discovered that pesticides poisoned the pond and the water, so we couldn’t harvest the medicine because the poison was in the medicine itself.”* Cameron added that people at Gaubiskiigamaug have a *“high concern for our environment. The land is very important to us. It is our foundation. Without the land, we have no future here. If something happens to the land it impacts our whole community and way of life.”* Scott connected these concerns to tensions created between Gaubiskiigamaug and surrounding communities, saying, *“It’s the same thing with farmers draining these little pothole lakes. Whereas we would say, ‘No, that’s not acceptable. You got to leave these little lakes in place because they have a role to play in filtering out those damaging things like pesticides.’ But that’s never going to happen because the provincial Crown won’t recognize that. We can’t make a law that says that will no longer happen in our territory.”*

Non-Indigenous land users primarily reported tensions occurring between non-Indigenous land users who have pastures and those who do not. P01 described this tension: *“We’re the only ones around here with cattle. Everyone else is with crops, so their ideas and our ideas are different.”* Porteau said, *“With our livestock, any land that’s not farmable is seen to have a use for the cows. So, for some of that land, if we didn’t have the cows, we’d be more tempted to drain*

it.” Adding that “it does make a big difference if I have a use for it. I suppose someone who has no cattle has no use for slough hay, it has more value because we have cattle. It’s easy to say we’re doing it for the greater good, but we do get value out of it, so that does make it easier to justify.” P02 described the situation from a crop farmer’s perspective, saying, “Some [wetlands] are a huge pain in the butt...it all comes down to cost. Let’s say you’ve got a circle in the middle of a square field. Going around that circle for everything you do during the growing season is a big inconvenience. It takes time; time is a big one, and you’ve wasted inputs and money.”

Given these contrasting perspectives, P05 equated tensions between pasture-raised livestock producers and crop-specific producers based on different land use practices. P05 said, *“I don’t know if there is a whole lot of support for wetland conservation or restoration. The ones that support it are probably small, little beef farmers that are retired or just want to have the cattle and don’t really have a lot for grain. Bigger grain farms are what most of land is around here, so there’s not a whole lot of support. It’s frowned upon, like ‘you’re crazy for not doing this’ or what have you,”* adding that neighbours *“know when not to bring that discussion up because it could lead to an argument.”* These differences between land uses and, thus, motivators in decision-making have created diverse perspectives for the future of human-wetland relationships in the Swan Lake region. These differences are detailed in part four of the discussion. It is important to note here, however, that differences in land use put groups of land users into oppositional relationships with one another in a system that incentivizes individuals to make decisions based on personal rather than system-wide wellbeing.

Shifting Worldviews and the Agency of Wetlands

In the mix of oppositional relationships between humans and wetlands and between groups of people who use land and wetlands differently, wetlands themselves have agency and contribute to

shifts in the landscape and even in human worldviews. Several participants reported experiencing shifting worldviews in response to observing changes in the landscape connected to wetland loss and degradation. As Scott said, *“The plants, animals, and water communicate with us all the time. It is us who have forgotten how to listen.”*

Wetlands have been communicating throughout the process of colonization. When the province of Manitoba was first settled, the abstract grid system designed for transportation and land allotment was proposed to make administration of the settlement process easier (Stunden Bower, 2011). However, drainage was essential to make the grid system possible, and drainage works needed to align with the grid. Some early administrators assumed that this approach to drainage would be an easy undertaking and would even self-maintain, compensating for the considerable initial construction cost (Stunden Bower, 2011). However, with their varying size over time, both seasonally and within the dry-wet cycles of the prairie climate, and interconnected nature, wetlands further challenged construction of these physical expressions of “lines on the ground” (Scott, personal communication). Due to a lack of cooperation from wetlands in conforming to the abstract geometric shapes of the grid pattern, grid-based drainage has proved “costly and labour intensive,” requiring extensive inputs for its ongoing maintenance (Stunden Bower, 2011, p 19).

Wetlands demonstrated a dodgy nature when government representatives known as “swampland commissioners” were set to map all wetlands in agricultural Manitoba. During the early settlement period, these commissioners struggled to explain mapping difficulties due to the never-ending changes in the shapes and sizes of wetlands over time. Even definitively identifying the boundaries of wetlands was a challenge (Stunden Bower, 2011). A daunting task, demarking known wetlands was important to aid the province in transferring Crown lands from federal to

provincial jurisdiction. Doing so would give the province a larger tax base and more access to royalties from natural resource extraction (Stunden Bower, 2011). However, the swampland commissioners were hard-pressed to conduct their work reasonably and continually extended their efforts past projected deadlines by years. In the end, their results were hardly conclusive. The uncooperative nature of wetlands, resulting in delays in the transfer of Crown lands to the province, created divisions between the province and the federal government and continues to do so today (Stunden Bower, 2011). Today, wetlands continue to be dodgy. *“Maybe-acres is what I call them”*, said P04, referring to ephemeral and semi-permanent wetlands in his fields. *“Maybe you get them and maybe you don’t. And that just makes everything a lot more difficult.”* In this way, wetlands act as agents of deterritorialization, challenging colonial abstracts and administrative notions of discontinuous territory (Bear, 2013).

Nevertheless, wetlands are not inherently oppositional, as demonstrated by their numerous mutually beneficial relationships within social and ecological systems. Wetlands were part of mutually beneficial human-wetland relationships in the past, and their value is still recognized today despite the many incentives to drain them. As P01 said, *“Wetlands are important. They do have a purpose, and our water is very important to all of us. If the wetlands get poisoned our well water is not far behind.”* Moreover, at Gaubiskiigamaug, Esquash said, *“Wetlands have a very important role in the ecosystem. You look at the wetlands; they affect the animals, the birds, the bugs, migrations,”* adding that *“wetlands were, and are, a major part of our existence as First Nations people.”* Many participants perceived wetlands’ benefits today as in the past.

Notably, participants were not strictly divided between those who saw wetlands as a nuisance and those who saw them as beneficial. Several non-Indigenous participants reported

experiencing a shift in their perspective on the value of wetlands over time. Despite the narrative dominance that minimizing wetlands' presence by drainage and consolidation is in the best interest of the agricultural economy, shifts in consciousness were heard during the interviews. These suggest that there is growing awareness of wetlands' importance as adverse effects from drainage that has already occurred is felt. Hacault shared, *"One thing I've got pointed out to me is that I'm spending a lot more money on treating my water on the farms, like the bacteria quality is still good but iron content and mineral content. And you know it was kind of, like it was my plumber guy who told me that, he said, 'Dan, you guys keep on taking all the trees out, and I keep making more money.' So, the wetlands and all the things that could filter that out seem to be gone, so it was a bit of a shock when he pointed that out to me."*

Hacault made sure to point out that he has been involved in *"the above-mentioned destruction of wetlands because I didn't know any better"* but that his perspective is different today. He said, *"I'm old enough to have seen all that, and in one area, what we did is there was some sort of a wetland with trees in it, willows, and I always [say] that we kind of, or my dad kind of, destroyed it. It was his land, and now we've tiled it all, and we're dealing with salinity levels which we never had before."*

P01 shared how learning about and adopting a holistic management approach to farming has changed her perspective. She said, *"We took a holistic management course. And through MESC and other sources, you get ideas for what to do but basically, it's just trial and error. You read something, try it out and see how it works. And with that, you've got to have patience. We're just starting to see the real benefits of it [holistic management] in the last years. In the first couple of years, it was like, 'Oh, what are we doing?' But shortly after that, you really see the difference."* Perspectives shared by these non-Indigenous participants represent a shift from

seeing wetlands as a problem to seeing particular ways of managing and administering the land as problematic.

Worldviews were reported to be shifting in other ways, too. As economic incentives drive acre maximization, so has the move to drain wetlands. P04 felt that there is less opposition to wetland drainage today than in the past, explaining, *“the bigger players are occupying more land all the time. For years and years, we were the only ones who were doing it and it kind of felt like you were getting picked on just a little bit. But now everybody is doing it, and the government has more guys regulating it because when we first started, there were no regulations. So, you kind of had to do what... they call them road farmers around here. The kind of guys that are just driving up and down the road with the coffee shop rules or whatever.... Nowadays, with the government having a hand in what you’re allowed to do and what you’re not allowed to do, there’s not much of a grey area anymore. So that just streamlines everything a lot more, but as far as what everybody is doing, we’re not doing anything that the other guys are not doing. We’re not the only guys taking down trees and building tile drains nowadays.”* P04 added that *“sometimes you’ll have absolutely closed minds in the office that don’t allow you to do anything, that are extremely pro-environment and all that stuff. But right now, everything is standing pretty good as far as finding common ground between us and the government. I think it’s a lot better than what it used to be.”*

Contrastingly, from the Ojibway perspective, there are now more opportunities for First Nations to advocate for natural lands like wetlands, reflecting a shift in the relationship between First Nations and the Canadian government. Daniels shared that *“with the recent developments, the province is more willing to let [watershed] districts work with First Nations. I think there are more opportunities now. We can’t just be looking at it as us against them.”* Cameron added that

“there has been a lot of tension historically; we’ve made efforts to build relationships with the non-Indigenous community, but it’s hard. We are very open to partnering with our neighbours on projects that will benefit Swan Lake, and this is something we make a lot of effort to do.” In this regard, Cameron mentioned Gaubiskiigamaug’s collaborations with several watershed districts and the Eastern Prairie Living Labs program.

With shifting worldviews in an ever-changing socio-natural landscape, it will be interesting to see how human-wetland relationships evolve into the future. Likely, it will depend on how responsive we are as collectives to what wetlands are telling us.

Chapter 4, Conclusion Part 3

Regarding current conditions and impacts on wetlands, participants noted continued landscape homogenization. This process has included a turn from small, diverse farms with some cropland and some pastureland to larger farms with primarily cropland. Along with this change has been a continued decrease in natural areas, including wetlands, less pastureland, and ability of the landscape to support diverse land uses such as raising livestock or traditional land uses such as hunting or harvesting naturally occurring plants. Others noted changes to groundwater flows and levels, challenges to drinking water for both animals and human use, decreases in wildlife populations, less connectivity between natural areas, changing migration patterns and behaviour of different plant and animal species, as well as increased winds and erosion. For remaining wetlands, some noted decreased quality and use value of these natural areas due to contamination or introduction of invasive species.

In connection with these environmental changes, participants noted social impacts such as removal of cultural and heritage sites. Significantly for Gaubiskiigamaug members, many cultural sites, including burial grounds, are inaccessible on private property. It was noted that many of

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these sites have been cultivated over and desecrated. However, several non-Indigenous participants also expressed concern about losing heritage sites like old homesteads or schools. Some also mentioned that losses of natural areas have made the area less enjoyable to live in, and other factors like increased wind, threats to drinking water, and increased anxiety connected to landscape changes also contribute. Finally, a theme throughout the interviews was that these changes are connected to economic drivers in the global economy and agricultural industry that override local and environmental values or concerns.

Disconnection between economic and environmental signals was a common theme and highlighted several challenges due to the disconnection between human and land systems. One is the hyper-industrialization of landscapes that increase economic productivity but create social and environmental costs. Another issue has been tensions between land users who practice different types of economic production. For example, between crop and livestock producers, and between band administrators and traditional land users at Gaubiskiigamaug. A central tension, however, was the oppositional relationship created between humans and land, where land users are economically incentivized to make decisions that hurt the land, causing the land to fight back, perpetuating an oppositional human-land relationship. These challenges of locked-in, oppositional human-land relationships and oppositional relationships between different groups of land users all feed the socioecological crisis surrounding wetlands.

Wetlands themselves have been illustrating the cost of oppositional human-wetland relationships throughout colonization. With their varying size over time, seasonally and within the dry-wet cycles of the prairie climate, wetlands have created fuzzy boundaries and further challenged construction of “lines on the ground.” However, it was highlighted that wetlands have not always had oppositional relationships with human systems and even have many mutually

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beneficial relationships with other plant and animal species. With this observation, I introduced the concept of reciprocal causality, the idea that human systems are in morphogenic relationships with land systems or that both shape one another in a cycle of continuous feedback.

With the idea that our systems of today are creating the landscapes that will, in turn, shape us in the future, suggestions for future research include taking systems perspectives and looking at bigger-scale contexts rather than narrowing on single issues, bridging diverse worldviews and knowledge systems such as Ojibway and Western ones, learning to think and act in harmonizing ways with land systems, and renewing kinship relationships with the land, following the lead of Indigenous traditions such as those held at Gaubiskiigamaug.

Chapter 4, Part 4: Future Perspectives

Chapter 4, Introduction Part 4

As illustrated in part three, our lifeways and the landscapes we inhabit shape each other, putting us into reciprocal causal relationships with the environments we live within. Envisioning the future of any human-land relationship means asking ourselves what kind of environment and lifeways we want in the future. This question is the focus of this fourth part of the thesis discussion. At the end of each interview, I spent time asking each participant about their visions for the future of wetlands in the Swan Lake region. I asked where they felt things were going and where they would like them to go. A broad range of ideas were shared in response, from ideas for education, support and services, to policy and governance suggestions and collaborative action. Participant's suggestions on these topics are shared below.

Education and Knowledge Sharing

Education was seen as an invaluable tool for creating positive, community-wide change when it comes to wetlands. One participant explained that educational approaches are preferred because people can be personally motivated rather than *“being forced to do it”* (P05). However, even for those motivated to make land decisions beneficial to wetlands, a lack of technical support, financing, and the economic environment are often barriers to action. For this reason, participants saw education as a complement to other suggestions discussed below. Several participants highlighted education as a relational approach to change and a way to build connections, agency, skills, and knowledge within communities rather than enforcing change from outside the community. Further details on recommendations for education and knowledge sharing are discussed below.

Educational Formats

Newsletters

Several participants highlighted a need to balance adequate information with convenience and accessibility. For this, they recommended newsletters as a helpful way to share information on wetland issues and updates on decisions affecting the Swan Lake landscape. Regular paper newsletters with adequate, useful information in accessible language were described as the preference for participants who discussed this topic. For example, Elder McKinney at Gaubiskiigamaug felt that the community lands department would do well to distribute “*a monthly newsletter with what they’re doing and what’s going on with our land.*” P05 felt that “*it would be nice to get actual newsletters.*” She added, “*I know we get email newsletters, but those are hard because there are so many emails nowadays in so many places...it is almost nice to get something on paper.*” When asked about the format and content of these newsletters, P05 said, “*Just a three-page pamphlet, let’s say, like a normal, letter-sized pamphlet. A lot of little pamphlets just go in the garbage.... I’m just looking at one here now. It’s from the Manitoba government that came with our Cattle Country magazine, it’s just a technical bulletin, right? And it looks easy to read, and it’s not too long but with enough information.*” Elder McKinney emphasized the importance of using accessible language, stating, “*In my opinion what would be good is if you guys had a newsletter explaining in plain, simple language. Not university language... so then people could understand it. And if people understand it, I think [the lands department] would have more support and feedback.*”

Land-based and Cross-Cultural Educational Programming

In the Ojibway culture at Gaubiskiigamaug, land-based education is essential to making sound land management decisions. As Scott explained, experience-based learning is emphasized

in his culture because it is necessary to understand the systems and historical context of current issues, an understanding that cannot be achieved by learning about isolated facts and issues in isolation from their context. This holistic and contextual knowledge, rather than focusing on facts, is seen as the foundation of good decision-making in Ojibway tradition. Scott explained, *“That’s how you learned. It is just through experience... and the way we teach is through storytelling. Not one plus one equals two. That’s too narrowly defined. There is a bigger story around one plus one equals two.”* Scott further described some of the knowledge about the behaviour of animals and patterns in the landscape, including water and weather systems, that is seen as foundational knowledge in Ojibway culture, explaining, *“Those are just the simplest little things that you have to learn in our culture. Being out there in the environment, you have to learn those things. That’s part of survival.”*

Land-based educational opportunities are also excellent for cross-cultural educational programming between Ojibway and non-Indigenous land users. Scott further emphasized the need for cross-cultural learning. In his view, Western scientists and other decision-makers in colonial systems often make decisions without a contextual understanding of the broader human-land systems they impact. While Western scientists have much technical knowledge and can make valuable contributions in terms of rigorous scientific observations, Scott suggested that they could benefit from adopting the big-picture and systemic approach used in many Indigenous knowledge systems. He added that the value Ojibway knowledge systems can add is a framework for discovering knowledge to inform our understanding of how *“we’re supposed to live with the environment.”* Scott added a challenge, asking, *“So, how do we get that into Western science? How do we get them to understand it [the environment] without dissecting [environmental knowledge] to the point where it’s to its minutest little detail?”*

Further, at Gaubiskiigamaug, P03 explained that community members who spend time on the land are seen as having an essential role in informing community land management decisions. She shared the example of her nephew, who *“spends a lot of the time on the land here...I’m so glad he does that. He walks in the bush and explores, and he questions things about what is going on, where and why. He’s actually there, and he can see the impacts or benefits of the things we’re doing here.”* In the Ojibway view, these people are necessary to inform other community members of the bigger picture of landscape wellbeing, contributing to good decision-making.

However, learning from the land was not only seen as necessary by participants from Gaubiskiigamaug. Several non-Indigenous participants also emphasized the importance of learning from experience or other experienced persons, often citing the limitations of learning from Western education formats such as classrooms or info sheets. Experience-based knowledge was often described as the most reliable source of information for informing land management and land use practices among both Ojibway and non-Indigenous participants. For example, P02 said that before adopting new farming practices, he would first *“find someone who’d done it and find out the good, the bad and the ugly.”* Meanwhile, P05 detailed how making regular observations of the condition of the land and water in their pastures is an integral part of how she makes pasture management decisions. She explained, *“We check the pastures all the time so you get to know the pastures well, and you can see if it is getting eaten down or whatever.”* P05 further emphasized how these real-time, in-person observations felt more reliable to her than what any official or expert sources may say. She explained, *“They say so many animals per pasture, but you have an idea based on how you see it.”*

Accessible areas needed for land-based learning and education

Several participants at Gaubiskiigamaug emphasized that to make land-based learning possible, areas of intact and functioning natural landscapes need to be accessible. Scott explained why these spaces are valuable. In his view, the land *“makes a person who participates in it as a whole person, as a person and [knowing] their place in all of that, right?”* Scott said, as a *“part of growing up, all of us had to learn our place in the environment. We had to learn that we are no better than the trees and all of that. And we had to know our place in the environment as a whole. Not to make the environment subservient to us.”*

He added that for a person to make decisions that are good for their community and the land itself, including wetlands, *“[the land] has to become a part of your life even though you’re not there all the time. There’s a swamp behind my mom’s old place there...that’s where I grew up. That’s where I became a person and started to understand the things about the environment and why those things are important.”* In summary, the traditional perspective at Gaubiskiigamaug, according to Scott, is that it is time spent in natural spaces is where people can begin learning how ecosystems function. In this way, as they learn about the environment around them, they learn how to make good decisions that benefit landscapes, wetlands, and their community. For this learning to occur, natural places must be available and accessible, and people need reasons to be there to the point where the land becomes part of their lives.

Culturally Compatible Education Format

Scott provided the example of how his cultural role is to pass on his cultural and Traditional Environmental Knowledge, *“but that provincial school system and that structure doesn’t allow me to do that [in a traditional way], right? It’s like I have to comply with their way in order to teach. So, what’s the point of that if I can’t teach the way I’m supposed to learn?”*

This difference is because the Ojibway Traditional Knowledge system is place-based and not focused on generalized knowledge. It is also experience-based, where individual experiences are the basis for education. Young people are expected to learn through practice, using their critical thinking skills to observe the lands, waters, and more experienced people around them (Scott).

Scott explained the importance of teaching critical thinking: *"In our lives, critical thinking started at a very, very early age. Right from when you were born or when you were able to think a little bit for yourself, critical thinking started then, right? It wasn't like here where you start in grade eleven or ten when you're already set in your ways."*

Integrating Western and Traditional Ojibway Approaches to Education

Scott shared his own experience of land and experience-based learning. He said, *"Back when I was growing up in the sixties, I remember walking with really old people. And the old people were agile, going in the bush and stuff like that. I remember we spent a lot of time at the lake there when I was growing up. We used to just tie a couple of logs together and float on it. We didn't have a canoe or anything like that, so we improvised. And that's the same thing with what you do in the bush. You improvise with what you have. It's easy to make a lean-to but do you think a kid today would think to make a simple lean-to? They wouldn't. They wouldn't know how to do it. Or to look for certain plants when you're lost in the bush? Well, if you grew up in the North, you might, but not down here. But those ones wouldn't survive. Even to tell direction in a wooded area, they wouldn't know how to tell direction by looking at moss on trees, or how the wind is blowing, or how the windswept trees are. All those little signals, they wouldn't know how to do that today. But with the way our education system works now, especially in the lower grades...it doesn't work well with us when learning is compartmentalized like that."* Scott shared

his personal story to emphasize that *“I’m not saying academia is wrong, but it has to be balanced with actual life lessons.”*

Community Meetings and Collective Understanding

According to Elder McKinney, community meetings are invaluable to keep community members aware of the condition of their lands, aware of what kinds of decisions and impacts are being made, as well as to provide space for community members to provide feedback and participate in decision-making. In addition, Gaubiskiigamaug lands department advisor Daniels explained, *“We need to also involve community members because there are community members that use the lands for different reasons whether it be ceremonial, hunting or harvesting plant species.”* Meanwhile, Esquash also encouraged community meetings and collaborations between the Gaubiskiigamaug community and their non-Indigenous neighbours to address land and water issues such as the impacts to Swan Lake and related issues facing wetlands. He explained, *“The communication has to be there, and the collaboration, to deal with this problem. The problem is not just one community’s or entity’s: it’s all of ours. Lots of our people are impacted by wetlands and water sources more than they realize sometimes. People need to see that this is not a problem that is going to go away, and we have to fix it. We have to have a partnership. One group cannot fix it. It has to be collective.”* He added, *“The more minds you have and ideas, the more ways we have to fix the problem.”*

Opportunities for building collective understanding are essential to Ojibway land governance and management systems. Environmental observations in an Ojibway knowledge framework inform collective understanding (Scott, personal communication). Community meetings are one way to provide a space for a multi-way flow of knowledge between different land users, resulting in a better collective and contextual understanding of wetland issues.

Educational Content

Regarding content for education and sharing information, participants felt that the watershed district is the go-to place for finding information on available supports and resources for wetland-benefiting practices. However, some indicated a lack of awareness of the available funding and resources, suggesting a need for better outreach regarding available funding and programs. Some participants also noted a need for education on the big picture of larger-scale ecosystem function and environmental impacts related to wetlands and other types of land and water systems. For example, some non-Indigenous participants felt that the current structure of private properties combined with an economic structure that prioritizes short-term financial decisions, makes it challenging to see beyond their own property boundaries or consider long-term decision-making implications. Some saw these modern structures as creating blindness to larger issues across place and time. For example, P05 said, *“There needs to be more awareness about how many people are actually changing their land,”* converting natural systems into cultivated land and creating cumulative impacts that can only be seen at larger scales.

To accommodate greater awareness of how ecosystems function at a larger scale in addition to bigger-scale environmental issues, several participants suggested making more areas across the landscape accessible to the public. Daniels said, *“We need to have walkways along the lake. We need to have different places where people can go and enjoy and also be more aware of environmental changes and of the wildlife.”* Moreover, Scott emphasized how this broader systems perspective of land and water systems would benefit First Nation, municipal and provincial decision-makers, and individual land users and farmers. He explained that *“students that are dealing with theories in universities without them actually being on the ground, that’s a problem. And all of those scientists that are running around out there today, they come from that*

system. And again, scientists have a tendency to break things down to its minutest little point, right? And then say, 'that's the fact.' Well, that may be a fact at the point [scale] you're looking at it, but it's not a fact when you look at it of the whole area, with all the environmental things that connect with each other."

In addition, some participants called for land-focused, regular education resources that would provide greater transparency on the condition of watersheds, reserve lands, and municipal land decisions. Some called for historical information to help from the results of past land management decisions. Further, some emphasized the need for education to be an ongoing process.

Moreover, community leaders at Gaubiskiigamaug highlighted a need to generate greater cross-cultural awareness and understanding between their community and non-Indigenous neighbours. Due to many intentional policies during the colonial process, Ojibway and non-Indigenous neighbours have been kept apart, leading to racial tension and assumptions that perpetuate barriers to renewing our relationships. As Scott explained, *"making assumptions about one another leads us into negative territory all the time."* One way to address these barriers, as recommended by Scott, was to make educational programming more compatible with inter-cultural sharing. Doing so would include accommodating traditional Ojibway methods for teaching and learning, such as learning on the land through experience and story.

Educating the Urban Public

A few participants suggested that when it comes to educating people about wetlands, it is necessary to educate the urban public, not only rural land users. For instance, P05 felt that *"recognition would be a huge incentive to do stuff, to know that other people don't view you as a terrible, environmentally harming person. Like, 'You own cattle? Oh, you're terrible people.' A*

lot of people do think that.” And “prevent the stereotypes where people think cattle owners are terrible people.” P01 and P05 emphasized that in contrast to public perception, many cattle farmers take significant measures to protect and care for natural lands including wetlands. P05 said, what *“would be nice is just recognition from the public of what it is we do. I think that would be a huge incentive, educating not just us but the people that think we’re destroying the environment when we’re actually helping it.”* In her perspective, changing public perception could be an essential way to increase support for those who care for natural lands in rural areas.

Resources and Financial Support

Many participants highlighted that financial compensation and incentives are essential to increase conservation and restoration of wetland habitats. For example, in Hacault’s view, most producers are *“in favour of wetland conservation”* as long as *“it doesn’t affect any cultivated land whatsoever...and what that leads to is compensation.”* Participants held three main orientations on financial support. Participants with a production maximization worldview held that financial incentives are necessary to compensate landowners for lost production possibilities on their land. From this view, wetlands were seen as inherently costly, and landowners should be paid to compensate them for absorbing the cost of having these features on their land. In this view, environmental wellbeing is a public good that the public should pay for, rather than placing this burden on individual landowners. As P02 said, *“Society should pay for more of that if society wants the environment taken care of.”*

Contrastingly, participants with an environmentally conscious orientation, including Ojibway and non-Indigenous participants, saw wetlands as beneficial instead of costly. However, they still reported that financial support can make it possible to take on costly wetland restoration or protection projects, like installing remote watering systems for livestock or making a change to

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farm operations. P05 described this orientation as seeing one's land *"like a garden where you work your garden, but you just take what you need."* She further suggested that financial incentives *"wouldn't be the biggest [motivator] for us but.... But it still works for us because stuff is really expensive to do. If you must fence something off or something like that, a lot of it comes with a high price."* At Gaubiskiigamaug, financial support was also seen as helpful to the community's land care and maintenance of natural lands, including wetlands. Cameron explained that the Gaubiskiigamaug Lands Department is *"always looking for funding sources to apply for, and there are a variety. Sometimes we apply for funding in collaboration with Long Plains. But there are funds available from within the community, too."* Cameron added that these funds help the SLFN lands department take on new wetland restoration projects, of which there were a number particularly around the area known as Indian Springs and the S-49 research site, a wetland restoration project established as part of the Eastern Prairie – Living Labs research network.

From a traditional Ojibway perspective, Scott saw financial incentives as a quick fix and ineffective at addressing the root causes of the modern issues wetlands face: land being seen as a resource and not as having inherent rights and value. He said that using incentive programs is *"like we're trying to fix a major problem by lifting up the bandage and looking.... Those are the things that we see as Indigenous people. Instead of fixing the entire problem, we're picking off little pieces of the scab at a time to see what's happening there."*

Targeted Support for Compatible Land Uses

Some participants noted that pasture-raised livestock operations as well as Ojibway traditional land uses and management practices are more compatible with protecting and restoring wetlands and other natural areas than crop production. Pastures and lands for traditional

use require a more natural landscape, supporting greater landscape diversity and ecosystem function. Several participants explained how healthy pastures require low-lying wet areas for growing hay and watering livestock and use land management practices that promote biodiversity. They also pointed out how pastures and traditional land use areas require little to no inputs such as herbicides, fertilizers and pesticides that contaminate wetlands. However, pasture-raised livestock farmers face increasing financial uncertainty and low returns for their time inputs compared to crop farmers, meaning there has been a decrease in pasture-raised livestock production. Furthermore, traditional Ojibway land users and caretakers have been restricted from using most lands in their traditional territories, including on reserve, due to the conversion of lands through cultivation, the devolution of responsibility for lands from the Federal government to provincial and municipal jurisdictions, and conversion of significant amounts of reserve land to cropland. As a result, the land uses most compatible with wetlands' ongoing health and wellbeing face the most challenges and continued decline.

For this reason, some participants suggested improved support for pasture-raised livestock farmers and traditional Ojibway land users. For example, P05 explained that working to support the wellbeing of natural habitats such as wetlands is *“something that as a cattle farmer you want to do. And I know there are a lot of government programs where they want to give people incentives to do things to protect the environment.”* She added, *“Stuff is really expensive to do.... You would do it, but financially it would be hard without the [support].”* Meanwhile, for the Gaubiskiigamaug community, restoring Swan Lake and its surrounding natural habitat is a top priority to support traditional land uses and land-based education, ensuring the continuation of the Ojibway language and culture. Esquash explained, *“I’ve heard stories from many Elders and many of my relatives, and they used to talk about how good the fishing in Swan Lake was and*

how they used to be able to net fish and, you know, all that stuff. You could survive off the lake, and now I don't know if you could really.... there needs to be something we can do to fix our lake."

However, participants at Gaubiskiigamaug highlighted that addressing the many environmental issues in and around Swan Lake will require collaboration and support from outside their community as the lands interconnected with the lake cross many jurisdictional boundaries. Scott explained, *"I can't go and protect the water at Grassy Lake or Rock Lake because the municipality is responsible for that."* Daniels shared, *"I think at Swan Lake we're very interested in partnering with different intergovernmental agencies, whether it be conservation districts or municipalities.... Swan Lake First Nation is more than willing to work with anyone to further develop projects or advancement of natural habitat."* Adding that, *"I think there are more opportunities now. We can't just be looking at it as us against them. We're all connected. And our boundaries are connected to several different municipalities; we are still part of a bigger picture."*

Service to Suggest On-farm Actions and Available Funding

Some participants pointed out that due to time constraints related to their land and farm management responsibilities, looking for ways to change their practices or to try new ideas to improve the health of wetlands is not a top priority. Furthermore, they might hear about new ideas but still not be aware of ways these can apply to lands they manage. For this reason, Porteau suggested establishing a service to help land users identify areas that could be enhanced and provide information on available support and funding. He detailed that this service could suggest wetland-beneficial practices relevant to specific locations, existing land uses in that location, and farm operations. He further suggested the service could price out various options

and provide other details that would make decision-making easier. Porteau summarized, “As we were talking, I’ve thought of it that we do have one spot where we could do that here.... But, yeah, the idea of a service. If someone would connect with me and who could read the topography and that, that could work.”

Policy and Governance

Geographic Fairness: Some participants felt that regions near Swan Lake have been unfairly targeted with conservation rules and regulations that restrict what farmers can do on their lands as compared to regions like the Red River Valley, which have been extensively drained and have received significant government support to do so. P02 said, “I find it so unfair how out in the Red River Valley, the municipalities and the governments have helped with drainage to have their farms corner to corner grainland but here, because we have a mixed landscape, it’s the other way around. They impose regulations on us where we can’t drain our own land. So, it seems like if you’re in the right area, there’s no problem having it all drained properly, but if you’re in the wrong area, they want you to focus more on taking care of nature. It just doesn’t seem fair.” To address this, he suggested that all areas of the province should have a similar mix of conservation policies and supports.

Local Agency and Representation: In addition to geographic fairness, some participants felt that local agency and representation should be part of policies and regulations that affect that area. These participants suggested that doing so would make policies a better socio-economic or geographic fit for their region. P02 said, “All of our properties are unique. Like I said, between the Red River Valley and our neck of the woods is quite different and yet we go by a lot of the same rules. So, I mean, having said all that if we’re going to have rules and regulations, we need

ones more specific to our own farms. And I guess that means they should be tailor-made more precisely rather than blanket regulations.”

Ojibway participants shared another suggestion for exercising local agency in wetland policy. Scott described how, in the past, many of his people knew how to make observations about the health of different parts of the environment, such as wetlands, helping gather information that was then used to make decisions about land use or land management within Ojibway knowledge and land governance systems. Using this community-based monitoring strategy, Elders would train people to make necessary observations to fit their traditional land monitoring framework. Additionally, select people were trained by the Elders to know how to interpret these observations using a combination of Oral History and their own land and experience-based training. These experts would depend on hearing the observations all the traditional land users were making, taking the many observations made in many locations across the landscape into consideration. These experts would then be part of a Council representing different knowledge unique to specific types of land use, and, thus, make contextually informed land management decisions. This governance framework gave all community members agency within decision-making, built up local expertise, and allowed decision-making to be adapted for unique locations and situations.

Protecting Wetland Complexes and Re-thinking Wetland Delineation: Some participants expressed concerns about the loss of other types of habitats, such as forests or hay land that are interconnected with wetlands as riparian zones or as complex ecosystems. For example, P03 expressed her concern saying, *“They’re taking trees down to increase the size of their farmland, and I’m not sure what kind of impact that has on the wetland area.”* And P05 said, *“If you have trees around wetlands or near wetlands on the same property if they’re taking*

down all of the trees, it's still a loss...wetlands are just part of it.... Even little bluffs, like little, tiny spots where there is a little bit of bush...Some farmers think, 'I'm not going to drive around that, that's crazy. I'll just plough through it,' But there is a lot of life inside there, and they just don't have anywhere to go anymore."

Eliminating Tax on Natural Lands and Tax Credits: Several participants brought up the issue of taxes as a barrier to conservation. They explained how all owned lands are taxed, including wetlands that do not produce financial gains. This way, these natural lands become a cost because of the yearly tax. For example, P04 predicted that wetland conservation would be more appealing *"even if it's just to pay the tax money that you're out every year."* Hacault, another grain farmer, shared the idea of using tax credits. He detailed, *"If you had an account that was like a savings account, and you had credits in there, and you could control how you managed those credits...I think that could help [reduce disincentives to wetland conservation] because it might have an effect on the capital gains part of it, which is a huge concern, if you had tax credits to offset that."* Hacault added that *"if the tax credits are there, if the landowner's putting work into it, it's recognized in the value of his land if there are tax credits there when he sells or rents. That solution is more long-term than the quick fix capital injection where everyone heads off and disappears because there is no more money coming in."*

No-Net-Loss Wetland Policies: Some farmers saw no-net-loss policies for wetlands as prohibitive to their farms' continued production and profitability and, as a result, a threat to their financial sustainability. P02 said, *"From what I gather, if you want to take a wetland away you have to pay money to DUCs or some other organization so they can re-establish a wetland somewhere else, and it's very costly."*

However, other participants suggested that no-net-loss policies must be better structured and enforced to prevent further wetland loss. They expressed concern about the ability of the Swan Lake region to sustain continued wetland loss and degradation without severe, long-term consequences. In P05's view, continued drainage *"can make more profit so, from that view, it's not wrong,"* but the negative consequences might be nearer to becoming a reality than people expect. P01 shared a similar sentiment: *"As with all of these things, it's going to take time, and maybe, in some people's lifetimes, they won't see the benefits. It's just going to be in the future. I mean, it doesn't take long to screw something up but to fix something takes time. To bring it back to where it was takes a long, long time,"* adding that action is needed now to turn things around,

Watershed Approach to Planning: From the traditional perspective at Gaubiskiigamaug, a watershed approach to planning is needed to address many of the current environmental issues taking place in their traditional territories. Lands in their territories were traditionally managed as intact and integrated landscapes rather than privately owned parcels of land. However, due to separation policies throughout Canada's history, collaboration between Gaubiskiigamaug and their neighbours to make decisions about and manage land has been difficult, if not impossible. Though, things are changing. Daniels said, *"There are more opportunities now. We can't just be looking at it as us against them. We're all connected."* Hacaault also called for a *"total watershed plan"* with *"bigger projects to make a bigger impact"* toward conserving and restoring wetlands. He used Swan Lake as an example: *"If you want better water quality, you also have to have water retention on farmland [and in] drains leading into the lake. You have to have water coming in all year round to improve water quality in my opinion, so it has to be a multi-faceted approach. It has to be water retention within Swan Lake, but it also has to be water retention within the Swan Lake watershed."*

Action and Collaboration

Finally, many participants emphasized a need to move beyond ideas and proposals. For this, action and collaboration were highlighted as being necessary. Esquash said, *“The communication has to be there, and the collaboration, to deal with this problem. The problem is not just one community’s or entity’s. It’s all of ours. Lots of our people are impacted by wetlands and water sources more than they realize sometimes. People need to see that this is not a problem that is going to go away, and we have to fix it. We have to have a partnership.”* He added that, *“What I think needs to happen is that all these groups need to come together. They need to work with us. We’re willing to work with them.”*

One immediate action suggested by P03 was to make action plans based on the many environmental studies already completed in the Swan Lake region. In her view, a lot of the information needed is already there. People now must make plans and take action. Regarding reserve lands at Gaubiskiigamaug, P03 said, *“There also has to be something done about all those studies. We’ve had a lot of studies done in the community...but there is no action after.”*

For collaborative action, more work is needed to reduce the barriers between the Gaubiskiigamaug community, their non-Indigenous neighbours and colonial governmental jurisdictions. Cameron detailed, *“There has been a lot of tension historically. We’ve made efforts to build relationships with the non-Indigenous community, but it’s hard. We are very open to partnering with our neighbours on projects that will benefit Swan Lake, and this is something we make a lot of effort to do. But they also need to come to us. It has to be a two-way relationship, and we are willing to share our knowledge, but they need to be open to collaboration with us.”* Esquash further stated that *“at the end of the day, it’s not about blaming, which we are good at as human beings. At the end of it all, blaming won’t fix what is broken. We need ways to fix*

wetlands and the lake. Those things gave so much, and they can still give more. We can't lose focus on what matters, and that is repairing wetlands or repairing what is broken, no matter who broke it in the first place. The only thing that matters is the outcome. Sometimes, people get antsy about who broke it. I'm not worried about who broke it. I just want to get things fixed right and make them good again. We all have a responsibility to take of the environment, water, wildlife, and our home because we only have one Earth. If we break that one Earth too badly, no one can fix it but us."

Chapter 4, Conclusion Part 4

Participants made many recommendations for the future of human-wetland relationships. When it came to education, many saw it as a complement to other recommendations because of its ability to empower and guide individual and collective action. Regarding education formats, education materials were recommended to have a combination of enough information to be useful but not too long as to be overwhelming and to use accessible language in formats like newsletters or info sheets. Experience-based education was also recommended by both Ojibway and non-Indigenous participants to learn in a hands-on way or from someone else with personal experience.

Some Ojibway participants also recommended cross-cultural learning opportunities for Ojibway and non-Indigenous land users to learn from one another. Cross-cultural learning opportunities were proposed to build stronger partnerships and collaboration between Gaubiskiigamaug and non-Indigenous communities, as inter-cultural collaboration is currently considered a challenge. However, doing so requires making the educational format culturally compatible with Ojibway approaches to education, for example, by using land-based teaching and finding ways to integrate both Western and Ojibway knowledge systems equally. In addition,

community meetings were seen as another essential way to generate collective understanding and collaboration within the Swan Lake region.

Regarding educational content, watershed districts were recognized as the go-to place for reliable wetland conservation or restoration information. However, there was still some lack of awareness regarding funding and resources available, suggesting a further need for public outreach. Some participants highlighted a need for education on bigger-scale impacts related to wetland drainage and the systemic issues affecting wetlands. For example, one participant shared that the current economic and agricultural industrial environment makes it challenging to think beyond the boundaries of privately owned land and near-term financial horizons.

To accommodate greater awareness of how ecosystems function in addition to bigger-scale environmental issues, several participants suggested making more areas across the landscape accessible to the public. At Gaubiskiigamaug, it was recommended that areas be made available for land-based education in conjunction with traditional land uses and management. Finally, participants recommended greater transparency and opportunity to learn about the condition of the lands and waterways in the Swan Lake region. They also requested information about municipal and reserve decision-making regarding these lands. In this way, it was seen that education is needed as an ongoing process and that education needs to be updated and adapted to changes happening currently, rooted in historical processes, in the region.

Several participants recommended that wetland education be directed toward the urban public, not just rural populations. Spreading awareness for the responsibilities Ojibway and non-Indigenous farmers take in caring for landscapes can help generate the support they need to make environmentally beneficial decisions. Additionally, educating the urban public can reduce

negative stereotypes and generate positive recognition for farmers, which can act as a motivator to make decisions that benefit wetlands and other natural landscapes.

Most participants recommended financial compensation and incentives as integral to supporting and encouraging wetland conservation and restoration. The reasons given included that a healthy environment is something everyone benefits from and should be everyone's responsibility. Some non-Indigenous participants saw it as an unfair burden on individual landowners to be responsible for caring for wetlands without compensation. However, for some Ojibway and non-Indigenous participants, caring for the environment is everyone's responsibility. While existing wetlands were not seen as a cost to these participants, they still saw money as necessary to make wetland restoration or other measures to improve the health of wetlands possible. However, Scott cautioned that financial approaches to the wetland crisis are only band-aid fixes that do not address the root cause of the problem. Finally, some recommended targeting financial support towards land uses compatible with wetland conservation goals, such as pasture-raising livestock or traditional Ojibway land use methods. Some participants also recommended collaboration across jurisdictional boundaries to use funds more effectively within the region.

In addition to financial support, one participant suggested that expert support would be valuable for promoting wetland conservation, enhancement or restoration measures. He recommended providing a service to help landowners identify possible measures on their land and available financial support. Regarding policy and governance, some participants recommended greater geographic fairness, with all areas of the province having similar wetland incentives and regulations. Another recommendation was for local involvement in policymaking for the Swan Lake region. Specific to how policies are applied, some participants recommended a

need to rethink wetlands as parts of greater, complex ecosystems. For example, they suggested considering the health of grasslands or forested areas integrated with wetlands and how wetlands and species that live there rely on these buffer zones and adjacent ecosystems in policy.

Further, on policy, several participants recommended eliminating taxes on natural lands, including wetlands, which provide critical services but no profit for individual landowners. A tax credit system was also suggested to encourage individual wetland conservation or enhancement projects. Meanwhile, some participants suggested a watershed approach is needed for wetland conservation and restoration goals. Moreover, some participants were against the no-net-loss wetland currently in place in Manitoba as it creates costs and inefficiency for farmers trying to maximize crop production on their land. However, others were concerned that the policy is not well enforced, lacks effectiveness, and needs strengthening.

Participants also made recommendations for action and collaboration. Some recognized a need for more significant action toward addressing the wetland crisis, observing that there is already a lot of information and recommendations, but action is needed. Participants encouraged finding ways to overcome the many existing barriers with deep historical roots between First Nations and their non-Indigenous neighbours. Although some things have improved, systemic issues like racism and colonial mindsets that support exploitation are ongoing issues. Moreover, they emphasized that pointing fingers and blaming will not solve the wetland crisis. They recommended that more work is needed to move beyond blame and to see our shared landscapes as a shared responsibility.

Chapter 5: Reflections

In chapter five, I reflect on several limitations of this research. I also share a few reflections on my journey as a researcher, which leads to a discussion on opportunities for future research.

Limitations

My results show a limited piece of a larger picture. I list several limitations here.

Missed questions

I did not ask non-Indigenous land users to comment on their perspectives on land use at Gaubiskiigamaug or to consider their Ojibway neighbour's rights and responsibilities for land. Similarly, I did not ask Ojibway participants similar questions about their non-Indigenous neighbours. However, Ojibway participants all commented on the negative impacts their community faces due to colonial systems and non-Indigenous land use practices around them. In fact, these topics were central to the many concerns Ojibway participants had around wetlands. This comparison highlights a disproportionality between Ojibway and non-Indigenous participants when it comes to negative impacts due to today's treatment of wetlands. However, it leaves out an examination of non-Indigenous perspectives regarding Ojibway relationships with wetlands.

Missed representation

Elder Scott and I originally planned to have a meeting with other Elders at Gaubiskiigamaug, an opportunity for me to sit in and listen to their conversation about how impacts on wetlands connect to a bigger picture of traditional land use and cultural connection in Ojibway traditional territory. This teaching style allows indirect learning. Rather than being

directly told something, the student is responsible for interpreting and applying what they hear indirectly from the conversation of Elders (Scott, personal communication). Unfortunately, these plans were cancelled several times during the Covid era, and several Elders who wanted to participate passed away. I will always feel the loss but am grateful to Elders Scott and McKinney, who allowed me to learn during one-on-one conversations, and particularly to Elder Scott for the many discussions on his porch, walking on the land, over phone and email, and through participating in the Youth Environmental Stewardship program.

Cut Data

My original proposal included a cost-benefit analysis of several wetland conservation, restoration and construction projects. I hoped to ask participants to comment on how useful this information was and how it might influence their future decisions regarding wetlands. These questions were to be asked during focus groups, which were cancelled numerous times during the pandemic. One focus group was held in collaboration with PVWD, but there was poor attendance due to COVID restrictions, and I was unable to complete a focus group at Gaubiskiigamaug. Due to these setbacks, these parts of the project were cut but would have offered additional insight into Ojibway and non-Indigenous land user decision-making. Instead, I focused more on contextualizing human-wetland relationships in the Swan Lake region today in history, exploring worldviews and the effects of colonization on worldview dominance and expression.

Missing Wetlands

I have become increasingly aware of the missing presence of specific wetlands in the research. In contrast, Ojibway teaching about wetlands centers on interacting with specific wetlands and drawing insight and learning from these experiences (Scott, personal communication). While learning from Scott, I did have plenty of opportunities to learn and

observe near and on Swan Lake, Indian Springs, and the S49 wetland restoration site at Gaubiskiigamaug. I also spent much time observing and sampling at water retention, wetland and wetland restoration sites during my employment for AAFC and PVCD prior to beginning this thesis project. Were I to do the study over, I would find a way to feature specific wetlands more centrally in my thesis and analysis.

Personal Reflections

Throughout writing this thesis, I experienced several major life changes. The most significant being the passing of my mother, Lori, in 2024 after a two-year cancer journey. I can easily say that this event has been the most difficult I have experienced. Yet, her passing closely followed giving birth to my daughter, Lily, in 2022. Lily introduced me to motherhood and is, by far, the most sparkly little blessing, giving me so much joy. This stark contrast of experiences occurred against the backdrop of the 2020-2021 pandemic, a time when the worldviews and political affiliations of many in my community and social circles were being questioned or heightened, creating new social identities and groupings, accentuating social rifts alongside enforced social isolation. I felt my own identity and beliefs changing in response.

During these experiences, I have discovered new ways to understand worldviews and have begun to change my own. Learning from Scott and through the lenses of systems thinking, finding new ways of conceptualizing human-land relationships, I have found my own worldview changing in significant ways. These changes have introduced tension and uncertainty into my life as well as loss, both of familiar traditions and identities. Nevertheless, they have also opened new possibilities for beingness and re-storying. All told, I have experienced my work on this thesis as a time of tearing apart, of new strands being woven together, of liminal self and liminal world.

Recently, I have begun to find it fitting that during all these experiences, I was writing a thesis about wetlands. Wetlands are one of the most emergent and liminal ecosystems, places of threshold between lands and waters, both above and below ground. Many wetlands are known for their ephemeral nature, appearing only for a time during wetter seasons (Paterson, Bortolotti & Boychuk, 2023). Wetlands also sensitively reflect changes in the landscapes containing them. Even the slightest changes to drainage or weather patterns can become reflected in a wetlands' characteristics, with cascading effects for the plant, animal, and human systems it is interconnected with (Bacsu & Spence, 2023; Baulch et al., 2021; Zarrinabadi, Lobb, Enanga, Badiou & Creed, 2023). In these ways, wetlands are not so much definable space as they are emergent phenomena resulting from a multitude of interactions within a diversity of Earth systems (Breen et al., 2018; Hayashi et al., 2016). It is these characteristics that have led to wetlands being represented as liminal places, as “life-giving and death-dealing water,” and as places of becoming (Giblett, 2021, p. 27; Karrow, 2010).

Like a wetland, I anticipate this thesis will always hold significance in my life story as transitional space. A space of loss and birth, grief and re-emergence. A space of re-framing and re-thinking, finding doorways to new ways of seeing and being in the world. A time of making home in the in-between – in the uncertainty, grief, and celebration of life. Next, I reflect on how these changes have shaped my perspectives in the context of future research around human-wetland relationships.

Future Research

A needed direction for future research is to understand wetlands as combined human-land processes. The emergent and interdependent nature of wetlands makes understanding bigger systems of social and ecological dimensions, including land use patterns, economies, ecological

functions and climatic cycles, imperative when seeking to address modern-day wetland issues (Breen et. al., 2018; Nature Sustainability, 2021). Wetlands need to be seen as “an undivided part of the process of societal or rather ‘socio-natural’ production” (Boelens et al., 2016, p. 3). As described by Capra and Luisi,

“The great shock of twentieth-century science has been that living systems cannot be understood by analysis. The properties of the parts...can only be understood within the context of the larger whole.... ‘Accordingly, systems thinking does not concentrate on basic building blocks but rather on basic principles of organization’” (2014, p. 66).

Understanding wetland issues in these contexts is the specialty of “numerous Indigenous ways of knowing and being with water,” having emerged from “specific and localized” connections to hydrosocial territories “over millennia of intimate stewardship, responsibilities, relationality, respect, reverence, and reciprocity” (Leonard et al., 2023, p. 376). In fact, Indigenous methodologies are built from understandings of both the social (i.e. economics, cultural beliefs, and reproduction) and the ecological (i.e. interspecies interactions, water systems understanding) (Anderson et al., 2013; Leonard et al., 2023). Additionally, Western frameworks such as sociohydrology, hydrosocial multiplicity, relational theoretical frameworks, and assemblage theory can also enable reconstituting conceptualizations of wetlands into their broader social and ecological contexts, envisioning wetlands as parts of hydrosocial cycles (Bear, 2013; Datta, 2015; Di Baldassarre et al., 2019; Linton, 2014; Wilson & Inkster, 2018).

In understanding wetlands as combined human-land processes, it is also important to understand the power dynamics enforcing dominant human-land relationships. As detailed in this thesis, the political context of landscapes wetlands inhabit determines which forms of human-land relationships become dominant (Boelens et al., 2016; Leonard et al., 2023). The Swan Lake

region provides an excellent example of the dramatic transformation of human-wetland relationships due to colonial systems dominating the landscape. However, the cumulative socio-nature impacts of landscape transformation and its root causes are often ignored or diminished in most contemporary wetlands research (Baulch et al., 2021; Nature Sustainability, 2021; Rashford et al., 2011; Zarrinabadi et al., 2023). To remedy this, approaches such as decolonizing perspectives and political ecology can make it possible to understand the dominant systems that influence present human-wetland relationships, informing the collective deconstruction needed to build “nation-to-nation” relationships between different hydrosocial systems (Leonard et al., 2023; Mora et al., 2022; Reed et al., 2024; Wilson & Inkster, 2018; Yates et al., 2017).

Western models or ways of framing modern wetland issues have become dominant globally. Yet, this “monoculture of mind,” described by Shiva (2015), has limitations. Any model or framework can be a trap within which we can become absorbed and begin to navigate as if it were reality if we neglect to remain mindful of its limitations or responsive to real world changes (Kay, 2008; Yates et al., 2017). Kay states, “every system description is a partial description of a reality based on one observer’s perspective. So, when we talk about a system, we are not talking about a physical object [or an absolute reality] but rather our limited mental representation of it” (2008, p. 46). Scott highlighted that one of the first Ojibway “laws,” loosely translated in English, is always to remain observant and responsive to the landscape around you in a way that acknowledges the perspectives of all different land users (Scott, personal communication).

This research demonstrates that colonial systems are currently driving dominant human-land relationships across the Canadian prairies, including in the Swan Lake region, creating a “monoculture of mind” (Scott, personal communication; Leonard et al., 2023; Patrick & Baijius, 2021; Shiva, 2015). This dominance of thought supports powerful narratives about the morality

of maximizing landscape economic productivity (Kandasamy et al., 2014). About land as property that can be divided into discontinuous units (Morales & Thom, 2020). About the rightness and supremacy of colonial systems in comparison to Indigenous ones (Brook & McLachlan, 2005). About limitations on individual responsibilities for land set by ownership rights (Scott, personal communication). These demonstrate their limitations by effecting the continuous transformation of landscapes to fit these narratives, resulting in myriad social and environmental issues. However, their dominance prevents their limitations from being addressed by other perspectives and systems. Wetlands and future generations are paying the cost.

Limitations of single narrative dominance can be seen in the Swan Lake region. Ojibway and non-Indigenous participants from this study report the many costs caused by the non-responsiveness of colonial systems to land and Indigenous systems. While frameworks or worldviews are essential to help us make sense of and navigate otherwise irreducibly complex realities, bridging multiple disciplines and methodologies is required to overcome the “limited and approximate knowledge” a single model entails (Capra & Luisi, 2014, p. 82; Kay, 2008; Yates et al., 2017). To achieve this, multi- and trans-disciplinarity methodologies can help shift perspectives from parts to the whole (Kaplan, 2011; Yates et al., 2017). Using frameworks that accommodate multiple worldviews and knowledge systems in water governance and law can also help escape mistaking the “map” for “the territory,” a pitfall described by Bateson (1972), cited by Wiseman (2021, p. 172), an idea also supported by Mora et al. (2022). Poignantly, the Ojibway observed this pitfall during the “lines on the ground” Council in 1817 (Scott, personal communication). At this Council, the Ojibway closely predicted many of the impacts that modifying land systems (the territory) to fit administrative systems (the maps) perpetuate today.

I propose that future research begins by listening, with respect and reciprocity, to old Ojibway and other Indigenous stories that the dominant culture has long ignored. I further suggest, echoing many Indigenous thinkers and leaders, that we begin by learning new stories about our relationship to land and wetlands, bringing together Ojibway, other Indigenous, and Western perspectives (Kimmerer, 2013; Scott, personal communication). In so doing, future research can address questions such as: How can we bring worldviews together to be responsive and adaptive to the landscapes we inhabit rather than forcing landscapes to adapt to our limited perspectives and narratives? Moreover, how can we create more harmonious and life-sustaining relationships between dominant human systems and the many social and ecological systems that wetlands are entangled within?

To hear these old stories, explains Scott, the Ojibway language needs to be protected. Protecting land is essential for protecting language. Ojibway Oral History and environmental knowledge are themselves living – inseparably connected with culture, relationships between generations, and interactions between people and land that create the foundational memories, or “*grandfather’s teachings*” and “*grandmother’s memories*” required for understanding and applying Ojibway knowledge. As Scott explained, this is the “*living language that we’re supposed to be learning, right? I never learned my language reading a book. I learned my culture and my language because I lived with old people that spoke that.*” Scott added, “*You can’t get from where we are today to where we need to be without really understanding our language. Because it’s our language that makes us Ojibway.*” For the Ojibway language and the knowledge it contains to be passed down, land and Ojibway relationships to land need to be protected because these make possible the land-based experiences and educational processes

required for Ojibway environmental knowledge to be passed on – this is essential for shaping healthy future relationships between people and the land (Scott).

To create new stories, bringing Ojibway and Western knowledge systems together, it is vital to use frameworks such as two-eyed seeing and parallel planning that distribute power and influence rather than favouring a single dominant perspective or process (Bartlett et al., 2012; Kimmerer, 2013; Patrick & Baijius, 2021; Tengö et al., 2017). Bringing Ojibway and Western knowledge together requires meaningful, two-way collaboration between Ojibway and Western systems (Latulippe & McGregor, 2022; Martin et al., 2017; Scott, personal communication). This involves realizing Ojibway agency over traditional territories, upholding treaty agreements, and acting on reconciliation processes (Scott, personal communication). It will require strengthening Ojibway ecological knowledge systems, as well as systems of land use, maintenance, and governance (Scott, personal communication). It will also require greater equality and recognition between colonial and Ojibway systems of land care and governance (Yates et al., 2017). And it means learning to think and act together, creating space for ontological plurality within new stories, new systems, and new ways of being in relationship with landscapes containing wetlands (Kimmerer, 2013).

Beyond bringing together Indigenous and non-Indigenous worldviews and knowledge systems, we must also integrate our knowledge systems with land systems (Datta, 2015; Linton, 2014; Scott, personal communication; Simpson, 2017; Tsuji et al., 2023). Otherwise, we risk repeating the mistake of becoming absorbed into our narratives, mistaking the map for the territory again, only in new ways. To integrate human with land systems, we must adopt a “politics of humility” and reconceptualize ourselves as essential and reciprocal parts of living systems (Reed et al., 2024, p. 32; Scott, personal communication). As Scott said, as a “*part of*

growing up, all of us had to learn our place in the environment. We had to learn that we are no better than the trees and all of that. And we had to know our place in the environment as a whole. Not to make the environment subservient to us.” Ultimately, we all have a responsibility as land users to consider which systems we are thinking with and within. For most of us, we cannot escape the realities of being entangled within dominant systems based on exploitation. However, we can also choose to also entangle ourselves within living systems of co-abundant relationality between humans and land. We can at once contribute to the decomposition of systems built on the continual degradation of life and also re-engage with living systems that promote the continual flourishing of life on Earth.

To do this, we must structure our lifeways to be in regular contact with land and water (Linton, 2010; Scott, personal communication). This can be done by supporting those who already have these relationships with wetlands, such as traditional Ojibway land users, holistic livestock producers, and Ojibway ecological knowledge experts (Anderson et al., 2013; Scott, personal communication). For this, culturally significant landscapes must also be protected and restored alongside cultural and traditional responsibilities and relationships with those landscapes (Tsuji et al., 2023). Land connectedness for non-Indigenous people can be achieved, for example, through citizen science, community-based monitoring, or participatory research and in doing so through cross-cultural frameworks (Latulippe & McGregor, 2022). It can also be done by supporting farmers with wetlands and other natural lands on their property to be able to continue and improve their stewardship of these lands (Thiessen Martens, 2022). Or through creation of public sites, or demonstration sites, where people from multiple backgrounds and perspectives can meet and connect and learn from each other (Vanrobaeys, personal communication). By promoting and supporting land-connectedness, we empower individuals to build identities based

on relationships with place, a key motivator for environmentally-conscious decision-making (Matsui, 2012) and for preserving Ojibway cultural identities (Scott, personal communication).

However, simply supporting individuals to engage in greater land connectedness is not enough. We must also empower land-connected individuals to share the observations needed to make us aware of our lands and the health of our landscapes as collectives, and to contribute to governance and collective action (Scott, personal communication; Thiessen Martens, 2022). In my view, how we govern land is one of humanity's most critical questions today. We need governance that allows “place-based problem-solving” and “collaboration across knowledge systems” to achieve just and equitable “pathways for governing ecosystems within planetary boundaries” (Tengö et al., 2017, pp. 23-24). For this, structures must be in place to allow knowledge to translate to action in ways that accommodate multiple ways of viewing and being with water (Buxton et al., 2021; Linton, 2022). In these ways we can support our communities in being more sensitive to the dynamics and health changes in the land and water systems around us. In so doing, enabling responsive adaptations and empowering communities to modify worldviews, systems of governance, and maps of reality accordingly.

To gain this integration between human and land systems, we must learn from the land and learn to think with the land as communities (Datta, 2015; Kimmerer, 2013; Simpson, 2017). In this, wetlands can be our teachers. However, as explained by an Indigenous Knowledge Expert in Reed et al., we cannot control and manipulate our teachers and still learn from them. Rather, we need to acknowledge the inherent intelligence of wetlands as parts of larger, integrated land and water systems that make up our hydrosocial territories and see ourselves as part of (not superior to and in control of) these systems (Boelens et al., 2016; Reed et al., 2024; Wilson & Inkster, 2018). To do this, we need new narratives of land-as-home not just a resource, re-storying

ourselves as in community with land (Wilson & Inkster, 2018). Doing so will produce a multiplicity of knowledges just as Earth's landscapes are made up of a multiplicity of ecological communities, contributing to landscape durability (Boelens et al., 2016; Wilson & Inkster, 2018). In so doing, we must ensure all actor's, including wetland's, needs are met so they can continue their roles in contributing to healthy social-ecological landscapes.

In the end, I hope to communicate that the state of wetlands is inseparable from our lifeways. As with all ecosystems, we are inseparably connected with wetlands in feedback loops of reciprocal causality that shape both us and the lands we share in iterative cycles of relationality (Linton, 2010). Thus, envisioning the future for wetlands means asking what lifeways we want. How do we want to live with wetlands and the landscapes around us? How will these ways shape the landscapes of the future? And how can we allow wetlands to shape us and teach us as we seek to answer these questions? Finally, we must also ask who has power in creating our hydrosocial territories (Boelens et al., 2016). Furthermore, we must ask what power dynamics are upheld by maintaining the hydrosocial structures we currently have (Leonard et al., 2023). To do this, we need restorative narratives that both acknowledge systemic injustice and envision pathways toward reconciliation and resilience (Maher, 2020). Importantly, we need decolonial perspectives that help overcome limitations associated with “monocultures of the mind” (FNCFCS, 2022; Shiva, 2015; Wilson & Inkster, 2018).

I hope it remains clear that I do not think Western science itself is problematic. Rather, it has given us powerful ways to observe and better understand Earth's systems, such as wetlands (Kimmerer, 2013). More, I believe many of the tools and methods provided by Western science will be integral to finding sustainable paths forward in the way we relate to wetlands in the future (Capra & Luisi, 2014; Lent, 2017). However, I also hope to show that the frameworks we utilize

in our research and governance of wetlands are at least as impactful as the tools and methods, if not more so (Blackstock, 2001; LaBoucane-Benson et al., 2012; Linton, 2014; Yates et al., 2017). By worldviews and frameworks, I not only mean abstracts of concepts and ideology. Rather, I refer to lifeways. The “how” of all our research, decisions, governance, and policy. The “how” of navigating the uncertainties and liminal nature of life. Of how we honour the sacredness and inherent meaning in everything around us. And the “how” of how we come together to do this collaboratively alongside important discussions such as decolonization and reconciliation. It is in these areas that I believe it is time for Western systems to step back from positions of leadership and domination to instead integrate into reciprocal and relational collaboration with Indigenous ones.

Further, I am not arguing for a more “real” way of seeing wetlands or structuring human-wetland relationships. Instead, I present worldviews as “entrances to imagining the real” that exist in political space (Boelens et al., 2024, p. 652). Phenomena we can observe around us, specifically relating to today’s wetland crisis, result from distinct human-wetland relationships upheld by current political and economic power structures. I argue that our “entrances to imagining the real” must more closely align with, be responsive to, and harmonize with the “real,” meaning lands and waters. And, I argue that for this to happen, we must make room for multiple ways of understanding and being with wetlands rather than competing over which singular worldview and way of structuring human-wetland relationships might be “right.” Yes, creating room for multiple water-understandings or ways of being with wetlands will weaken current power structures designed to uphold a single dominant narrative. However, doing so can simultaneously strengthen human-wetland relationships within more resilient, dynamic, and abundant hydrosocial territories – shifting the distribution of power from stemming from a

dominant human system to being distributed throughout webs of networked human-land territoriality.

Chapter 6: Summary and Concluding Thoughts

Summary

Part one of the thesis discussion takes a historical look at today's wetland crisis. Colonization of the Canadian plains, including the Swan Lake region, created a clash of worldviews and systems. In the Ojibway worldview, wetlands are seen as interconnected and vital parts of land and water systems, having agency and with which human systems have relational obligations. In the Western worldview, wetlands are seen as inanimate parts of an inanimate landscape where land is a resource to be controlled and modified to optimize its ability to produce economic goods. Further, wetlands are often seen as costly because they limit the potential economic productivity of land. Differences between these views created an immediate tension between Ojibway and colonial systems of land use and governance, as reflected in tensions between Indigenous and non-Indigenous Peoples in Canada throughout Canadian history. Furthermore, the Western worldview and colonial systems have been made dominant using coercive control techniques used to suppress Indigenous knowledges and ways of being with the land. In so doing, they have transformed human-land relationships and, thus, have reshaped landscapes themselves, as seen with the dramatic loss of wetlands since the introduction of industrial agriculture. Beyond impacts to land and wetlands, these coercive control measures have significantly impacted Indigenous communities across Canada, including Gaubiskiigamaug,. Significantly, they have caused a lack of Ojibway representation in decisions made on how to govern and use land in their traditional territory. In this way, part one provides

important context for understanding current Ojibway and non-Indigenous perspectives on human-wetland relationships in the Swan Lake region today.

Part two details non-Indigenous and Ojibway individual decision contexts influencing decision-making regarding wetlands. For non-Indigenous land users, the following factors were identified: farm operations; laws and regulations; social environment; economic drivers; personal time and capacity; access to financial incentives and support programs; relationships with the public, government, and non-profit industry; as well as ecological and geographical considerations specific to personally managed lands. For Ojibway land users, factors in their decision contexts included a historical and present lack of authority over reserve lands and traditional territories under colonization; historical and present barriers to collaborating with their neighbours; loss of traditional lands, language and knowledge; lack of representation of First Nations in provincial, municipal and watershed governance systems; incompatibility of colonial systems with Ojibway systems; as well as perceived responsibilities to protect the wellbeing of community members and the land.

Part two also compares conflicting motivators and incentives experienced by Ojibway and non-Indigenous participants. Ojibway participants shared similar perspectives based on a shared cultural worldview. However, many aspects of their worldview conflicted with the worldview informing dominant colonial systems that they make decisions within. Areas of tension included seeing human and natural systems as interconnected; seeing land as the dominant organizational system for structuring human systems such as government; seeing land as inherently relational and unable to be owned; responsibilities as being distributed amongst all parts of an environment including human and other-than-human and as not being limited by rights; as well as a responsibility for each individual to be observant and aware of changes on the landscape.

Human-Wetland Relations in an Agricultural Landscape

Ojibway participants also had different perspectives based on their role in the community: as Councilmembers, as part of the lands department or Lands advisory Council, or as traditional land users, Elders, or Traditional Knowledge experts.

Non-Indigenous participants experienced greater diversity of perspectives amongst each other. However, three prominent worldview orientations emerged among non-Indigenous participants. These were 1) environmentally conscious decision-making, 2) a focus on production maximization, or 3) experiencing a shift in worldview orientation towards greater environmental awareness. Non-Indigenous perspectives were also particularly connected with land use practices. Comparisons were made between those who utilized pastures to raise livestock, those who only raised crops, and those who practiced a mix of pasture-raised livestock and crop farming. It was demonstrated that using pastures for raising livestock incentivized the protection and conservation of wetlands as sources of water and hay lands, while crop production incentivized wetland drainage to increase the efficiency of farm operations. For each framing, whether by aspects of the Ojibway worldview, community roles at Gaubiskiigamaug, non-Indigenous worldview orientations, or land use types, I detail areas of conflicting motivators and incentives and their impact on individual decisions in a shared context. Finally, part two also summarizes similarities and differences between Gaubiskiigamaug and non-Indigenous experiences in shared decision contexts and a shared landscape.

Part three examines participant perspectives on current human-wetland relationships as a process of mutual transformation between humans and the landscapes they inhabit, looking at changes to the Swan Lake region's landscape and changes in worldviews amongst study participants. This section details how today's human-wetland relationships in the Swan Lake region are reflected in the landscape. Ojibway and non-Indigenous participants noted a continued

loss and degradation of wetlands and related changes in their local hydrological cycles, particularly noting groundwater changes observed in wells and low-lying areas used for hay and watering livestock. These changes were also observed to be part of the same process, resulting in the loss and degradation of wetlands. Further, they were connected to a decreasing quality of living in the Swan Lake region with increasing threats to water quality, changes to environmental phenomena such as increased winds, flooding and drought vulnerability, increased anxiety about the future, and loss of culturally significant sites, among other impacts.

Many participants also reported tensions between the economic and environmental systems they navigate as land users. Ojibway participants felt this in the economic needs of the community influencing decision-making in ways that conflicted with the knowledge and activities of traditional land users and Elders in the community. Non-Indigenous participants felt this tension in financial sustainability taking precedence over their environmental awareness and concern for ecological wellbeing. Further, both Ojibway and non-Indigenous participants reported observing a continued homogenization of their landscapes along with decreasing diversity of land uses demonstrated with a move away from smaller mixed farms to dominantly larger crop and non-pasture dependent livestock farms. This change was reported to be causing a decrease in natural habitats needed to support recreational activities such as hunting and pasture-raised livestock from the non-Indigenous side and traditional land uses from the Ojibway side. As a result, tensions exist between Ojibway and non-Indigenous land users, as well as between non-Indigenous farmers who use pastures and those who do not, according to study participants. These tensions make communication and collaboration between different groups of land users in the region difficult.

Finally, part three illustrates that wetlands have been communicating throughout the process of a changing landscape and changing worldviews in the Swan Lake region. This final section details the dodgy nature of the wetlands presented throughout the establishment of the grid road system and the transfer of land from the federal to the provincial government. Meanwhile, wetlands today present administrative and operational difficulties for crop farming, as reported by several participants. However, some non-Indigenous participants reported experiencing a shift in perspective from wetlands as problematic to seeing issues with the dominant ways of managing and administering the landscape. Other shifts in worldviews included drainage and consolidation of wetlands becoming common practice and increasing government support for this. However, participants from Gaubiskiigamaug also reported that there are increasing opportunities for collaboration with their neighbours, for example, with watershed districts and the recent Living Labs – Eastern Prairies initiative, making future collaboration on wetland initiatives more likely.

Part four summarizes participants' visions for the future of wetlands in the Swan Lake region. Many ideas were shared related to education and knowledge sharing; resources and financial support; policy and governance; and action and collaboration. These are summarised in **Table 8**.

Table 8: Summary of Participant's Recommendations for the Future

Theme	Summary of Participant's Recommendations
Education and Knowledge Sharing	- A complement to other supports, policy and action. - A relational approach necessary to build connections, agency, and skills for change from within the region.
Education and Knowledge Sharing: Formats	- Newsletters with adequate information and accessible language and graphics. - Printed information and in-person formats were most favoured.

	- Land-based and cross-cultural educational programming suggested to increase intercultural collaboration. - Setting aside areas accessible for land-based learning and education to promote land connectedness and greater awareness of environmental issues. - Culturally compatible education formats. - Integrating Western and Ojibway approaches to education. - Community meetings and formats to build connections between neighbours.
Education and Knowledge Sharing: Content	- More knowledge sharing about funding and resources available. - More education on larger-scale ecosystem function and environmental impacts to help see beyond individual property boundaries and short-term financial horizons. - Hands-on and land-based experiential learning. - Greater transparency on the watershed condition and cumulative impacts of wetland drainage and contamination over time. - Cross-cultural understanding and awareness between Gaubiskiigamaug and non-Indigenous communities. - Sharing Ojibway and other perspectives and knowledge.
Education and Knowledge Sharing: Educating Urban Public	- Preventing negative stereotypes of farmers that negatively affect farmers and other rural residents. - Giving recognition for the many rural residents, both Ojibway and non-Indigenous farmers, who actively work to protect, restore, and otherwise beneficially manage wetlands. - Generate greater public support for initiatives that support rural residents in caring for their landscapes.
Resources and Financial Support: Differing Orientations on Financial Support	- Production maximization orientation: Financial reimbursements necessary to compensate farmers for the lost production possibility of natural lands. - Environmentally conscious orientation: Wetlands are inherently beneficial, but financial support makes it possible for farmers to restore wetlands or change their farm operations. - Gaubiskiigamaug administration perspective: Financial support enables the community to take action to address environmental issues. - Traditional Ojibway perspective: Financial incentives are a band-aid solution to an economic system that incentivizes the loss and damage of wetlands and will not create the long-term results we need.
Resources and Financial Support: Target Compatible Land Uses	- Pasture-raised livestock farming operations and traditional Ojibway land uses were observed to be more compatible with wetland conservation and restoration but less economically feasible compared to crop-based land use. Therefore, it was recommended that financial support be targeted toward these land uses.

	- Support to maintain a diversity of land uses in the region for both Ojibway and non-Indigenous land users.
Resources and Financial Support: Service to Suggest On-Farm Actions	- A service to help land users identify areas on their land that could be enhanced and provide information on available supports and funding.
Policy and Governance	- A need for greater geographic fairness between the Swan Lake and other regions in Manitoba. Some participants recommended having similar availability of conservation funding along with the same restrictions on drainage across all regions of the province. - Local agency and representation, including greater utilization of local knowledge and consideration of region-specific policy needs. - Protecting wetland complexes and re-thinking wetland delineation to include riparian and other ecological complexes wetlands are interconnected with. - Eliminating taxes on natural lands and providing tax credits for protecting and restoring wetlands. - No-net-loss policy seen as cumbersome and costly. - No-net-loss policy seen as inadequately enforced, making it ineffective. - Watershed approach to planning needed to see big-picture processes affecting wetlands and to find systems-wide solutions.
Action and Collaboration	- Building connections and relationships between Gaubiskiigamaug and non-Indigenous communities to support effective collaboration. - Take action on the many environmental studies already done in the Swan Lake region and at Gaubiskiigamaug. - Reduce jurisdictional barriers for First Nations collaborating with municipal and provincial governments. - Promote two-way knowledge and resource sharing between Gaubiskiigamaug and non-Indigenous communities.

Note: Suggestions in this table are relevant to conservation organizations such as watershed districts, the Manitoba Habitat Conservancy, Ducks Unlimited, and Wetlands International; government entities such as First Nations, municipalities, provincial, and federal governments in Canada; policy institutions such as the Institute for Sustainable Development and the Canadian Agri-Policy Institute; as well as programs such as Agriculture Climate Solutions that aim to create interdisciplinary networks aimed at promoting the health and sustainability of agricultural landscapes.

Concluding Thoughts

In his talks, Scott regularly shares a story about being seen as an “*Indian with an Indian problem*”, noting how this perception often gets in the way of collaborative action on environmental issues that affect all of us. I wanted to avoid furthering this stereotype as well as

the dichotomy between Indigenous versus non-Indigenous identities and show us instead as neighbours sharing the same landscape. Granted, neighbours with vastly different histories and contexts, but who face some of the same larger, systemic issues that affect the same landscapes that we all share and depend on. For this reason, I often painted the contrast between Ojibway and non-Indigenous perspectives using blurry boundaries. In so doing, I attempt to show that the issues facing wetlands today are relevant to all of us and require coming together, rather than reenforcing separation, to solve.

At the same time, I also attempted to honestly contrast the experiences of Ojibway and non-Indigenous participants, clearly painting a picture of the many harms and injustices that have been part of the colonial process experienced by Indigenous people. I also demonstrate the connectedness of these colonial systems with globally dominant systems of power, including the global economy and Western knowledge structures. In this, my goal is to illustrate that the many harms experienced by Indigenous communities are intrinsically connected to larger systems that we are all embedded within. In so doing, I show that these issues are a concern for all of us.

I have also frequently taken a big-picture perspective on the many different contexts surrounding human-wetland relationships in the Swan Lake region, including historical, political, legal, and economic. I did this to accommodate the inclusion of the Ojibway knowledge system. As explained to me by Scott, Ojibway knowledge is inherently contextual and does not narrow in on singular aspects of an issue (personal communication). In fact, Scott would not share his knowledge on wetlands with me until he felt comfortable with my understanding of the historical context behind the state of his People's relationship with their land, including its dimensions in colonialism, global economics, and today's political scene. In taking a big-picture perspective, I found my own thinking growing and changing. By the end of writing this thesis, I realized that I

was not really writing about wetlands. Instead, wetlands became a prism refracting a much bigger context; one where dysfunctional relationships between human and land systems are producing a polycrisis affecting all planetary systems, in the Swan Lake region and beyond.

As seen in the relationship between wetlands and people in the Swan Lake region, our social and ecological problems are connected, and their root cause is a relational problem. Enduring solutions to wetland drainage, as with our other modern social and ecological problems, can only happen at the pace our relationships with people and with the land can heal. As famously declared by Western naturalist Aldo Leopold, “the oldest task in human history” is “to live on a piece of land without spoiling it” (Leopold, Callicott & Flader, 1991, p. 254). Indigenous Peoples worldwide, including the Ojibway currently residing at Gaubiskiigamaug, have shown the power of place-based, Earth-centric worldviews and knowledge systems in achieving this vital objective (Reed et al., 2024; Scott, personal communication). As held in the Ojibway Oral History, as shared by Scott, Indigenous Peoples, including Cree, Assiniboine, Dakota, and Ojibway, have lived in ways that sustained a healthy balance between land and human systems on the lands around Swan Lake for thousands of years, with Oral Knowledge dating back to the time of what is now known as Lake Agassiz, when ice fields existed along the Pembina River.

Contrastingly, globally dominant Western systems face ever-growing threats to their future due to exploitative relations with people and planet (Baulch et al., 2021; Gardner & Finlayson, 2018; Manheim, 2020). Non-Indigenous people face a peculiar dilemma. Not quite belonging to the lands they inhabit and dependent on unjust and unsustainable systems, many are asking the question of what it might mean to “become naturalized” in the words of Kimmer (2013) and live in a reciprocal and regenerative way with the lands around us. Scott offered some

insight into answering this question. He said, *“How did we learn about it? It was because of our Anishinaabeg-ism, the way that we’re supposed to live with the environment. That’s where those teachings come from. So how do we get that into Western science? How do we get them to understand it without dissecting it to the point where it’s to its minutest little detail?”* In this, he encouraged greater land connectedness for all, both Ojibway and non-Indigenous neighbours, to gain a systems understanding of lands and waters and to see beyond Western discontinuous abstractions of inseparably interconnected people, lands, and waters. He also recommended building bridges between our communities and working together to face these challenges that affect all of us.

In today’s context of globally dominant Western systems based on a worldview of humans and nature as separate, of land as resources to be exploited and controlled, and of siloed thinking relating to environmental issues such as those facing wetlands, it is more important than ever that Indigenous systems are at the forefront of fracturing the Western monolith. In this way, building a multiplicity of place-based narratives and pathways to reciprocal and resilient relationships with all aspects of our planet, including its wetlands. As Kimmerer states, “Our most challenging and rewarding work lies...in restoring a relationship of respect, responsibility, and reciprocity...and love” between humans and land (2013, p. 336). This involves raising our children to not only be contributing members of society but also teaching them how to be contributing members of living landscapes, providing them a foundation to become naturalized citizens in the places they inhabit.

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Personal Communications

C. Greenfield (personal communication, 2019-2021). Former manager for the Pembina Valley Watershed District.

D. Scott (personal communication, 2019 – 2024). Community Historian, Traditional Leader, and Traditional Environmental Knowledge Expert at Gaubiskiigamaug.

J. Vanrobaeys. (personal communication, 2018-2024). Former Senior Land Resources Specialist at Agriculture and Agri-Food Canada. Current Water Monitoring Senior Evaluation Officer for Health Canada.

Appendix 1: Interview Themes

Description: This is an interview guide, consisting of a list of themes that will guide the open-ended questions during the semi-structured, one-on-one interviews.

Date: _____ Start Time: _____ End Time: _____

1. Demographics

- a. Do you identify as Indigenous?
- b. Characteristics of the land/farm (type, approximate number of acres, livestock units)
- c. Land use besides agricultural (i.e. hunting, gathering)?
- d. Renting or leasing land?
- e. Land security (confidence in being able to use the land into the future)?
- f. Age range (under 30, 30-55, 55+)
- g. Education or source of land-based knowledge?
- h. Which communities or groups influence how you manage land or your land management philosophy?
- i. How open are you to trying new practices or non-conventional practices?

2. Experiences

- a. Please describe water retention and wetland conservation practices you or your community have been involved in, if any, that aimed to improve the health of water in your region. Specifically, because these practices address the main concerns in Swan Lake: nutrient and sediment loading.
- b. What influenced your decision to follow through on this project?
 - i. What were some disincentives (for this or other projects)?
- c. Logistical considerations (location, type, design, time)
- d. What have been the benefits and costs of the project (environmental/financial/other)?
 - i. How do you balance profits vs. altruism?

3. External Supports and Barriers

- a. Where do you get reliable information and how do you know it's reliable?
 - i. What support networks do you have access to?
- b. Collaborative networks (how is use/management of the land collaborative?)
- c. How do people in your area view water retention or wetland conservation generally?
 - i. How does this compare to how you view these practices?
- d. What financial supports and barriers do you have for practices like water retention or wetland conservation that can benefit Swan Lake? Provincial or municipal?

4. Personal Perspectives and Motivations

- a. What actions are needed to address the water quality issues in Swan Lake?
- b. What impact do your actions have on water quality/health downstream?
- c. How would you recommend supporting or incentivizing landowners to implement additional water retention or wetland conservation practices in your region?

Appendix 2: Consent Form

Research Project Title: Socioeconomic Factors Influencing Implementation of Practices for Water Quality Improvement in the Swan Lake Watershed, Manitoba: Indigenous and non-Indigenous Perspectives

Principal Investigator: Leanna Wiebe (Master's student, M.Env.)

Research Supervisor: Dr. Rick Baydack, professor

Sponsors: This project has been funded by the Berkes Community Based Research Scholarship; SSHRC Canada Graduate Scholarship – Masters; and Agriculture and Agri-Food Canada's Research Affiliate Program.

This consent form is only part of the process for informed consent. It should give you the basic idea of what this research project is about and what your participation will involve. If you would like more detail about anything mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

Purpose of the Research Project

The purpose of the project is to better understand social and economic factors that influence land management and water use decisions that address nutrient and sediment issues in Swan Lake. The goal is to benefit land managers by collecting information to help develop region-specific recommendations to increase support for farm-level practices that improve water quality. Water retention, wetland restoration and similar conservation practices are of interest because they help reduce nutrient and sediment loads entering Swan Lake. Information collected during the project will be used to strategize ways to lower barriers and enhance incentives to make it more accessible to carry out these practices that benefit waterbodies in your region.

How you can be Involved

You can participate in this project by taking part in an interview which will last about 60 minutes to three hours, depending on your availability and preference. The semi-structured interview will take place at your place of residence or at an agreed upon location in a community near you. In addition, the interviews may take place on the land and possibly in more than one season (for example, spring and summer) to better understand your Traditional Knowledge interconnected to locations and seasons. Land based interviews may take longer than three hours depending on your preference.

The interview will be guided by about twenty open-ended questions asking about your experiences and land-based knowledge related to water conservation activities in your region. An interpreter can be available if you prefer, with your oral permission and if you select the interpreter. You may choose to withdraw your participation at any time or refuse to answer any question you don't feel comfortable with.

Recording Devices and Reviewing Transcripts

Human-Wetland Relations in an Agricultural Landscape

The interview will be audio recorded with your permission. If you do not give permission to audio record your interview, the researcher will take notes instead. Recorded information from your interview will be transcribed into scripts which will be analyzed and used in project outcomes.

After the interview, your transcript will be sent to you by mail, email or in person, whichever you indicate at the end of this form within two weeks following the interview. You will have a chance to review your transcript and request changes to it before details from it are summarized and shared in project results. Ideally, you will return the transcript by August 2020. Once you return the transcript and provide any recommendations all changes you request will be made to the transcript before it is used to produce final results of this project. The goal is to best reflect your perspectives and meaning.

Benefits and Risks

You may indirectly benefit from this project by collaborating with your neighbors to generate awareness about barriers and incentives facing landowners in the region when it comes to engaging in conservation practices that benefit water. This information will be used help develop region-specific recommendations to increase support for farm-level practices that improve water quality.

Minimal risk is involved with the interview, but it is important for you to know that it may be possible for others to identify you through the locational nature of information you may share. Although you may choose not to have your name published in project outcomes, references to specific locations on your property or property you access can be used to identify you. To minimize the risk of indirectly identifying you through locational information only descriptions of general regions or areas will be used in final results. For example, references to the land title or parcel number will be changed to “in the Swan Lake watershed” or “near Swan Lake.” In addition, if you choose to receive credit for your contributions, your name will be included along with any information that you share and will be released to the public and in your community in final reports and other project outcomes. Once these outcomes are released it will not be possible to retract your identity or your contributions.

Confidentiality and Data Management

You have the option to have your name associated with knowledge that you contribute during the interview. If you want, your name will then be listed in project outcomes. However, if you prefer to protect your identity, your information will be de-identified before sharing summary statements and direct quotes with others in project outcomes. De-identification means personal identifiers will be removed before your data is used in project results. However, references to places or landmarks could possibly be used to identify you and your participation in this study.

With your permission, your interview will be recorded with a Sony ICDPX470 IC voice recorder. As the audio-recording and transcript from your interview will contain personal information, these will be kept confidential and only accessible to the primary researcher, the project advisor and yourself if you request them. Audio-recordings will be transferred from the recorder to a password protect computer as soon as possible and deleted from the recording device once this is done. The recordings and transcripts of your interview will be kept on a password protected

computer or on a password protected hard drive in a locked cabinet in the researcher's personal office.

Summary statements and direct quotes from your interview that do not contain personal or sensitive information may be used in project results. As you retain ownership of your data, you may request your data to be returned to you or destroyed if you withdraw from the research during or after the interview.

Remuneration for Participation

A summary of the project outcomes can be delivered to you after the project if you indicate your interest in receiving a project summary. You will also be given an honorarium at a rate of \$50 for a half day (under 3 hours) and \$100 for a full day (over three hours rounded to the nearest hour). The full day interview may be required for land based interviews where travel on the land is required. A maximum value of \$200 is available to you if your land based interview occurs over more than one day. The interview will be timed beginning once the informed consent process is complete. At the completion of the interview, the time will be rounded to the nearest hour to calculate the value of the honorarium. The honorarium will be given in cash once the interview is complete.

Withdrawing from the Research

You are free to withdraw from the research at any time during or after the interview until **the end of December, 2020**, when project outcomes will be finalized. If you choose to withdraw, please contact me using my contact information provided on this form and information you share will be returned to you or destroyed and will not be used in study results. You are also free to refuse to answer any question you are uncomfortable with.

There will be no prejudice or negative consequences if you decide to withdraw or don't wish to answer one or more of the questions. Importantly, your participation or withdrawal from participation will not in any way affect your ability to participate in other Living Labs funded projects. In addition, you may still request a project summary even if you choose not to participate. However, please note that you will not be eligible to receive remuneration if you withdraw before the interview has begun. You will be provided with contact information in this form to use if you have any questions, concerns or choose to withdraw after your participation.

After the Interview

After the interview you will have opportunity to ask any questions or make any final comments. You will be given a copy of this consent form for your reference along with the honoraria mentioned above. My contact information is on this consent form.

Sharing Project Outcomes

Interview transcripts that have been reviewed and approved by you will be used to make summary statements. Direct quotes that do not contain personal or sensitive information may also be extracted from the approved transcripts and used in project results. Project results will take the form of a master's thesis and a summary report but may take other forms such as publishable papers. These results will be available to the public through MSpace, others in your community, the Pembina Valley Conservation District, Agriculture and Agri-Food Canada, Living Labs partners and in other possible avenues.

Destruction of Original Data

Original data including audio recordings and transcripts will be destroyed five years after project completion, in April 2026.

Requesting a Copy of Study Outcomes & Receiving a Transcript

If you prefer, a brief (1-3 page), non-technical summary of study results will be sent to you after the study is complete in May 2021. You may request this summary to be sent to your e-mail or mailing address. The contact method you select will also be used to send you a copy of your transcript for you to review.

Disclaimer Regarding Living Labs

This project is partly sponsored by AAFC's Living Labs program. It is important that you know that your participation in this interview will not affect or be affected by your participation in any other Living Labs activity.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

The University of Manitoba may look at your research records to see that the research is being done in a safe and proper way.

The Joint-Faculty Research Ethics Board at the University of Manitoba has approved this research. If you have any concerns or complaints about this project you may contact the above-named researcher or the Human Ethics Coordinator at 204.474.7122 or humanethics@umanitoba.ca. A copy of this consent form has been given to you to keep for your records and reference.

Please indicate whether you are interested in participating in this research in the checkboxes

A	☐ Permission to use your interview for project purposes. OR ☐ No permission to use your interview
B	☐ Permission to audio record for research purposes, which will later be transcribed & analyzed. OR ☐ No permission to audio-record for research purposes
D	☐ Permission to release identity in any project outcomes that arise from these interviews. OR ☐ No permission to release identity in any project outcomes that arise from these interviews
C	☐ I request to have an interpreter present during my interview and will select an interpreter. OR ☐ I do not want an interpreter present during the interview

Please indicate if you would like to receive a project summary

☐ Yes, I would like to receive a project summary once the study is complete.

☐ No, I would not like to receive a project summary.

Please indicate how and if you want to review your transcript

☐ Yes, I would like to review my transcript in person.

OR

☐ Yes, I would like to receive a copy of my transcript by email.

OR

☐ Yes, I would like to receive a copy of my transcript by mail.

OR

☐ No, I would not like to receive any communications in the future.

Participant Signature

Date

Researcher Signature

Date

Appendix 3: Joint Faculty Research Ethics Board Approval



University of Manitoba | Research Ethics and Compliance

Human Ethics - Fort Garry
208 184 Dalke Road
Winnipeg, MB R3T 2N2
T: 204.474.6872
humanethics@umanitoba.ca

PROTOCOL APPROVAL

TO: Leanna Wiebe
Principal Investigator (Advisor: Rick Baydack)

FROM: Julia Witt, Chair
Joint-Faculty Research Ethics Board (JFREB)

Re: Protocol J2019:109 (HS23558)
Socioeconomic Factors Influencing Water Management in the Swan
Lake Watershed: Indigenous and non-Indigenous Perspectives

Effective: January 31, 2020

Expiry: January 31, 2021

Joint-Faculty Research Ethics Board (JFREB) has reviewed and approved the above research. JFREB is constituted and operates in accordance with the current *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*.

This approval is subject to the following conditions:

1. Approval is granted for the research and purposes described in the application only.
2. Any modification to the research or research materials must be submitted to JFREB for approval before implementation.
3. Any deviations to the research or adverse events must be submitted to JFREB as soon as possible.
4. This approval is valid for one year only and a Renewal Request must be submitted and approved by the above expiry date.
5. A Study Closure form must be submitted to JFREB when the research is complete or terminated.
6. The University of Manitoba may request to review research documentation from this project to demonstrate compliance with this approved protocol and the University of Manitoba *Ethics of Research Involving Humans*.

Funded Protocols:

- Please e-mail a copy of this Approval, identifying the related UM Project Number, to the Research Grants Officer at researchgrants@umanitoba.ca



University
of Manitoba

Research Ethics and Compliance

Human Ethics - Fort Garry
208-194 Dalhousie Road
Winnipeg, MB R3T 2N2
T: 204 474 6372
humanethics@umanitoba.ca

RENEWAL APPROVAL

Date: January 25, 2021 **New Expiry:** January 31, 2022

To: Leanna Wiebe (Advisor: Rick Baydack)
Principal Investigator

From: Andrea Szwajcer, Chair
Research Ethics Board 2 (REB 2)

Re: Protocol # J2019:109 (HS23558)
Socioeconomic Factors Influencing Water Management in the Swan
Lake Watershed: Indigenous and non-Indigenous Perspectives

Research Ethics Board 2 (REB 2) has reviewed and renewed the above research.

REB 2 is constituted and operates in accordance with the current [Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS2 \(2018\)](#).

This approval is subject to the following conditions:

- i. Any changes to this research must be approved by the Human Ethics Office (HEO) before implementation.
- ii. Any deviations to the research or adverse events must be reported to the HEO immediately.
- iii. This renewal is valid for one year only. A Renewal Request Form must be submitted and approved prior to the above expiry date.
- iv. A Study Closure Form must be submitted to the HEO when the research is complete prior to the above expiry date, or if the research is terminated.