From Reclamation to Conservation:
A History of Settler Place-Making in Burns Bog, British Columbia

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Abstract

Wetlands are, in the Canadian settler imaginary, ambiguous spaces that are neither strictly landmasses nor only bodies of water. This paper explores how Canadian settler-colonialism has incorporated wetlands into systems of land ownership and control by tracing the history a specific wetland, a peat bog known as Burns Bog since the 1930s in the area settlers call Delta, British Columbia. Given its presence as one of the largest wetlands in the region, settlers failed to drain the bog in its entirety. As a result, the bog persisted throughout the history of settlers' presence on the west coast and has been subjected to waves of settler approaches, making it an ideal case study to consider how ongoing settler-colonialism has shaped, and continues to shape, wetlands.

Previous historical works on wetlands in Canada and the United States have documented how early settlers, through to roughly the mid-twentieth century, worked to "reclaim" wetlands and transform them into arable land. However, these accounts have often neglected to continue their analysis of settler-colonialism beyond this period and have, as a result, treated settlers' more contemporary views of wetlands -- as ecologically valuable ecosystems that need to be conserved or restored -- as a break in colonial dynamics. This research intervenes in this existing body of work by treating shifting practices towards wetlands as successive *stages* in efforts to incorporate wetlands into settler-colonial logics. I argue that these different practices need to be interrogated for how they both rely on similar logics, frameworks, and approaches to the nonhuman, and for how they further the settler-colonial project of suppressing Indigenous voices, histories, and relations to land.

The paper draws upon Indigenous studies, queer ecology, and posthumanism to develop a more theoretically robust framework through which to approach the history of Burns Bog. I use a collection of archival and secondary materials—particularly early ethnographies of the region—to trace Indigenous and settler relations to the bog. In chapter 1, I present a framework that pays particular attention to settler practices and conceptions of land, biopolitical capitalist subsumption of the nonhuman, and methods of thinking with and through water. In chapter 2, I trace the bog's history from its formation through to the 1920s, including Indigenous peoples' relations to the bog and early settler efforts to reclaim the bog. Chapter 3 explores the rise of different settler practices in the bog from the 1930s to the 1980s, especially peat extraction, cranberry farming, and the use of the bog as a landfill. Chapter 4 presents the rise in scientific and conservation approaches to Burns Bog, highlighting how they provide a means for making the bog more legible and enabling more extensive settler direction of nonhuman beings within the bog as well as the resurgence of Indigenous claims to the bog. I argue that by viewing wetlands as ongoing and overlapping collections of material and narrative practices, we can see how contemporary conservation politics often function as an extension of settler domination of land.

Foreword

This major paper is the culmination of the Area of Concentration that has guided my journey throughout my master's degree in Environmental Studies at York University. It speaks to all three Learning Components, "Queer ecology and critical theory," "Environmental histories and cultures of wetlands," and "Theorizing the More-than-human," reflecting them in both the theoretical framework developed for the research as well as the approach to the archival work I conducted.

The paper draws heavily from Indigenous studies and queer ecology to inform discussions of how settler-colonialism structures relations with land and nonhuman beings. It also incorporates some Marxist theory to shape the analysis of capitalism and modes of production around and in the wetland. Finally, on a methodological level, the paper is an exercise in thinking through how to tell stories of nonhuman subjects that resist and challenge normative Western frameworks. I turned to a number of Indigenous, queer, and posthumanist scholars to consider how they view and engage water in their works. I used these insights to present ways of highlighting different aspects of Burns Bog and wetlands in general through an embrace of their watery nature.

Wetlands were central to my Area of Concentration and my paper deepens my understanding of the diverse histories and relationships that settlers and Indigenous peoples have with them. I contextualized my research into Burns Bog within the broader history of wetlands in North America, and Canada in particular, and the paper itself is focused on tracing a vast array of Indigenous and settler practices in the bog.

Fundamentally, my Area of Concentration revolved around the question of whether the historical account that settlers went from destroying wetlands to protecting them truly reflected a different and distinct shift in how wetlands were viewed and understood. Through this paper, I came to clarify that it did not; instead, the shift was a gradual transition between different perceptions on how best to use wetlands. In exploring Burns Bog as a case study, I also came to understand this process as an even more complex one that encompassed multiple, overlapping, and interacting dynamics occurring within ongoing settler-colonial logics. I hope that this paper informs a more critical engagement with conservation ethics that enables greater settler solidarities with Indigenous peoples fighting to maintain relationships with their traditional territories.

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Introduction

In October of 2016, the Burns Bog Conservation Society (BBCS), a non-profit organization that works to raise awareness about and protect Burns Bog in Delta, British Columbia, conducted a new public outreach campaign: Bog Escape. Bog Escape brings the popular escape room format into the place of Burns Bog, directing participants to find clues and solve puzzles, in which the point is to escape from the bog before time runs out. Participants have fun and hopefully come to appreciate the wetland and its natural beauty in the process of playing. The 2016 Bog Escape was held around Halloween and had holiday-related theme: participants were told that the bog was haunted by soldiers and its was their duty to escape the ghosts' clutches. The theme was meant to not only provide amusement but also teach participants about the history of peat extraction in the bog during World War II. During the war, several companies mined the peat—the mass of semi-decaying organic matter made up of Sphagnum moss—to sell to the United States army, who used it to make bombs. By playfully drawing on this historical fact and framing it in a fun, spooky context, the BBCS encouraged the public to explore the unique history of Burns Bog. They have since followed up the initial Bog Escape with versions based on early settler explorers, as well as more imaginary games about forest pixies, wizards, a prison break, Halloween monsters, and a post-apocalyptic world. Through the Bog Escapes, the BBCS establishes the historical narratives of Burns Bog they want people to know. They highlight the bog's characteristic peat, the experiences of early settlers traversing the watery landscape, and the dangers of a future without Burns Bog. The stories direct the public to pay attention to certain aspects of the bog that align with the organizers concern for the bog and desire for its conservation.

Stories play an important role in making places. Histories, place-names, and maps are all different kinds of stories that mark places and "carry out a labour; creating, maintaining, and/or shifting narratives about the places in which we live and how they produce us and us them" (Tuck and McKenzie 2015, 34). Lauret Savoy, in her monograph *Trace: Memory, history, race, and the American landscape*, journeys across the United States and explores how place-names and official histories of sites distort histories of settler-colonial and white supremacist violence by erasing or softening Indigenous dispossessions and the enslavement of African people. She argues that "how a society remembers can't be separated from how it wants to be remembered or

from what it wishes it was" (Savoy 2015, 108). In settler-colonial states like Canada, settler stories and histories allow settlers to re-remember their presence differently. Settler-colonialism requires the erasure of Indigenous places, names, histories, and access to land, and settlers use stories, amongst a myriad of other tactics, to pursue erasure. To affirm their own right to the land, settlers "enforce their interpretations on everyone and everything in their new domain" (Tuck and McKenzie 2015, 59).

Of course, enforcing settler interpretations onto their domain extends beyond the realm of the discursive or narrative. Stories are also deeply intertwined with material (re)working of land and landscapes. As Don Mitchell argues, a landscape is a "material form that results from and structures social interaction" (1996, 34). Settlers remake land and stories in an ongoing interplay; land is worked to fit stories of ownership and stories are rewritten to present the land transformations as progress and improvements. The Bog Escape stories, then, serves as an entryway into questions of why these particular stories have been told about Burns Bog? Whose histories are being repeated or affirmed, and whose are lost? What stories and practices are bound up in the name "Burns Bog" and how might stories of the bog be told differently by not taking that name as stable, given, or final?

According to the City of Delta's website, Burns Bog is "the largest undeveloped urban landmass in North America" (City of Delta 2003). Yet to describe the bog as "undeveloped" is a curious thing given its history. The marks of development are visible across Burns Bog. From their arrival in the nineteenth century, European settlers have installed a series of dykes and ditches in the bog to drain the water from it, mined peat from large swaths of the bog, set up landfills and dumped garbage in it, turned significant portions into farmlands, built roads and railways through it, before designated the bog a conservation area and restricted public access. Prior to colonization, the Tsawwassen, Musqueam, Katzie, Semiahmoo, and Stó:lõ First Nations set up summer villages in the bog, cultivated and harvested salal berries, cranberries, blueberries, and Labrador tea, hunted deer, and caught salmon, practices that continue to varying extents and in different ways through to the present. The bog itself is now approximately 3000 hectares, yet it was estimated to have been around 4800 hectares before settlers worked to shrink it (Hebda et al. 2000, 31). To describe Burns Bog as "undeveloped" ignores the deep and complex history that has shaped and reshaped the bog over centuries, and especially over the last century.

The description of Burns Bog as "undeveloped" also points to a story in which conservation is deeply rooted: the story of pristine nature. Conservation ethics is often based in a conceptual separation between humans and nature and a desire to "protect" nature from humans (Hennessy and McCleary 2011, 134). It relies upon a politics of nature as "people-less landscape, as retreat from 'the world'" (Hogan 2010, 248). It results in an inability to see value in human/nonhuman relations, and instead works from the assumption that "more people inevitably means more degradation" (Sandilands 1999, 86). To care about a "natural" space like a bog, then, requires narratives of that space that affirm its supposed naturalness while downplaying or erasing human relations and practices that have helped shaped it. This skewing of narratives is concerning, and we need to question what work is being done by constructions of spaces as "natural" or "pristine" (Seymour 2013, 171). One especially relevant result of conservation efforts viewing spaces as devoid of humans is the erasure of Indigenous presences and histories in those spaces. European settlers who came to Turtle Island did not recognize the numerous ways that Indigenous peoples were actively shaping the land, plants, and nonhuman animals across the continent, leading to the myth that the land was untouched by humans (Denevan 1992, 379; Myers 2017, 83). Conservation ascribes narratives of how places have been, how they came to be the way they are, and how they should exist in the future.

Thus, I am interested in tracing the history of Burns Bog in order to reveal how settlers form narratives about "natural" spaces. I want to understand how the bog as it exists today is not undeveloped or pristine, but instead intensely developed and affected by histories of transformation, intrusions, and interventions, which are bound up in shifting views and perceptions. Burns Bog is an especially revealing site for this kind of inquiry because of how settlers have changed their views on wetlands so drastically over the past century. Over the course of the twentieth century, settlers have gone from viewing wetlands as wastelands that should be transformed to ecological treasures that should be conserved (Matthews 1993, 3). I want to interrogate how divergent the historical and contemporary settler views on wetlands truly are. With Burns Bog itself, I am especially intrigued by the relationship between two major purchases, roughly 100 years apart, that exemplify the settler views of their respective times. In 1905, Dominic Burns purchased a large portion of the bog with the intention of draining the entire area and converting it into a cattle ranch. In 2004, the governments of Delta, Greater Vancouver (GVRD), British Columbia, and Canada purchased most of the remaining bog from

private owners in order to conserve the bog in perpetuity. On its face, these two purchases seem diametrically opposed: the first aimed to destroy the bog by draining and cultivating it, and the second aimed to save the bog's "bogginess" precisely from this kind of destruction. Yet, looking more closely, there are many similarities in the underlying logics and effects of these purchases. Considering them within the context of settler-colonialism, both purchases served to maintain and even extend settler control over the bog, enabling settlers to manage the bog into specific states. Both purchases were driven by a desire to make the bog "useful" or "productive" in particular ways, with the first interested in the productive potential of the bog as a vast farm, while the second aimed at preserving and rebuilding the ecological functions of the bog to ensure the long-term benefits of those functions, such air and water filtration. Of course, the century between them was also marked by purchases and practices that sought to make the bog productive in other ways.

This paper is an environmental and cultural history of Burns Bog, exploring how settlers transformed the bog into Burns Bog on both discursive and material levels. I am inspired in this paper by Savoy's approach to recognize that "history on this land—the events that occurred *and* the narratives told of them—can never be complete or single-voiced" (Savoy 2015, 111, emphasis in original). I am thus deeply reticent of the fact that I am only accessing and presenting some of numerous stories, relations, practices, and histories that relate to the bog. Not all of them were recorded and included in the written sources and archives I used to construct my narrative. However, with the materials I was able to use, I aim to understand how settlers transformed and shaped the bog through divergent practices that were rooted in similar logics of ownership and control over land, drives for productivity, and the management of human and nonhuman beings. My goal is to understand how conservation fits within the wider context of settler approaches to land, in order to point to ways of engaging with land differently.

The first chapter provides the historical and theoretical context for the paper. I outline an overall history of wetlands in North America in order to consider how wetlands have been theorized within environmental history. I then present my theoretical approach and discuss the specific interventions that I am making into the field of wetland studies, as well as my methodology for tracing the history of Burns Bog (including its limits). The following chapters delve deeply into the history of Burns Bog and pay close attention to how stories of and practices with(in) the bog have flowed into one another. I approach this historical account as an exercise to

"search a deep past of edges and motion" (Savoy 2015, 116). Chapter 2 explores the formation of the bog, as well as Indigenous relations prior to and following European settlers' arrival, and early settler attempts to "reclaim" the bog between the 1880s and the 1920s. Chapter 3 covers the 1930s to the 1990s, focusing on diversifying efforts to commodify portions of the bog, with a heavy focus on the role of peat mining and the establishment of the Vancouver Landfill. Chapter 4 presents the rise of scientific study and conservation activism in the bog from the 1960s to the present. The chapter considers how settler goals of commodification, scientific understanding, and conservation interrelated and shaped the later history of the bog to establish Burns Bog as it exists now, a vibrant yet fragile ecological treasure.

Across the chapters, I focus on how Burns Bog is not a stable, permanent, or static place, but rather one that is continually being made and remade through different relationships and shifting practices. By resisting the perception of the bog as a singular place, I create space for acknowledging and engaging with the multiple, overlapping, ongoing, and at times conflicting relationships and practices that the bog holds. Environmentalists have often come to view conservation as a new practice towards land, marking an era of concern and care for land and other nonhuman beings. However, we need to question conservation as a story, one that does labour to uphold certain values and dynamics, even as it challenges others. We need to question what stories and histories are conserved, what beings' presences are allowed to continue, and what relationships are being protected or severed? Burns Bog is the result of multiple different practices and relationships that have shaped the very topography of the area. As much as its conservation might been seen as marking the end of settler interventions and transformations into the bog, in reality, it is merely another step that needs to be considered with a skeptical eye.

Chapter 1 – (Re)theorizing wetlands

> If history can be read in the names on the land, then the text at the surface is partial and pieced. A read might do well to look beyond "official" maps for traces of other languages, other visions. He or she might do well to acknowledge, and mourn, the loss of innumerable names born out of textured homelands that no longer reside in living memory. We all might do well to remember that names are one measure of how one chooses to inhabit the world. (Savoy 2015, 87)

Historically, wetlands have constituted a significant portion of land in North America, with an estimated 25% of all currently existing wetlands found within the borders of Canada alone (Giblett 2014, 12). However, despite this geographic prevalence, North American wetlands take up surprisingly little conceptual space in environmental history or in the environmental humanities. This chapter endeavours to challenge this academic and contextual dearth by tracing the general history of wetlands within Canada and the United States, exploring how humans, and in particular settlers, have related to and shaped wetlands. Beginning with a brief review of existing historical and environmental humanities scholarship regarding wetlands, I expose how wetlands are typically presented as the Cinderella of ecosystems: initially discarded and dismissed, then discovered to be ecological wonders and given the attention they deserve. I am particularly interested in how previous historical narratives have accounted for the cultural and political foundations that drove relations with wetlands, and what configurations of practices came out of those perceptions. This history will provide a wider geographic context within which to place the history of Burns Bog by highlighting the major historical periods and shifts that have marked wetlands.

Following the historical summary, I will present the theoretical framework with which I approach this paper. I look to Indigenous studies, queer ecology, and posthumanism to provide the key theoretical and methodological tools through which to explore ways of doing wetland history differently. With Indigenous studies, I draw from the literature on settler-colonialism, settlers, and land relations. These works on settler geographies and control of land underscore how wetlands are remade as part of the ongoing project of settler-colonialism. I turn to queer ecology, due to the field's emphasis on understanding how nonhuman intimacies are shaped through the frames of reproduction, capitalism, and categorization. Queer ecology directs my attention to how wetlands are treated within biopolitical regimes that have sought to render them

knowable and commodifiable. Finally, I turn to posthumanism, and specifically posthumanist works that attend to water. This scholarship on water opens up avenues for correcting how the watery natures of wetlands have been historiographically neglected.

I end the chapter by describing the methodology of the paper. I outline the collection of archival materials I was able to access to conduct this study, as well as the main secondary sources that supplement the archival material. Further, I explicate the aspects of history that I seek to highlight as a remedy to the existing literature of wetland histories. In this history, I expose some of the logics of settler-colonial capitalism in the bog through a detailed and critical consideration of the archive. A critical issue with the existing archival material related to the bog is the lack of Indigenous perspectives and voices represented within it. My paper does not fundamentally address this issue as I was unable to conduct interviews with First Nations who have relationships with the bog. However, by engaging in a critical reading of settler-colonialism through the existing archive, as well as highlight the gaps in the archive, I direct attention to where those voices have been neglected and hopefully point future research and activism around the bog towards greater dialogue with and support for ongoing First Nations land claims and access to the bog.

Wetland histories

Historical accounts about wetlands typically provide an outline of Indigenous relations to wetlands prior to European colonization. Often, these accounts point to Indigenous peoples turning to wetlands as a source of food, through a mixture of hunting birds, catching fish, and gathering fruits and berries (Giblett 2014, 112; Hatvany 2003, 49; Ogden 2011, 106-7). Of course, the particularities of the wetlands resulted in very different regional relationships. For example, the Sioux, Ojibwe, and Dakota peoples of the Great Plains harvested medicinal plants and wild rice, while the Atakapa peoples along the Mississippi River floodplain gathered mussels, claims, and oysters (Vileisis 1997, 20, 23). Beyond food, some Indigenous communities also used wetlands as waterways for transportation (Prince 1997, 75). Finally, other accounts highlight how Indigenous communities engaged in practices of shaping wetlands, through controlled burns and cultivating plants like maize (Prince 1997, 87; Vileisis 1997, 14-6).

What has received more attention are the experiences and engagements of early settlers with wetlands. Within these early encounters, settlers depicted wetlands as undesirable, useless,

"unproductive," and wasted spaces with little to offer (Prince 1997, 118; Giblett 2014, 79). These views were founded on the logic of *terra nullius*, whereby the land was considered to be uninhabited and unclaimed, and therefore free for settlers to take and use. *Terra nullius* justified the expulsion of Indigenous peoples for the appropriation and transformation of the land on the basis that Indigenous peoples living on and with the land were too akin to nature itself to properly master the land (Prince 1997, 6). European settlers took deliberate and extensive steps to convert wetlands into productive and valuable lands, engaging in dyking and draining practices to remove the water from them and make the land amenable to settler systems of agriculture (Giblett 2014, 110). Wetlands, therefore, "figured prominently in the American dream—not as they were, but as what they might become" (Vileisis 1997, 111).

Beyond being useless, wetlands also posed a danger to settlers as they travelled across the region. Settlers worried about becoming lost in the unassuming landscapes and becoming "sucked into bottomless mires" (Matthews 1993, 6). These colonists also viewed wetlands as sites of disease and illness. Miasmic theories popular at the time—in which diseases were understood to be caused by miasma or "bad air"—led many to believe that the stagnant waters and decaying organic matter in wetlands were causing illnesses, popularly called swamp fever and ague (Prince 1997, 121). Yet, these conceptualizations were contrary to reality: it was settlers who actually made wetlands into spaces of illness through their presence and interventions through two primary methods. On the one hand, the mosquitoes in North American wetlands were not transmitters of malaria before colonization; settlers carried the malaria parasite in their bodies and mosquitoes acquired the parasites when feeding on the settlers (Vileisis 1997, 43). On the other hand, wetlands often were turned into garbage dumps, especially those close to growing urban centres. For example, False Creek in Vancouver was used as a dumping ground for garbage and sewage, as were the marshes on the shores of Toronto (Giblett 2014, 119). These moves to use wetlands as sites for waste, on the belief that they were already diseased wastelands to begin with, became self-fulfilling prophesies. Settlers inadvertently brought malaria and cholera into the wetlands, thus turning the areas into the very illness-filled spaces they had originally feared the wetlands to be (Giblett 2014, 36).

Additionally, wetlands historically confounded and troubled settler attempts to survey and manage land. The shifting boundaries of wet and dry areas were unfamiliar and challenging; surveyors struggled with figuring out how to define their edges and create a uniform map of the

landscape (Bower 2011, 7; Prince 1997, 141). In pursuit of order and structure, settler governments made novel attempts to manage these non-static lands. The Manitoba government, for instance, constructed residential areas based on the topography of the region while still deploying a square grid as the basis for their agricultural expansion (Bower 2011, 21). Others, such as the Louisiana State government, sought to organize the state based on drainage districts, in the hopes that this would ensure that citizens would work together to carry out drainage projects (Vileisis 1997, 79). Regardless of how settlers were organized, these efforts often occurred as a shared project to spread settlers across North America, and to convert as many wetlands as possible into productive, arable land. This set of practices—draining wetlands, clearing away the existing vegetation and nonhuman animals, and establishing farmland instead—was framed as "reclaiming" the land (Ogden 2011, 12). However, while reclamation was integrated at both federal and local levels as a measure to enhance the land's productivity, this strategy also served to dispossess Indigenous peoples through the ossification of the state. This strategy is apparent from the numerous American states that offered land holdings for free to new settlers on the condition they built a house and reclaimed the land (Prince 1997, 157). Settlers in Canada were similarly encouraged to settle in the prairies as a means to both dislocate the Indigenous peoples in the region and also prevent Americans from expanding northward (Bower 2011, 1). Transforming wetlands was therefore a key dimension of asserting settler control over the continent and establishing the colonies as self-sustaining and viable.

Efforts to reclaim wetlands also racialized the wetlands by embedding them within structures of white supremacy that would shape both settler-colonial efforts and anti-Black racism. On the one hand, settler desires and evaluations of the land greatly shaped the dislocation and dispossession of Indigenous peoples from their traditional territories. The reclamations were meant to extinguish Indigenous title to the land and prevent them from accessing areas that settlers had taken over (Prince 1997, 114). Settlers occasionally moved Indigenous peoples to wetlands they were deemed too waterlogged to reclaim (Prince 1997, 115). However, as reclamation progressed, settlers turned their attention to new lands, further dislocating these same Indigenous peoples. For example, Ojibwa peoples were initially forcefully moved by the Manitoba government into southern Manitoba; however, they were later moved off these initial reserves and onto new land when settlers decided the original reserve land was now reclaimable and therefore desirable (Bower 2011, 44-6). The pervasive settler view that Indigenous peoples

would not make the land as productive as settlers also created a mixed landscape of drained non-reserve land and unchanged or more flooded reserve lands, as the provincial government funded drainage projects that directed the removed water into reserves (Bower 2011, 48).

Further, and especially in the United States, enslaved African and Caribbean people were forced to do most of the reclamation work in wetlands, as white settlers believed African and Caribbean people were more resistant to diseases like malaria (Vileisis 1997, 38). Given that land acquisition was often tied to the landowners reclaiming wetlands and bringing them into cultivation, the exploitation of enslaved Black people and the drainage of wetlands were intensely interconnected. It is perhaps because of these connections that so many wetlands across the continent have the name "Black Swamp" (Giblett 2014, 98). Wetlands were marked through racist logics of white supremacy, with their undesirability as landscapes being asserted through connections to Blackness and Black people.

Wetland histories also demarcate the 1800s as a particularly rapid period of wetland reclamation across the continent. In Kamouraska, part of the St. Lawrence Valley, French settlers initially brought almost 100,000 acres of salt marshland into cultivation for marsh hay by the early 1830s, but by the 1850s they were focused on how to intensify agricultural production through greater drainage (Hatvany 2003, 65). In southern Florida, settlers began seriously working to reclaim the Everglades in the late 1800s, draining a significant portion of the wetlands for farmland (Ogden 2011, 1). Indeed, drainage was especially rapid towards the end of the nineteenth and beginning of the twentieth centuries. Drainage projects peaked in Ohio, Indiana, Illinois, Iowa, and southwest Minnesota between 1870 and 1920, while 70% of California's wetlands were gone by 1922 (Prince 1997, 1; Vileisis 1997, 131).

In part, this period of intensive reclamation was fostered by the rise of technologies that enabled greater reach and drainage success. The expansion of the railroad system in the United States made new wetlands seem more valuable and ideally situated, which promoted further investment in their reclamation (Prince 1997, 184). Tiles for subsurface drainage systems were first imported to the United States in 1835, but it was not until decades later that the manufacturing of the tiles became established enough that widespread adoption became economically and technically feasible (Vileisis 1997, 122). In Quebec, the salt marshes were dyked through the use of *aboiteaux*, which were wooden drainage sluice gates that blocked salt water from entering the marshes during high tide but allowed the water to drain out during low

tide (Hatvany 2003, 97). From the early 1900s to the end of the 1930s, the Quebec Department of Agriculture was primarily focused on supporting the dyking and draining of the marshes, helping settler farmers upgrade and enlarge their *aboiteaux* (Hatvany 2003, 110).

Shannon Bower points to the period between 1918 and 1929 as the period where science and engineering became established as sources of expertise within Canadian policy development (Bower 2011, 86). She highlights the way government officials sought to address the issues of farmers. Manitoba farmers came to view themselves as "highlanders"—those who had land towards the upper edges of the bowl-shaped region and saw their farmlands lose nutrients through erosion—and "lowlanders"—those who had land on the bottom of the region and struggled with issues of frequent flooding with water from the highlands (Bower 2011, 89). The government commission in the 1940s that sought to address the problems of the highlanders and lowlanders proposed an extensive system of dyking and drainage to remake the watershed to match the drainage districts (Bower 2011, 103-4). Greater availability of drainage technologies, and increased reliance on science as a means of guiding public land policies, helped drive the transformation of wetlands into arable land.

During the 1930s, settlers began to view wetlands differently. A number of different factors led to this shift in perception, but one of the key ones was the increasing scientific understanding of wetlands through hydrology, soil science, and ecology. Wildlife biologists came to understand the roles wetlands played in terms of providing habitat for numerous animals, especially for fish and birds (Vileisis 1997, 161). In particular, the effect wetland drainage had on bird populations was a central aspect of the rise of concern about wetland loss, and that concern was driven in large part by hunters. Ducks Unlimited was founded in 1930, and their Canadian organization Ducks Unlimited Canada was founded in 1937, by hunters who were concerned by the steep declines in duck populations over the preceding decades (Bower 2011, 127-8). Realizing that wetlands were an essential habitat for ducks and other migratory birds, Ducks Unlimited led the charge to educate the public about the importance of wetland conservation (Vileisis 1997, 156). Ducks Unlimited Canada played a key role in shaping ideas of conservation in Manitoba through the restoration of the Big Grass Marsh in 1940 (Bower 2011, 121). It also took on significant roles in water management in Canada, working as an active partner in the management of many wetland areas across the country; ultimately, Ducks

Unlimited became the leading non-governmental wetland conservation organization in North America (Giblett 2014, 189).

Hunters' motivations aside, concerns around the unintended consequences of wetland losses do tend to be a common theme for conservation politics in this period. The increasing focus on efficient natural resource use starting in the 1930s led to questions about whether draining wetlands was the best choice for optimizing value from wetlands (Bower 2011, 110). The drainage of wetlands led to issues like the loss of groundwater reserves, shoreline destruction, and the local accumulation of pollutants (Matthews 1993, 1). Often these issues came out of the specificities of different regional wetlands. In Manitoba, the dry periods of the 1930s forced highland and lowland farmers to confront the realities of intensified erosion and clogged drainage, increasing the cost of maintaining their farms (Bower 2011, 144-5). The Midwest states similarly experienced new pressures from that drought period (Matthews 1993, 6). In Florida, the growing tourism industry proved to be a conservation catalyst; the symbolic value of the alligators in the Everglades as an attraction was reflected in the state management efforts (Ogden 2011, 133). However, as Hugh Prince argues, even as wetlands came to be more highly valued during the 1930s and 1940s, management remained focused on maximizing productivity, with a view of wetlands as "commodities to be marketed" (Prince 1997, 285).

Wetland conservation was driven by the desire to preserve them for "wildlife habitats, flood protection, reduction of discharge of agricultural pollutants, industrial effluents, and domestic sewage into streams" (Prince 1997, 36). Here, they were not left alone, but instead managed to increase their value to wildlife, flood reduction, and aesthetics (Prince 1997, 335). Settlers now saw a cornucopia of potential uses for wetlands beyond agriculture. And as the aesthetic potential of wetlands was newly discovered, there were also investments into recreational and tourist uses through the building of trails, boardwalks, and educational signage (Hatvany 2003, 129; Davis 2016, 261).

One especially large indication of the increasing valuation of wetlands was the Ramsar Convention, an international treaty signed in 1971 that affirmed the global importance of wetlands (Matthews 1993, 1). Perhaps ironically, with Ramsar, wetlands became the *first* type of ecosystem to receive international recognition and protection. The text of the treaty includes, in part, an affirmation on the part of the Parties to the Convention that they are "convinced that wetlands constitute a resource of great economic, cultural, scientific, and recreational value, the

loss of which would be irreparable" (Matthews 1993, 89). The new value of wetlands was deeply rooted in connecting them to some form of commodifiable or measurable function which could be capitalized upon. In the almost fifty years since the Ramsar Convention was first signed, wetland losses have continued though at a much slower rate than in the centuries beforehand (Davidson 2014, 939).

Although there was a shift among settlers towards valuing wetlands, this view did not replace wholesale previous views of wetlands as wastelands to be transformed. Instead, the newer measures and attitudes towards conservation and the older ones promoting drainage intermingled, creating a landscape of conflicting actions. Even as there was an effort to undo some of the drainage of wetlands, the period from 1945 to 1975 was marked by increased and widespread wetland drainage in the United States (Prince 1997, 290). Canada experienced similarly conflicting approaches to wetlands during this period. For example, while the Manitoba Legislature passed the Watershed and Soil Conservation Authorities Act in 1958, which recognized the value of watershed-level boundaries, management districts based on watershed boundaries were not formed until the 1970s due to concerns around the increased costs (Bower 2011, 154-5). In the St. Lawrence Valley, concerns over the destruction of the marshes did not truly emerge until the late 1960s, and the years following were marked by intense public fights between conservation proponents and pro-development advocates who wanted an expansion of the *aboiteaux* (Hatvany 2003, 124). Wetlands did not simply trade the perception that they were unpleasant and useless for another that they were places of ecological abundance. Instead, they were cast as both simultaneously, with detrimental results. Overall, the conflicts between drainage and conservation as dual policy goals across various government levels led to further wetland degradation in many places (Vileisis 1997, 193).

Finally, there was been a growing trend to look beyond simply conserving wetlands to restoring or reconstructing destroyed ones, or even to constructing wetlands in areas that were not previously wetlands. While initially a novel idea, there has been an increasing focus on engineering practices to design wetlands that "performed desired functions in ways that imitated their natural counterparts" (Prince 1997, 328). A number of early restoration projects were carried out by Ducks Unlimited in the 1930s and 1940s (Vileisis 1997, 182). However, more widespread restoration efforts, with greater governmental support and funding, did not begin until the 1980s and 1990s; in the United States there was a shift in federal policies that stopped

subsidizing drainage projects and instead incentivized private landowners to restore wetlands on their properties (Prince 1997, 314). Interestingly, the term reclamation is now often used as a synonym for restoration in wetland recovery or construction (Rushton 1988; Foote 2012). Thus, in some ways, the history of wetlands under North American settler-colonialism has always been a story of reclamation, though from whom or what they are being reclaimed, and what they are being reclaimed into, deserves deeper consideration.

Theoretical interventions

In response to the generally accepted history of wetlands across North America, this project seeks to challenge or expand previous analyses along three key lines. The first intervention is to deepen the understanding of wetlands within the context of settler-colonialism. While there is a consensus amongst scholars that early European settlers focused on draining wetlands and bringing them into cultivation, historical accounts tend to cease discussing how later shifting wetland policies and practices continue to be implicated within settler-colonialism. As a result, I will extend the analysis of settler-colonialism to include ongoing processes that include restoration. The second, related intervention is to highlight the similar politics upon which the practices of both wetland drainage and wetland conservation or management are predicated. Some, like Prince (1997), do contend with how the increased valuing of wetlands was developed through further management to maximize non-agricultural uses. However, sufficient attention has not been paid to this dynamic, and I will work to correct this oversight by exploring how settlers have engaged in diverse efforts to make wetlands useful or productive. Finally, this project's third intervention is to attune the telling of wetland narratives to the very watery nature of wetlands themselves. Scholars often point to how wetlands are "a nexus of land and water" and discuss the ways wetlands are not static ground but instead fluid and mobile spaces (Vileisis 1997, 316). However, histories of wetlands still, by and large, approach wetlands as landmasses instead of bodies of water. This project, then, considers how to tell wetland narratives differently and reveal new details or dynamics by paying greater attention to the water as a guide.

To make these interventions, I turn to Indigenous, queer ecological, and posthumanist scholarship. While these fields overlap at times in their areas of concern and approach, each provides a particular focus or lens that primes different analyses. Indigenous studies centre land as a space for learning and prioritize decolonization—the challenge and disruption of colonial

governance structures and promotion of Indigenous sovereignty—as a fundamental principle (Simpson 2014; Kovach 2010). Indigenous studies orients my analysis towards how settlers incorporate or shape wetlands, and Indigenous peoples' relationships with wetlands, through settler-colonial governance structures. Queer ecology, as I have argued elsewhere, "focuses, in particular, on destabilizing the identities and categories of nature, pushing against the way ecosystems are defined, or how value is ascribed to a landscape" (Butler 2017, 275). By highlighting the processes of categorization and management of nonhuman (and human) relationships, queer ecology directs this project's attention towards how settlers control wetland relationships under capitalist and biopolitical goals of productivity. Posthumanism resists positioning humans as the sole holders of agency, subjectivity, and intentionality, and instead creates space for nonhuman beings to be centred in analysis (Ferrando 2013, 30; Oppermann 2013, 28). Scholars in this field enable a history that takes the nonhuman beings that comprise and inhabit wetlands seriously as active agents within historical accounts. By drawing this collection of scholarship together, I aim to develop a strong theoretical foundation for approaching the history of wetlands in general, and the history of Burns Bog in particular. The remainder of this section explores the theoretical grounding for this project, through the key interventions being made in the genre of wetland history.

Settler-colonial processes

The first key intervention is to approach wetlands with an understanding of settler-colonialism as "a structure, not an event," a structure that involves both the securing of land for the establishment of settler society, and the ongoing dispossession of Indigenous peoples from that land (Wolfe 2006, 388). While the literature on wetland histories has addressed the ways initial wetland transformations were shaped by settler-colonial efforts, these accounts have not typically carried an analysis of settler-colonialism forward through to the present. As a result, the scholarship has positioned colonization as an event that occurred, rather than a structure that continues to shape wetland relationships. To contend with settler-colonialism as a structure requires recognizing how settler control over (and under) land is established and maintained. Settler-colonialism involves an active process to "erase Indigenous peoples and to erase or legitimate settlers' causation of such domination" (Whyte 2018, 135); it requires these erasures in order to preserve itself by hiding the realities of violence upon which it is based (Tuck and

McKenzie 2015, 154). Settlers engage in what Eve Tuck and K. Wayne Yang describe as "settler moves to innocence," strategies that allow us to maintain power and control over land without having to experience guilt or responsibility for the harm of our control (Tuck and Yang 2012, 10). Thus, land is critically important to settler-colonialism. Land is both materially controlled and shaped, and also discursively shaped through the erasure of Indigenous histories and the inscription of settler histories. Memories and narratives are key forms for remaking land and asserting power over it (Savoy 2015, 1).

Where previous wetland histories have erred, I would argue, is that they have not followed the permutations of settler-colonial structures as they have shifted historically to maintain settler control over land. As Audra Simpson argues, "settler colonialism appears in its non-appearance as a sturdy, structuring logic but also a shifting and impossible assemblage"; here, she highlights how settler-colonialism constantly changes and mutates in the face of resistance (Simpson 2016, 440). Settler-colonialism *must* change and shift because it is "both an ongoing and incomplete project, with internal contradictions, cracks, and fissures through which Indigenous life and knowledge have persisted and thrived despite settlement" (Tuck and McKenzie 2015, 61). Thus, even as settler publics have changed their views towards wetlands and come to see them as biodiverse, flourishing, and critical ecosystems, settler control over wetlands has not changed. The move to conservation did not involve affirming Indigenous relations to wetlands or relinquishing control over wetlands back to Indigenous communities. Instead, new modes of settler control, commodification, and accumulation of land have evolved, for example via the increasing designation of wetlands as government-managed parks and conservation areas, and their inclusion in carbon offset markets (Hatvany 2003, 129; Robertson 2004, 361). These new positionings of wetlands need to be understood as a continuation of, rather than a break from, settler-colonial logics.

Settler-colonialism is an incomplete process, in part, because Indigenous people continue to exist, resist, and have ongoing relationships with their land, including wetlands. While it beyond the scope of this project to provide an in-depth account of Indigenous peoples' relations to wetlands, including salmon, black ash, and sweetgrass (Kimmerer 2013, 299; 311), I would like to highlight two particularly important ones: cattails and wild rice. In her book *Braiding Sweetgrass*, Anishnaabe botanist Robin Kimmerer discusses the pervasiveness of cattails across almost all types of wetlands and describes taking her students out to gather cattails (Kimmerer

2013, 274). She writes of the importance of cattails and the complexity of Indigenous knowledges about cattails. In a 2014 Facebook post about cattails, she explains that there is "food from the roots, vegetable from the stalk, pollen for flour, edible flower stalks, seeds for tinder or diapers, leaves for cordage and mats and baskets, torches from seed heads, aloe-like medicine from the goo which looks slimy but feels great on bug bites… and more. There are so many Native science teachings held in that single plant" (Kimmerer 2014). Although settler-colonialism works to erase Indigenous knowledges and relations, Kimmerer demonstrates how these knowledges and relations persist into the present.

Wild rice is also an important wetland plant for many Indigenous communities around the Great Lakes, especially the Mississauga Nishnaabeg and Anishnaabe (Simpson 2016; Native Wild Rice). As Leanne Simpson explains, "*minomiin*, or wild rice, has grown in our territory since time immemorial… our families lived good lives with a beautiful sustainable food system because of wild rice" (Simpson 2016). In addition to being a source of food for humans, wild rice is also an important food source for migratory birds and provides roosting areas and cover for waterfowl species on which Indigenous peoples have also depended (Native Wild Rice). Settlers have destroyed many wild rice beds and restricted access to remaining ones on private property or government-managed areas, yet Indigenous communities continue to fight to replant and harvest wild rice (Simpson 2016). In fact, multiple Indigenous communities and organizations are actively working to restore wild rice in different areas across the Great Lakes and their adjoining wetlands (Native Wild Rice; Plenty Canada). Even as settlers have attempted to remove wild rice and block access to its fecundity, Indigenous communities continue to maintain relationships with wild rice in the wetlands in which they have historically occurred.

Wetlands undergo continual remaking and reshaping on multiple levels as "people transform landscape through processes of labour *and* categorization, and the resulting landscape patterns influence the habits of practice *and* thought that structure such processes as well as the conflicts of practice *and* thought that change structures" (Sluyter 2001, 421, emphases in original). Thinking of wetlands as landscapes or places directs attention to how they *become* landscapes, how they solidify *into* places with defined and distinct boundaries. The place-making of wetlands comes out of different human and nonhuman practices, interactions, intimacies, and relationships that coalesce to form a wetland. As Eve Tuck and Marcia McKenzie suggest, "places have practices," but also "places *are* practices" (Tuck and McKenzie 2015, 14, emphasis

in original). In other words, to think about places as being practices is to recognize that places are continually made through the establishment of boundaries, the application of names, and the demarcation of what does and does not occur there. To contend with these dynamics, I find the concepts of settler grammars of place, as well as settler geographies, cartographies, and scales, to be particularly helpful tools in understanding wetland histories.

The concept of "settler grammars of place" highlights how places are made and known through "repetitive practices of everyday life" (Whyte 2018, 138); settler grammars establish, form, and distinguish distinct places through daily practices which give them vocabularies of movement and interaction. Land becomes place, and becomes known as place, through actions that set the boundaries of what a place is, what it can do, and what can be done there. Settler grammars of place highlight how material practices make places, both materially and discursively. Mark Rifkin connects these "everyday enactments of place, personhood, and belonging" to the "reiteration of settler sovereignty and the redeployment of its accompanying legal and normative templates" (Rifkin 2014, 15). Relatedly, settler cartographies, geographies, and scales enact "state borders, assert control over state populations, and overdetermine action and contestation" (Tuck and McKenzie 2015, 134); they are means by which settlers assert and conceptualize the boundaries and divisions of place and land. They point to the settler-colonial logics that are overlain upon land in order to shape material practices and experiences, even as "multiple Indigenous scales … intervene in settler colonial projects that have erased Indigenous bodies and threatened [their] radical relationship with territories" (Recollet 2016, 94). As Kyle Whyte explains, settler and Indigenous geographies interact and become enmeshed as settlers work to establish their own geographies out of Indigenous ones, which usually involves bringing in materials and beings from elsewhere to create their ideal spaces (2018, 135). Thus, settler grammars attune analysis towards the practices that form place, while settler geographies, cartographies, and scales reveal the boundaries, borders, and distributions of land and beings that comprise those places. These tools overlap and interact, providing a deeper method of approaching how settlers include or exclude wetlands from colonial spaces and places through material and discursive practices.

One especially important grammar that was deployed to deal with the fluidity of wetlands was mapping, which served to assert very explicit and literal settler cartographies. Mapping includes not only the traditional physical maps with place-makers, defined boundaries and

divisions, but also the stories and narratives that are told and retold about lands and places. The settler-colonial process of making maps and asserting place names "reorganized space on a slate made blank—by drawing borders, by coding what (and whom) lay inside and out, by erasing" (Savoy 2015, 75). Maps and narratives require abstraction and value decisions about what to include and omit. As a result, maps and their accompanying narratives reflect cultural values and vantage points and include "implicit framings of the present and selected projections into the future and the past" (Chen 2013, 287). Maps create frames through which settler geographies can be enacted; the defined boundaries on maps serve as guides for remaking the land to fit those boundaries. The mapping of areas and defining of plots allows for land to be allocated and the codified as property (Harris 2004, 175). However, wetlands pose a problem for mapping, and for abstractive settler logics more broadly, because wetlands, like all lands and bodies of water, are not actually the blank slates that settler-colonial logic assumes. Rather, wetlands have particular characteristics and dimensions that undermine settler efforts to enact specific desires in and upon them.

Put simply, wetlands are "neither strictly land nor water… they are both land and water" (Giblett 1996, 3). Bower and Vileisis both argue that the wateriness of wetlands, and their fluctuating edges, posed unique challenges to settlers who sought to divide wetlands into discrete plots of private property (2011, 7; 1997, 316), while Ogden describes wetlands as "a landscape of amphibious ambiguities" (2014, 46). This ambiguity matters in the context of settler-colonial efforts to make them knowable and definable. As James Scott explains, "the very concept of the modern state presupposes a vastly simplified and uniform property regime that is legible and hence manipulable from the centre" (Scott 1998, 35). Wetlands, being both dry land and flowing water, prove especially difficult to be legible from the centre. Jeremy Chow and Brandi Bushman highlight how "the wetland, as a fluid, unfixed entity, never strictly water or land… subverts human definition and ownership and promotes similar fluidity, a slipping and sliding away from dominant, normative ontologies of gender, sexuality, and identity" (Chow and Bushman 2019, 101). They underscore the queer potential of wetlands, which is not an inherent trait, but rather a potential queerness that arises in relation to settler efforts to enact binarist divisions between land and water upon them. Settler efforts to contain and constrain wetlands position them as outside of normative conceptions of what "proper" land should be. A tension then arises between wetlands as dynamic configurations of water and land, and maps as static snapshots of a

particular moment of that configuration (Giblett 2014, 149). This tension was addressed by settlers who worked to reshape wetlands to fit the edges defined in the process of map-making.

Reclamation was a key grammar for remaking wetlands into the map-based representations of them. Land reclamation was not practiced solely in colonial spaces, as the terminology and accompanying practice of drainage and cultivation were deployed in Europe as well (Novello and McCann 2017, 466). However, reclamation takes on a different meaning when pursued in the context of settler-colonialism. Reclamation served to establish an implicit narrative structuring of a space. To reclaim something suggests that there was previous ownership or control that has been lost (Sluyter 2001, 411). Settlers were not simply claiming land as their rightful properly; they were, narratively, *re*claiming the land, discursively *taking back* something that, in this story, was rightfully theirs to begin with. Reclamation appeared to be a re-assertion of rights over the land, further erasing Indigenous peoples and their relations to land by alluding to a deeper, more "true" relation (of settler-colonial ownership and domination). Reclamation also pointed to a particular, imagined future based on settler desires for productivity, domination, and control. Through the embedded practices of drainage and cultivation, reclamation staked out a future land that was productive and bountiful as monocrop fields. Settlers "reclaimed" the land in order to transform the, to them, undesirable and useless wetlands into flourishing farms. Thus, reclamation positioned a temporary break in an otherwise continuous thread: the past and future both belonged to the settler, and the present was the period of re-orienting the land into its proper and rightful form.

Optimizing productivity

Of course, while land "is what is most valuable, contested, required" in settler-colonialism (Tuck and Yang 2012, 5), settlers acquire land in order to make it valuable and profitable. Thus, the second intervention I make is to contextualize how wetlands are governed and biopolitically optimized for capitalism. In the process of settlement, European settlers were not primarily seeking to acquire and control land for the mere sake of attainment: they explicitly desired land with the intention of ensuring it "produced" particular materials and/or completed particular functions. Settler-colonialism is thus enmeshed with capitalism as an "accumulative and acquisitive force" that "detaches people from places and moves them into other zones for productivity, accumulation, and territorial settlement" (Simpson 2014, 17). The abstraction of

land through mapping and divisions into property enabled the commodification of land whereby land became ahistorical, stripped of meaning and memory, and thus "exchangeable, saleable, and steal-able," while human relations to that land are flattened to that of owner and property (Tuck and McKenzie 2015, 64). As a capitalist commodity, land also becomes incorporated into biopolitics: what Michel Foucault describes as the rise in techniques of the state to manage individuals on the level of the population towards optimized health and productivity (1990, 139). Land owners are driven to increase the productivity of the land in order to profit from both the material resources they extract from it and from selling it (Jones 2019, 28). As Nicole Seymour argues, the governance of land towards economic productivity is strongly tied to the management of social and biological relations, such as those of nonhuman animals and plants cultivated for harvest (2013, 112). Reproduction is a key component, then, of capitalist productivity and, as such, Seymour's combined term "(re)productivity" showcases how the treatment of land depends on a sexual politics of managing intimacies (2013, 111).

Settlers have struggled with managing wetlands and directing them towards economic productivity. They have repeatedly and consistently imagined wetlands as in need of change and transformation. Wetlands have been sites "of the virtual, of the not-yet-real, of dreams and expectations" (Reinert 2016, 721). Historically, wetlands impeded North American colonization, and hindered settlers from cultivating the land. They were "trackless wastes" where people "could be easily lost and sucked into bottomless mires" (Matthews 1993, 6). In the face of unintended environmental harms such as soil erosion or declining waterfowl numbers, settlers shifted towards conserving wetlands and affirming their inherent value (Matthews 1993, 1). Scholars like Prince have been critical of these shifts in views, highlighting how calls for conservation came with renewed efforts to increase or maximize the capacity of wetlands to perform the desired functions of water filtration, groundwater replenishment, or recreational potential (1997, 335). It is, then, helpful to consider how the different relations between settlers and wetlands, especially in strategies of reclamation or conservation, might be understood as successive campaigns aimed at the continued goal of rendering wetlands productive according to settler-colonial desires.

The incorporation and conception of the nonhuman into capitalist modes of production has not static. This "metabolization" of nonhuman nature has shifted historically, and "*how* it is included … matters" for understanding "the distinction between the ecology that capital can

'see', and ecological distinctions that are hidden to the 'one-eyed imperatives' of capital" (Robertson 2006, 369, emphasis in original). As Catriona Sandilands argues through her notion of the "vegetariat," "capitalist accumulation is not possible without the ever-intensifying exploitation of the surplus labor of plants" (2017, 22). The exploitation of plant labour is an essential component of capitalism, though what labour of which plants is a critical question to interrogate. The plants that matter within capitalism, and how they are managed and exploited, have not remained the same historically, a point underscored by the history of wetlands. Through initial reclamation efforts, settlers by and large did not perceive value in the plant species that populated wetlands. Instead, only the land itself, and the nutrient-rich soil that had been formed through the labour of wetland plants and waters, were of concern. Settlers wanted to bring in different plant species—namely agricultural crop species like wheat or corn—to grow in those areas. Settlers exploited wetland plant species for their creation of nutrient-rich soil, and agricultural plant species for converting these soil nutrients into commodifiable forms.

The shift towards viewing wetlands as biologically productive and ecological valuable gave rise to capitalist forms of inclusion of different nonhuman beings. Increasingly, settlers understood wetlands as performing "functions" or "ecosystem services" (for example, see de Groot et al. 2006; Jenkins et al. 2010). The conception of nonhuman natures in general, and wetlands in particular, as "service providers" enabled the commodification of conservation (Sullivan 2013, 205). Neil Smith argues that the scarcity and ecological value in water filtration or carbon sequestration became the basis for wetlands' exchangeable value as a commodity (2009, 18). This move to consume newly commodified wetlands was "an imposition of one hegemonic relationship—capitalist exchange—onto a landscape of many other relationships and intimacies, relationships that are often destroyed" through their very commodification (Sandilands 2010, 338). Wetlands shifted from potential sites of production or sources of extractive resources, into commodities based upon the maintenance and optimization of their particular state of being. Their value now came from "so-called non-consumptive use" (Büscher and Fletcher 2015, 276). The value of wetlands depended upon the governance and control of nonhuman beings and relationships to increase the desired kinds of labour. Owners now cared about and sought to direct the presence and distribution of plant and nonhuman animal species like reeds or waterfowl, or larger entities such as the water table, in order to promote carbon sequestration, water filtration, etc.

This conception of wetlands as ecosystem service providers and ecological commodities drove a rise in settler grammars and practices of conservation and "new" forms of reclamation. Conservation efforts, as I have argued elsewhere, are predicated on overlaying a binary of "pristine or polluted" upon landscapes and equating noticeable human presence as inherently polluting (Butler 2017, 277). This conception, which is rooted in a Western worldview that separates humans from nature (Gaard 1997, 138), fails to consider how humans might have relationships with nonhuman beings that are not purely extractive or violent. Conservation thus arises out of an attempt to minimize human impact in order to optimize ecological functioning. Human relations to wetlands are thus diminished and restricted as part of a wider environmental governance regime that deploys "a discourse of self-limitation and self-denial" (Sandilands 1999, 80). Wetlands are conserved *for* humans by being conserved *from* humans. This constraining of human relations to or within conserved nature becomes another settler reconfiguration and reshaping of Indigenous relations. Settler governments further restrict, disrupt, and hamper Indigenous peoples' relations with their traditional lands under the guise of protecting or preserving those lands for future generations (Whyte 2018, 125). This process has significant impacts as settler-colonial conservation efforts, particularly through carbon or biodiversity offset markets, have involved the forced displacement of millions of Indigenous people across the globe (Chatty and Colchester 2002, 4; Lunstrum and Ybarra 2018, 114; Cavanagh and Benjaminsen 2014, 57).

Alongside conservation has been a reshuffling of reclamation. No longer incorporating the practices of drainage and cultivation, this modern permutation of reclamation is premised on restoring damaged or removed wetlands. Reclamation has come, now, to focus on diminishing the destruction caused by economic processes and recreating a healthier environment for future generations (Novello and McCann 2017, 479). As Eli Clare explains, the goal of environmental reclamation is "to mirror th[e] historical ecosystem as closely as possible, even though some element is bound to be missing or different, the return close but not complete" (2017, 15). Yet, in working to mirror historical ecosystems, settlers make choices about what exactly they are mirroring and thus what elements or features matter or not. Often the valuable ecological functions are the key indicators of successful reclamation, resulting in concerned evaluations that "ecosystem services may not be fully recovered even when wetlands appear to be biologically restored" (Moreno-Mateos et al. 2012, 6). In other words, in this logic, wetlands are not restored,

even if nonhuman beings have re-populated them, unless those beings are fulfilling their capacity to perform certain forms of expected and desired labour. Kimmerer highlights how reclamation fails to consider and address the underlying relations that drove ecological harm in the first place (Kimmerer, quoted in Tonino 2016). Instead of restoring "relationships of respect and reciprocity" with a place, settler reclamation frameworks are based on "an abstract idea of what is 'natural'" (Kimmerer, quoted in Tonino 2016). The reclamation and conservation of wetlands remains grounded in directing nonhuman relations toward economically measurable, valuable, and exchangeable production for settler-colonial ends.

Watery relations

The final major intervention I aim to make into wetland histories is to highlight and centre the watery nature of wetlands in narrative. Wetland historians and scholars often underscore how wetlands are a complex intermingling of both land and water, a space where "terrestrial and aqueous communities mingle" (Chen 2013, 282). Ultimately, however, they approach wetlands as land; in this conception, wetlands are landmasses that have water on top of, in, or flowing through them. I endeavour to integrate in this project the more recent theorization that has focused on thinking with, through, and as water, as a means of exploring wetlands as bodies of water. By exploring wetlands as bodies of water, questions of movement, connectivity, and relations are brought to the forefront.

Generally speaking, scholars thinking with water suggest that such inquiries "ask[] that we deterritorialize *how* we understand where we live and that we consider ongoing relations with others—whether these relations join us to other locations, other beings, or other events and spacetimes" (Chen 2013, 275). Water becomes an entryway into rejecting the supposed boundedness of place. Using the movements of water as a frame for approaching landscapes attunes analysis to the ways these landscapes experience movement and change along spatial and temporal dimensions (Gagné and Rasmussen 2016, 140). This theorization is especially useful with wetlands, given that their edges fluctuate depending on season and rainfall, and as a result of different reclamation and/or conservation practices. Wetlands are dynamic spaces of movement, and water is a critical constituent in this mobility. Further, following the movement of water requires questioning how its movements, distribution, and presence are shaped by political endeavours (Krause 2017, 404). Alongside capitalist efforts to optimize particular

productivities of plants, are similar endeavours to optimize water in these modes of production. Thus, Chow and Bushman describe water as "policed, inhibited, or persecuted" (2019, 97). This point is especially clear regarding wetlands, as wetlands were drained of water during early reclamation, so that water could be re-introduced to the land through irrigation systems which constrained where the water was, how much water was present, and how the water left the land. Through conservation and restoration, water is added to wetlands in different ways, in order to achieve the "optimal" or "ideal" water level that fosters carbon sequestration or filtration services. Settler dreams and goals for wetlands are bound up in directing the movements of water and are often thwarted by unruly waters that refuse to follow the channels laid out for them.

Further, thinking with and through water illuminates nonhuman relations, agency, and action. Astrida Neimanis directs her analysis to water in order to develop "an understanding of embodiment as both a politics of location, where one's specific situatedness is acknowledged, and as simultaneously partaking in a hydrocommons of wet relations" (2017, 3-4). Water travels across boundaries and through bodies, highlighting how vast material relationships are formed through these movements. Indigenous scholars have also written on the agency and relations of water and other nonhuman beings. Mohawk and Anishinaabe scholar Vanessa Watts underscores how agency is not simply the realm of the human, as it is often viewed in settler worldviews; instead, nonhuman beings, including land and water, are alive, thinking, and have agency (2013, 21). She stresses the understanding that "non-human beings choose how they reside, interact and develop relationships with other non-humans" (2013, 23). Métis scholar Zoe Todd turns to water in exploring human/fish relations, to both challenge the colonial violence of water violations through pipeline leaks (2017, 104) and affirm that Indigenous relationships with nonhuman beings are "concrete sites of political and legal exchange" (2013, 222). Both Watts and Todd demonstrate the necessity of resisting the settler impulse to position nonhuman beings as passive entities upon which humans act, and instead affirm their own agency in engaging with humans, both Indigenous and settler. Finally, as Todd argues, there is a necessity to "consider the web of colonial and decolonial relations into which water brings us both within and outside of urban spaces" (2016, 94). The movements of water on this continent are entwined with both settler-colonialism and Indigenous resistance, which shape relations to water and the relations that are carried by the water.

Metaphors are also a key aspect of how water can shape wetland discourses. On a methodological level, Nancy Tuana's notion of "viscous porosity," draws upon characteristics of water to further analysis of environmental histories. Viscous porosity explores "the rich interactions between beings through which subjects are constituted out of relationality" (2008, 188). Viscosity underscores how flows can move at difference paces, while porosity questions the boundedness of subjects (2008, 193-4). Together, viscous porosity primes analysis of wetlands in terms of how they have simultaneously shaped and been shaped by humans to different extents, degrees, and speeds in different geographical and temporal contexts. Each wetland has unique collections of relationships that must be charted and explored. Water is also typically seen as "a restless substance, in continuous movement and transformation, simultaneously singular and not singular, identical and not identical with itself" (Reinert 2016, 717). Metaphors of flow and movement become ways of evidencing the fluctuating dynamics of wetlands. Their edges, water tables, and plant coverages shift and move as different conditions and contexts arise. Words with the prefix "re-" seem to appear often in the history of wetlands, most obviously in the language of reclamation and restoration, and help signify wetlands as fluid places in motion. Wetland waters recede and re-emerge based on precipitation. They respond to encroachments; settlers reclaim, reduce, and restore wetlands even as they remake, redraw, and reshape boundaries. Watery metaphors around flow and mobility attune wetland histories to how "wetlands" as bounded spaces—in terms of geographical distribution, elements, relationships, and practices—are not static but rather in constant flux.

Of course, wetlands also lend themselves to watery metaphors that are focused more on immobility. To be "bogged down" or "swamped" is to be rendered overwhelmed and stuck. Wetlands, in addition to inviting metaphors of movement and flow, suggest others of sinking, of being stuck, and of being still. These metaphors that highlight lack of movement are particularly potent in the face of histories of settler attempts to reclaim and transform wetlands. Wetlands are difficult to drain and remain stubbornly wet at times. Thus, these metaphors open up avenues to explore how wetlands resist incorporations into the capitalist production that settlers enforce. Finally, where "depth" has been used to discuss the stretching inaccessible frontier of capitalist expansion (Reinert 2016, 719), wetlands highlight the shallow. The water of wetlands does not hold the promise of near endless expansion downward. Instead, it holds everything close to the surface, enabling it to (re)emerge at any point and any time. This capacity is especially important

given how much of wetland space exists in states of stagnation or slow decay. While stagnation and decay are often perceived negatively in Western contexts, I would like to consider them as instead pointing to the lasting persistence and slowed disappearance of substances. Stagnation primes analysis for the ongoing, long-lasting effects and relations that extend beyond the periods of obvious connection. The settler desire to drain and cultivate wetlands continued on well after governments began working to conserve wetlands, just as Indigenous relations to wetlands have persisted long after settlers appeared and began working to sever these relations.

Methodology

Informed by these theoretical trajectories, this project presents an environmental cultural history of what is now commonly referred to as Burns Bog, a wetland along the western coast of British Columbia. While situating the history of Burns Bog within wider histories of wetlands across the continent, as discussed above, I aim to understand how particular relationships, practices, and dynamics have given rise to Burns Bog more specifically, by tracing the bog as a series of local, shifting practices. This historical account "chart[s] the continuities, discontinuities, adjustments, and departures whereby a logic that initially informed frontier hilling transmutes into different modalities, discourses and institutional formations" (Wolfe 2006, 402). I rely largely upon archival documents, including newspaper articles and government reports, that I accessed through the Delta Museum and Archives Society, the Burns Bog Conservation Society (BBCS), and the BC Historical Newspapers Open Collection housed online by the UBC library. I worked with Darryl MacKenzie, the curator for the Delta Museum and Archives Society, and Nikoali Karpun, the education coordinator for the BBCS, to navigate their respective collections.

Initially, I had intended to conduct interviews with representatives from the Tsawwassen, Stó:lõ, and Katzie First Nations, the BBCS, and the Delta municipal government in order to supplement the archival material. Unfortunately, I was unable to do so due to time constraints. I did not feel that I would be to properly establish good research relationships based on reciprocity and community ownership of knowledge (Ten Fingers 2005, 56; Ball and Janyst 2008, 48; McGregor et al. 2010, 109). I was especially concerned that I would not be able to ensure that Indigenous participants retained control and final approval over my use of their narratives within the paper before submission. I therefore decided to not conduct any interviews and instead limit the scope of this paper to existing written materials, with the intention of continuing the research

after completing my degree. I therefore see this paper as the initial research of an ongoing research project that is not so tightly bound by academic deadlines.

As a result, I have turned to secondary sources, in particular ethnographic accounts, to address the gaps in the record. This methodological limitation is especially of concern in terms of the Indigenous histories with the bog, as there was minimal primary documentation in the archive. Further, there were additional challenges with the temporal distribution of archival materials. While there are materials available starting with the 1880s, the vast majority cover the period of 1980 to the present. I thus had to rely upon more secondary sources to present a fuller history of the earlier time periods.

A point of special concern for this project is the reliance on secondary sources, and specifically sources that were prepared by settlers, to account for Indigenous histories. It is critical to recognize how state archives "legitimize the nation state by excluding Indigenous voices, bodies, economies, histories, and socio-political structures" (Fraser and Todd 2016). The archival sources cannot be taken at face value as providing a full or exhaustive account of the bog. Instead there is a need to contend with how these archives play a role in creating settler-colonial knowledge, categories, and narratives (Stoler 2002, 89). Further, there is a need to recognize where and how Indigenous knowledges, traditions, histories, and voices are included or omitted within these sources (Tuck and McKenzie 2015, 58).

While I have sought to incorporate the voices of Indigenous scholars to extend or nuance the existing materials, I also have taken cues from Rifkin's readings of settler literature. Rifkin outlines a mode of reading that "looks for the textual traces of quotidian ways of (re)producing the givenness of settler jurisdiction, placemaking, and personhood, attending to the means by which writings that feature neither Indians nor the expropriation of Native lands register the impression of everyday modes of colonial occupation" (2014, 10). The stories of settlers reveal dynamics of settler-colonialism, and I approached the archival material with attention to how settler-colonialism has been made visible and invisible in different moments. Ultimately, this is not a comprehensive history of the bog, but one that aims to capture how settlers have created Burns Bog as a place and the iterative settler geographies that have subsumed the bog. Through a close reading of the archival materials for logics of settler-colonialism and capitalism, I provide a history that opens up avenues for recognizing, affirming, and supporting Indigenous relations to the bog.

Within these limits, the following chapters will explore the history of Burns Bog and pay close attention to the question of what it means for Burns Bog to not only have practices but to be a practice in and of itself. Burns Bog does not simply exist, it is brought into existence and perpetuated through a constellation of actions and narratives that shore up the edges of the bog and affirm a particular state for it. Human and nonhuman beings interact, engage, and at times disengage in order to create a place of multiple and overlapping meanings, understandings, and presences. Through this paper, I seek to begin an accounting of these fluid relationships and movements.

Chapter 2 – (Re)Forming the bog

> What you've had was a small glimpse of MacKenzie's voyage to the Pacific. This journey saw them facing many challenges, many of which they would not have been able to overcome without the help of multiple First Nations groups. Their guidance in navigating the terrain and the grease trails, as well as the canoes they provided were instrumental in the success of this mission. (Chandrawansa and Samson 2017)
>
> -Bog Escape 2017, "Unlocking the West"

Burns Bog has not always existed. In fact, the large peat bog has only had the name "Burns Bog" for the last roughly 90 years. Throughout and before these 90 years, this land has undergone and continues to undergo large-scale transformations. Due to this malleability, one must contend with how Burns Bog is continually redefined by the ongoing processes that come to make up what the bog is. One must question what "counts" as part of the bog, what land is included and excluded, what practices are allowed or discouraged, and which nonhuman and human presences are promoted or discouraged as threats to the bog's existence according to particular desires for the place and the relations that it sustains. One must therefore trace how the human and nonhuman relations, configurations, and settler-colonial practices have coalesced into the place that is now called Burns Bog.

This chapter explores the history of the bog prior to its becoming Burns Bog. In particular, I am concerned with how notions of ownership and property were formulated in and asserted onto the bog, including how the bog came to be viewed as a landmass from which water should be removed. The chapter begins by outlining how water, sediment, and plants interacted to form the bog historically. After this nonhuman history, I look at some of the history of Coast Salish First Nations in relation to the bog, considering the multiple practices, dynamics, and movements that mark the pre-colonial bog. The chapter then explores how settlers initially approached the bog, particularly around practices of map-making and reclamation. I also discuss some of how First Nation practices with(in) the bog changed as a result of settler-colonialism. I then turn to the two major early owners of the bog, the Lorne Estate and the Burns' Ranch. Regarding the Lorne Estate, I focus on the underlying motivations that drove the purchase and initial reclamation efforts. For Burns' Ranch, I am especially concerned with Dominic Burns' attempts to establish a cattle ranch. Across both periods, I trace how settlers began to perceive

the bog as a place, and what kinds of expectations they had for the bog. Finally, I highlight additional settler practices in the bog, outside of property ownership and reclamation for agriculture.

From sea to marsh to bog

Understanding how the bog formed requires speaking to how water, land, and plants shape one another, in a flowing dance of emergences and disappearances. The bog is located on what is contemporarily called the Fraser Delta, which began to form 11,000 years ago at the end of the Fraser Glaciation (Ho et al. 2004, 6). The water from melted glaciers flowed down the Fraser River, carrying large amounts of sediment that were deposited as the river met the Strait of Georgia/Salish Sea (Ho et al. 2004, 7). The sediments built up and as sea levels rose and fell, the delta experienced periods of submergence under, and then re-emergence from, the sea (Burns 1997, 15; no relation to Dominic Burns). Roughly 5000 years ago, the Fraser Delta experienced the frequent flooding of sea water and was covered in tidal marshes (Hebda 1990, 1). As silt and sand built along the front of the delta, they blocked sea water from entering and created a space for plants to grow (Howie 2003, 77). Over the following thousand years, as the silt levees and plants further blocked the brackish water's entrance, the delta was increasingly fed by fresh-water sources, predominantly groundwater and rainwater, which led to the plants that survived in the brackish salt water seceding to plants that better thrived in fresh-water areas, such as sedges and grasses (Hebda et al. 2000, 29).

At this point, the area was technically a marsh according to the Canadian Wetland Classification System. This classification is due to its nutrient-rich water groundwater and floodwater sources, fluctuating water levels, and the sedge and grass vegetation (National Wetlands Working Group 1997, 45). The area received large amounts of clay deposit from the Fraser River that prevented the water from draining away; the water level remained high in the marsh and, as a result, as plants died, they sank below the water and only partially decomposed (Metro Vancouver 2007, 3). This layer of incompletely decomposed plant matter, called peat, formed the initial build-up in the marsh, and it continued to accumulate (Howie et al. 2009, 429). By around 3000 years ago, the water feeding the marsh came less from nutrient-rich flood water and groundwater, and instead came from nutrient-poor rainwater (Ho et al. 2004, 22). This shift in water source and nutrient content caused the peat formation to become increasingly acidic,

which caused a decline in grasses and sedges and enabled new plants like Sphagnum to thrive in their place (Howie 2003, 78). Sphagnum is a genus of mosses that are able to hold up to 30 times their weight in water within their cells (Burns 1997, 17). Due to this ability, and their tolerance for highly-acidic conditions, Sphagnum mosses are able to flourish in bogs, further increasing the acidity of the water, slowing bacterial activity and decomposition, and building up a thicker layer of peat (Ho et al. 2004, 26). After the shift in water nutrient content and vegetation, as well as the peat layer building up enough to reach the water surface, the area could be classified as a bog instead of a marsh (National Wetlands Working Group 1997, 19). Through the shift to Sphagnum and their continual accumulation in the peat, the peat layer built up especially high in the centre of the bog, resulting in the raised dome shape that it has now (Ho et al. 2004, 22). It is unclear exactly how large the bog was prior to colonization, which began with Spanish and British explorers reaching the west coast in the late eighteenth century (Barman 2007, 29). However, estimates of the bog's size range from 3,600 to 10,000 hectares, with 4,800 hectares generally taken as the most accurate or likely estimate (Hebda et al. 2000, 31).

The bog was not the only wetland, nor even the only peat bog, that formed in the Fraser Delta. The Fraser River flows into the Pacific Ocean through a number of channels across lowlands that fostered the development of numerous kinds of wetlands (Murray 2016, 3). Other marshes formed and remained marshes, populated by sedges and grasses, while tidal flats along the coast supported eelgrass, clams, and snails (Murray 2016, 5). Several peat bogs formed as well, with two forming on the island just across the river from Burns Bog now known as Lulu Island (figure 2.1). Like Burns Bog, other bogs in the Fraser Delta experienced massive drainage campaigns and were significantly reduced in size (Murray 2016, 5). In fact, the Lesser Lulu Island, which was initially 1520 hectares in size prior to European colonization, is completely gone while the Greater Lulu Island Bog has diminished from 1870 hectares to a mere 23 (Ho et al. 2004, 20).

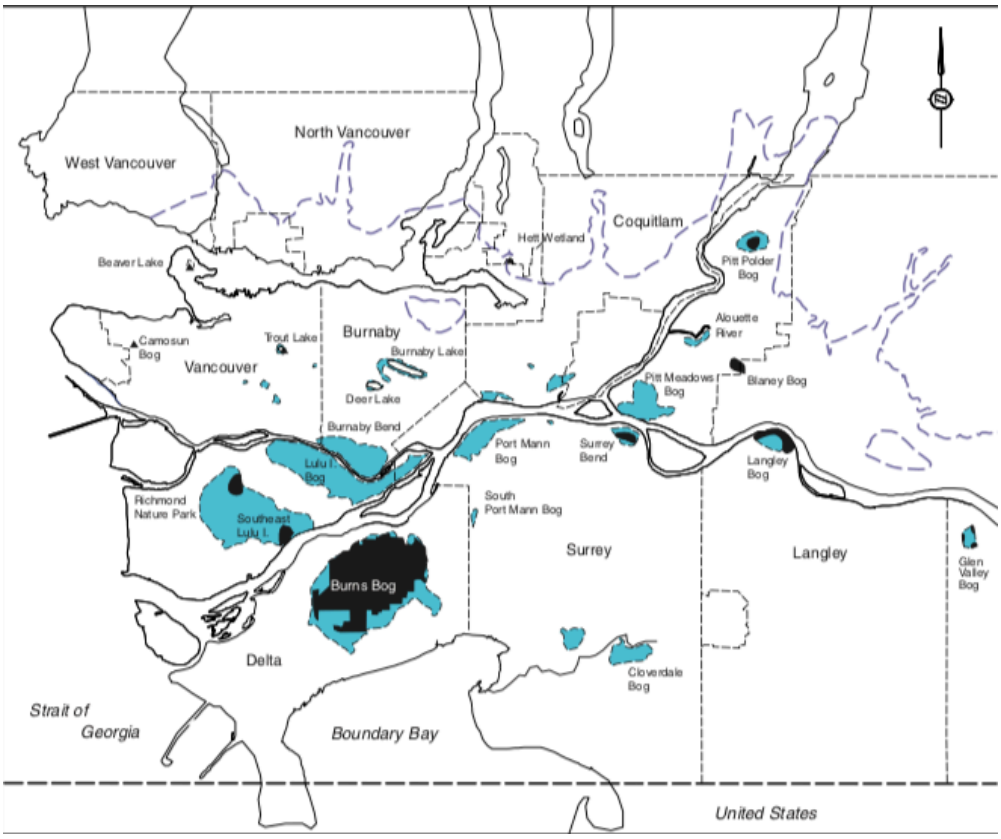

Figure 2.1 - Map of historical peat bogs in Fraser Delta.
The map shows the historical boundaries of peat bogs in blue and the boundaries in 2000 in black for comparison (Hebda et al. 2000, 181).

Pre-colonial Indigenous bog relations

Many different Coast Salish peoples have longstanding relations with the bog that preceded European colonization by millennia. The archival sources are generally vague and brief when describing these relations and histories, though ethnographic works provide more information. Typically, the bog is described as part of the traditional, unceded territories of the Tsawwassen, Semiahmoo, Stó:lõ, Katzie, and Musqueam First Nations (Hebda et al. 2000, 31; Ho et al. 2004, 160; Metro Vancouver 2007, 4). However, the map of Indigenous territories produced by the organization Native Land Digital shows that the bog also sits within the traditional territories of the Tsawout, Kwantlen, and Stz'uminus First Nations (2019). Many different Coast Salish Nations have overlapping territories that encompass parts of the Fraser Delta, as well as Vancouver Island and the Gulf Islands (and south into what is now the United States), and portions following the Fraser River inland (figure 2.2). Thus, to speak of Indigenous peoples' histories with the bog is to speak of multiple and distinct traditions and relations.

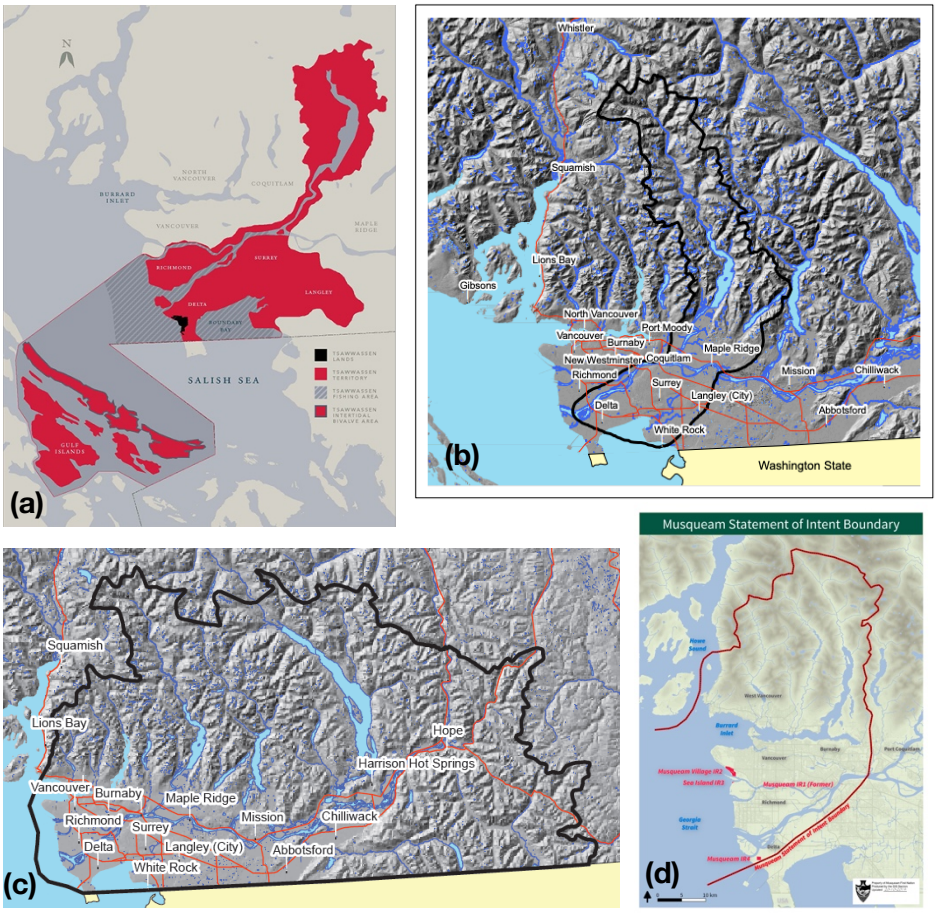

Figure 2.2 - Maps of First Nations' traditional territories
The maps show the traditional territories of **(a)** the Tsawwassen First Nation, outlined in red (Tsawwassen First Nation 2019b); **(b)** the Katzie First Nation, outlined in black (BC Treaty Commission n.d.); **(c)** the Stó:lõ First Nation, outlined in black (Hui 2014); and **(d)** the Musqueam First Nation, outlined in red (BC Treaty Commission 2014).

Many of the texts that outline the history of Burns Bog, which were not compiled until the 1990s onward, present Indigenous relations to the bog as a purely historical fact, rather than an ongoing one. For example, a popular education book on the bog only uses past-tense to describe Indigenous relations to the bog: "native people who inhabited the Fraser delta used Burns Bog" (Burns 1997, 18). Similarly, *A Teacher's Guide to Burns Bog* describes the Stó:lõ people as having gathered plants prior to colonization and includes the prompt, "How do you think these resources were important to the Stó:lõ and to other First Nations groups?" (Atwal et al. 1996, 117). These texts are reflective of a broad dynamic whereby Indigenous relations are presented solely in a pre-colonial context. Conversely ethnographic accounts, such as those completed by William Duff (1952) or Wayne Suttles (1955) explore how Indigenous peoples'

relations to and practices with land continued following the arrival of Europeans, though usually with minimal details around the bog specifically. The framing of Indigenous relations to the bog as purely historical, as has been the case in most published accounts of Burns Bog, prevents consideration of how these relations have in fact continued into the present and changed or persevered in response to settler-colonialism. As a result, they diminish Indigenous claims to their territories by denying the ongoing nature of their relations. Throughout this section, I detail historical relations between Indigenous peoples and the bog, and I continue to return to those relations throughout the paper where there was information about contemporary practices.

Accounts of Burns Bog's history also tend to generalize about the different First Nations as a single group, speaking only of "native," "Indigenous," or "Coast Salish" peoples. This conflation creates a particularly large challenge when working to understand the diverse Nations' distinct relations to the bog. As a result, I have sought to provide as much specificity as possible in detailing the practices and relations to the land; given the time constraints, I was unable to do more work to untangle the generalized or outdated terminology and determine which First Nations are actually being discussed in the accounts. Where the histories of specific First Nations are detailed in published accounts, they typically focus on the Stó:lõ, Katzie, and Tsawwassen First Nations. For the Stó:lõ, the bog, or at least some portion of it, is named *Móqwem* (Ho et al. 2004, 161). During treaty negotiations between the Tsawwassen First Nation and the British Columbia government, then-Chief Kim Baird explained that part of their land on the bog is called *Heleqt*, and that it "contains numerous harvesting sites" (Baird 1999, 19).

The Tsawwassen and Katzie First Nations have noted oral traditions and stories related to the bog. The Katzie First Nation has a strong relationship to the greater sandhill cranes that live in the bog (Katzie Natural Resources). According to anthropologist Diamond Jenness, there is a Katzie story about two sisters who were gathering food along the river but instead mocked a spirit; the spirit, angered, transformed the sisters into cranes as punishment (1955, 26). A collection of Tsawwassen First Nation stories gathered by journalist Geraldine Appleby includes one about the bog: two men traveled to the centre of the bog, which was filled with monsters and had an underground river leading from the centre of the bog to the Strait of Georgia (Optimist 1961, 37). One of the men survived the ordeal and gained powers to fish and hunt without nets or weapons, but others killed him when children started to disappear (Ho et al. 2004, 162). By presenting this story, settler authors suggest that the story "might be based on fact as it is

believed that underground water channels once ran through Burns Bog" the discovery of which "could lead to the 'creation' of native myths" (Burns 1997, 75). In the case of both stories, it is difficult to ascertain whether they are accurately presented by the white translators, how they were received, and what is missing in the printed recounting of them. Settler authors from the 1990s onward have presented the stories as interesting and fascinating tales, without consideration of the teachings they hold or their ongoing social and ecological importance.

The bog was and is an important site for the hunting of a number of nonhuman animals. Common among all Coast Salish peoples is the centrality of salmon to their diets and worlds, and the bog provided access to the salmon as they swam up the Fraser River to spawn (Tsawwassen 2019a). The Tsawwassen people set up temporary homes in the bog during the summers to fish, given its proximity to the river (Burns 1997, 18). They also hunted waterfowl, especially ducks and loons, in the bog (Tsawwassen 2019a). According to anthropologist Homer Barnett, the hunters would hunt ducks at night by using torches and screens to direct ducks closer to their canoes so they could be caught with nets (Barnett 1955, 95-6). Finally, the Tsawwassen people also hunted black bears, deer, and elk in the bog (Hebda et al. 2000, 32).

Many Coast Salish also gathered, and continue to gather, berries and medicinal plants in the bog (Lyons 2000, 11). Several coastal First Nations ate bog blueberries (Turner 1995, 89). Similarly, salal berries were widely consumed and eaten either fresh when picked in late summer or dried into cakes to be preserved (Turner 1995, 77). Salmonberries another common bog species, were eaten fresh, while the sprouts were typically eaten with salmon (Turner 1995, 127). Bog cranberries were also important for all coastal First Nations, though the Katzie First Nation seem to have been the primary people to actually pick them. According to anthropologist Brian Thom, the parts of the bog where cranberries grew were named and owned by individual Katzie families (Thom 2005, 308). Those who wished to pick cranberries had to ask and receive permission from the family, who acted as hosts (Suttles 1955, 27). People picked the cranberries when they were still hard and green, then either stored them in damp Sphagnum moss or steam-cooked them (Turner 1995, 86). Finally, Labrador tea was another important plant found in the bog (Burns 1997, 75). Some First Nations preferred to pick the young leaves in early spring, while others waited until late winter and picked the older leaves; in either case, people made tea with the leaves, both fresh and dried (Turner 1995, 79).

In addition to plants that were eaten, First Nations communities gathered other plants to use for further purposes. Many Coast Salish used the cattails found in the bog and other marshes in the region (Barnett 1955, 13). They also gathered rushes in order to weave them into mats (Ladner 1979, 128). Skunk cabbage also had a number of uses. When picking berries, Indigenous people used cabbage leaves as covers for their berry-filled baskets (Turner 1995, 12). They also used the leaves when drying out berries, putting the mashed berries in the leaves and placing them near a fire for an extended time (Turner 1995, 14). First Nations also used the Sphagnum of the bog for things such as diapers, bedding, wound dressing, and cleaning fish (Atwal et al. 1996, 117). Suttles, Barnett, and Jenness do not mention the uses of Sphagnum in their ethnographies, though Nancy Turner and Marcus Bell discuss the use of Sphagnum and other mosses in cooking, bedding, and other household purposes (Turner and Bell 1971, 68). As Kimmerer suggests, Sphagnum mosses had many uses that may not have been noticed or described by anthropologists because "the most important uses of mosses, roles that reflect their best gifts, were everyday tools in the hands of women" (2003, 106-7). She points to how Sphagnum was used by Indigenous women for bedding and diapers for babies, as sanitary napkins during menstrual periods (Kimmerer 2003, 107). Kimmerer also discusses how essential Sphagnum was during salmon runs, with women needing large quantities of dry Sphagnum in order to wipe away the slimy coating on salmon before they could be smoked, and for the preparation of camas bulbs, where the bulbs where baked in between layers of wet Sphagnum that steamed them (2003, 107-8). In outlining such a deep level of intimate knowledge of Sphagnum, she highlights how much of a rich history of knowledge, practices, and relations are missing from this account.

Indigenous peoples also engaged in a variety of other practices in and around the bog. Based on the presence of ash layers in the peat, one study of the bog suggests that Indigenous peoples conducted controlled burns in the bog to promote the growth of berries though controlled burns may have served other purposes as well (Biggs 1976, 31). According to the Delta Municipal Heritage Register, controlled burns were supposedly conducted every 90 years (Delta 2017, 14). However, it is unclear from where this information was sourced, and I could not find another source that specified the frequency of these burns. The bog was also, perhaps because of its relatively gentle slops and minimal tree coverage, an important canoe portage between the Fraser River and Boundary Bay (Hebda et al. 2000, 31-2). Finally, the bog was also an important place for trade among First Nations. The cranberries picked from the bog were often traded to

First Nations communities in the interior (Duff 1952, 74). The Stó:lõ traded bog cranberries and blueberries to the Squamish and Straits Salish for camas bulbs and to the Nlaka'pamux for root vegetables not found in the Fraser Delta (Turner 1995, 18). Altogether, different Coast Salish people had diverse and distinct relations to the bog, and these relations continued, albeit often in quite different forms, after settlers colonized their territories.

Settling the bog

When European settlers arrived on Coast Salish territory, land surveying was a key component of colonization that settlers began and continued to practice. Dominion Land Surveyors began crossing the delta in 1859, measuring the land and "marking the legal boundaries of land for future purchase" (Ho et al. 2004, 162). This process of land surveying was carried out across the region, extending inward from the coasts. For the settlers, mapping "conceptualized unfamiliar space in Eurocentric terms, situating it within a culture of vision, measurement, and management" (Harris 2004, 175). Land surveyors initially treated the bog like a body of water, opting not to traverse the bog but instead to stay to the edges (Ho et al. 2004, 162). The bog could not be as easily mapped, and there was therefore a lag in the surveying process. As a result, while the rest of the delta was converted into narrow plots of property, the bog remained relatively elusive in the settler records until later on. It was an "uninhabitable" space that did not receive close scrutiny and division because it lacked the basic quality of desirability: it could not be easily commodified, so minimal effort was put into recording it.

While surveyors initially stopped at the edges of the bog when marking property lines, the recorded survey maps over several decades show property markers slowly seeping into the bog. In the 20-year period from 1879 to 1896, there was a consistent and clear effort to make the bog legible as property, as seen in the maps in figure 2.3. What started in the first round of surveying as a giant black hole of land, essentially a lake in the middle of divided sections of property, slowly became indistinguishable from the plots surround it (at least on paper). The giant lot 4 which encompassed much of the bog was first diminished by marking out plots along the edges of the bog. Then, large square plots were made across the entirety of the remaining lot 4. This shift coincided with the purchase of those plots as the Lorne Estate. Of course, given that the Lorne Estate only covered half of the estimated historical bog area, most of the plots around it were also bog. The maps' lack of detail about the actual characteristics of the land make it easy

to lose sight of this fact. The increasing plotting of the bog coincides with deliberate efforts to reclaim the land and transform the bog into farmland. Finally, the 1896 map showed the Lorne Estate only covering four large square plots on the bottom edge of the initial estate, while the rest had been plotted into the standard, smaller rectangular lots. These successively detailed property maps signified a growing confidence that the bog could be reclaimed. As settlers became more established in the region, greater attention was put towards transforming the bog.

Figure 2.3 - Delta property maps from 1876 to 1896
Segment of property line maps around the bog from: **(a)** 1876, showing the bog mostly encompassed in lot 4; **(b)** 1880, showing additional lots established on the east side of the bog and southeast corner; **(c)** 1888, showing large lots across the whole bog as well as the marked boundaries of the Lorne Estate; and **(d)** 1896, showing increasingly detailed and smaller divided lots across the north half of the bog (Delta Museum and Archives collection).

Initial reclamations

Around the bog, land was purchased rapidly in the latter part of the nineteenth century, with farms being well established by the beginning of the twentieth (Ho et al. 2004, 163). From the beginning of colonial settlement, settlers worked to drain the outer edges of the bog and convert the land into farmland. This was in line with settler practices elsewhere in the region, as rough 70% of wetlands in the Fraser Delta were dyked and drained by 1900 (Giblett 2014, 121). Early settlers built dykes and ditches on their own land to allow them to cultivate crops, though the municipality of Delta put in ditches alongside roads which provided additional drainage support (Ladner 1979, 37). The municipality relied upon Chinese labour for the excavation of public ditches (Ladner 1979, 55). As can be seen in figure 2.4, most settlers established themselves to the west and south of the bog. In 1895, all of Delta, except the parts east of the bog, were brought into a general dyking scheme that provided a more systematic oversight to the drainage of the region (Ladner 1979, 143). This scheme resulted in those sides being the most severely drained (Metro Vancouver 2007, 4). The transformation of the bog was a slow process of encroachment from the outside in; settlement first slowly consumed the lagg, the outer transitional zone between bog and surrounding landscapes which collected "mineral-enriched runoff from adjacent areas" that would otherwise go into the bog and alter its water nutrient content (Howie et al. 2009, 428). Given that the lagg is the portion of the bog with the lowest water table and the shallowest layer of peat, it was easier to drain and bring into cultivation. As the plots of land were rectangular, rather than conforming to the contours of the landscape, many settlers purchased plots of land that at least partially included some of the bog's lagg. Many settlers thus reclaimed the portions of their land that was bog in order to make their full plot arable and thus profitable.

There was also a strong desire to drain the bog in order to improve transportation. With minimal access through the bog, settlers travelled along a road that ran through the southern end of the bog, which was narrow and often led to settlers losing cows that strayed from the path and drowned in the bog waters (Ho et al. 2004, 163). The road can be seen in figure 2.4; it is the double dotted line that runs between the smaller plots below lot 4, and then goes northward on the east side of the lot. Initially, the road could not be used at all in the winter and was treacherous even in the drier seasons (Ladner 1979, 53). However, even after the road was laid with split cedar, it was too narrow for two wagons to easily pass one another; an attempt to pass a wagon often resulted in one of them going over the edge, which required both drivers to work to pull it back onto the road again (Ladner 1979, 55). The bog limited land travel out from Delta, creating frustration for farmers who wanted to take their wares to nearby cities to sell. It is thus unsurprisingly that the municipality was eager for someone to purchase and drain the land.

Figure 2.4 - Delta property map from 1890
The map shows more extensive ownership and plots to the west and south of the bog and fewer holdings to the east of the bog (Delta Museum and Archives collection).

Alongside surveying and purchasing the land, settlers aggressively and rapidly displaced Indigenous people, confining them onto reserves. In 1871, after land surveying and pre-emption were well underway, the Tsawwassen First Nation was pushed onto a small reserve of 400 acres on the coast (Baird 1999, 27). This meant that the Tsawwassen people had an average of 8.5 acres of land per person, while settlers were given 20 acres per person (Baird 1999, 28). Further, the reserve land on which the Tsawwassen were forced to live on was classified as Crown land, and thus settler governments maintained ownership and control over the land itself, while the land purchased by settlers became the settlers' private property with which they could do whatever they wanted. However, despite the forced relocation onto reserves, Indigenous peoples

were able to continue to access the bog to some extent, though the sources for this information is somewhat vague. An early settler in Delta said in a collection of interviews that Indigenous people (he did not specific which First Nations) continued to fish salmon and, at least until settler fishery and cannery operations were established, also sold some of their catch to settlers (Ladner 1979, 28). He also mentioned that Indigenous peoples, most likely Katzie First Nations, gathered and sold berries to settlers as well (Ladner 1979, 127-8). This practice created changes to bog cranberry harvests in particular, as settlers preferred the more ripe, red cranberries over the greener cranberries Katzie peoples typically picked. They took care to ensure no one picked berries until they were fully ripe as, "if the first pickers brought berries in too green, it caused the price to drop for all subsequent pickers, or so it was believed" (Suttles 1955, 25-6). As a result, Katzie First Nations, though potentially others as well, picked cranberries in two different periods: earlier in the season for themselves and then later for those to be sold to settlers (Turner 1995, 87).

The Lorne Estate

There is little material discussing the initial major purchase of the bog, but what secondary literature there is seems, in large part, to have made an error. The bog was named the Lorne Estate in 1888, and most sources state that it was purchased by John Campbell, the Marquis of Lorne, who had married Princess Louise—daughter of Queen Victoria—and was the fourth Governor General of Canada, on the promise to reclaim the land and bring it into cultivation (Delta Municipal Heritage Register 2017, 14). However, newspaper articles and government records from the time suggest that the bog land was actually purchased by a group of three men. The 1888 deed for the land, which outlines the purchase of 6,677 acres of the bog for the price of $6,677, lists Joseph Pemberton, Benjamin Pearse, and William Poole as the individuals acquiring the deed. Their reasons for naming the bog after the Marquis of Lorne, and whether he was connected to the bog beyond the inspiration for its name, is unclear; he did, however, visit the Fraser Delta shortly before the purchase (Ladner 1979, 121).

The details of the story about the purchase being based on the condition of reclamation are, in contrast, clearly correct. An 1884 article in the *British Columbian*, at the time the purchase was first being considered the syndicate, explained that the price of $1 per acre of land was significantly reduced and meant to reflect the "comparatively large expenditure of capital" it

would take "to reclaim a worthless and hopeless bog, and transform it into fruitful fields" (*British Columbian* 1884). The three men were given the land on the condition they invest money into draining the bog and making it productive. While they did not succeed in draining the bog, they actively worked to install dykes and drainage infrastructure throughout. However, even as they worked on reclamation, they also sold off a portion of the estate. A letter in the Delta Museum Archives shows that in 1886, they sold a quarter of the estate (approximately 1670 acres) for $600, which was much less than they had paid for its purchase. It is unclear why they sold off part of the estate so soon, though it perhaps suggests that they were not finding the bog to be as easy to reclaim as they had expected. According to the *Delta Times*, in 1904 the Delta municipal council directed funds towards the repair and maintenance of ditches and drainage systems for land reclamation on privately-owned lands (*Delta Times* 1904). The Lorne Estate was listed as a major recipient of funds, and in fact had one of the largest acreages of ditched land (*Delta Times* 1904). The syndicate was actively working to fulfill the condition of their purchase and drain the bog they owned.

The Lorne Estate became the first designation of the bog as a named place within the settler geography of the region, to which settlers could refer to, though it did not encompass the entire bog. Yet, as aforementioned, the Lorne Estate only covered approximately half the bog, while the rest was divided into smaller plots and owned by individual settler farmers. The names of the different farmers are visible in figure 2.4, though none of them became more widely connected with the bog in historical accounts. Instead, the Lorne Estate became the first settler place-name for the bog, despite being the last portion of the bog to be purchased. The purchase of the Lorne Estate brought all of the bog into private settler ownership and ensured that settlers were working, more or less assiduously, to reclaim the entirety of the bog.

Burns gives his namesake

The Lorne Estate did not last long and in less than twenty years Dominic Burns purchased the land holding. Burns was a wealthy businessman, having made his money from a cattle trade enterprise he ran with his brother Pat (Burns 1997, 78). Some accounts say that he purchased the bog (or rather, the vast majority of it) in 1905 in order to convert it into a cattle ranch (Ho et al. 2004, 163). In actuality, Burns' acquisition of the bog was a slower process spread over several years. In 1905, Burns purchased the remaining 5000-acre holding of the Lorne Estate. After that,

newspaper articles show that he continued to purchase additional plots that were adjacent to his bog holding for the next 6 years. In 1906, for example, he bought an additional 640 acres of bog land at $6.80 per acre (*Daily News* 1906). This final price was the result of a bidding way for the plot, which suggests that there was a growing interest in owning and draining the bog land. By 1907, Burns owned a total of 8000 acres of bog land that he was preparing to drain (Smith 1907). In 1911, he purchased another 120 acres of neighbouring plots, bringing his total property to 9000 acres (*Delta Times* 1911).

Despite the drainage and dyking undertaken by the Lorne Estate, the bog was still full of water, a fact that deeply frustrated settlers in the area. For instance, a 1908 article in the *Daily News* spoke of Delta farmers who "continue[d] to complain bitterly of the delay to their business" because they had to take the long road along the southern edge of the bog in order to reach New Westminster markets (*Daily News* 1908). It explained that "the extra distance and consequent delay and expense [wa]s very detrimental to the interests of the producers using this city for their market" (*Daily News* 1908).

Indeed, settlers seemed to share a near-universal view that the bog needed to be completely drained. In describing the 1906 land acquisition by Burns, an article in the *Daily News* said that the "new purchase is largely swamp land and will need to be dyked extensively" (*Daily News* 1906). The article continued by asserting that once the area was drained, it would be "one of the most valuable holdings in the Delta country" (*Daily News* 1906). The journalist was not the only person to believe that the bog would be worth a great deal once the water was removed. In fact, even those who did not own parts of the bog seem to have shared a certain communal excitement for the potential wealth that the bog's drainage promised. A poem entitled "A Dream of the Future" was published in the *Delta Times* in 1906 that mentions the bog:

> When wrapped in sweet repose last night,
> A fitful slumber o'er me,
> I dreamed of many a curious sight;
> Strange things appeared before me.
>
> A transformation scene took place.
> Beyond my understanding,

Most modern schemes had come to grace
The town of Ladner's Landing.
…
I saw a mighty cattle range,
Where bog and moss of late
Had held their sway, a wondrous change,
It was The Lorne Estate. (L. 1906)

The poem speaks to the excitement and hope for what the bog could be. The author lays out a series of examples of "modern schemes" that he (likely) hoped would be adopted, one being the transformation of the bog into a cattle range. The bog is a worthwhile subject of the poem, not as it existed at the time, but because of how it might look once reclaimed. The "wondrous change" speaks to a level of overcoming obstacles, namely the moss that had "held their sway." And the description of the cattle range as "mighty" furthers the idea of power, progress, and achievement. The replacement of moss by cattle signified progress and domination over the land. Like the 1906 article that spoke of how valuable the land would be once drained, the poem was an investment in a particular settler future that did not include the bog on its own terms. Settlers saw wealth and prosperity floating just below the surface of the water.

The poem also suggests that settlers were beginning to conceive of the bog as a place, which further inscribed settler conceptions of the region over Indigenous ones. Rather than describe it as simply a bog or the boggy lands, as previous newspaper articles had, the author referred to it by a name: the Lorne Estate. Here, the bog had achieved a level of distinctness in the public settler imaginary that set it apart from other bogs in the region. Even though the investor group that used the moniker of the Lorne Estate for themselves no longer existed—given that Burns had purchased the holding from them a year before the poem was published—the name carried forward and stuck. The bog continued to be thought of as the Lorne Estate even though it was technically not. During the initial five years following Burns' purchase of the Lorne Estate holding, the names "Lorne Estate" and "Burns' Ranch" were used interchangeably to refer to Burns' holdings. A 1907 article in the *Cumberland News* was the first to use the name "Burns' Ranch," though articles published in 1908 in the *Daily News* and the *Delta Times* both used "Lorne Estate." (*Cumberland News* 1907; *Daily News* 1908; *Delta Times* 1908). It was not

until 1911 that the bog began to be exclusively referred to as the Burns' Ranch (*Delta Times* 1911). This shift to naming the bog seems to have entrenched the area as a place within the settler geographies of the region.

"Progressive" reclamation

While settlers were discursively solidifying the bog into a place, they were also actively transforming the bog on a material level. As figures 2.3 (d) and 2.4 show, the portions of the bog surrounding the Lorne Estate/Burns' Ranch were owned as single plots by individual owners. These owners installed their own system of dykes and ditches to drain their plots; they also cleared away all plants that were present in order to open up the space for agricultural production (*Delta Times* 1905). These settlers worked to transform the land until it neither resembled the bog it had been, nor supported the relationships it had previously sustained.

Within the Burns' Ranch, the Burns family dedicated significant resources towards reclaiming the bog. A 1907 article in the *Delta Times* reported that a foreman had been hired to lead the "brushing and draining" of the entire Burns holding, based on a plan that: "a large ditch is to be run through the property as well as smaller ditches after which the property will be seeded down for pastoral purposes" (Smith 1907). An article in the *Delta Times* two years later spoke of the progress that had been made. The article reported that approximately thirty men were hired by Burns to work on the land and that through their work, the land was "being constantly redeemed" (*Delta Times* 1909). By 1911, Burns had sufficiently drained 800 acres of land to be able to cultivate hay and grain (it is not specified what grain was grown), and on other parts of the property had built one of the largest hay barns in the region, a lavish horse stable equipped with electric lighting, water pumps, and a giant ranch house (*Delta Times* 1911). At this point, Burns also began to realize the cattle ranch that he had been working towards for the past six years. He rapidly increased his cattle stock on the bog, going from 150 head in 1910 to over 8000 in 1911 (*Delta Times* 1911).

Newspaper articles from this period describe the Burns' Ranch with language that conveyed excitement and hope about the ranch and its potential. The ranch would be "paying [Burns] handsome dividends in a few years" (*Delta Times* 1909). The house Burns built on the property was "modern all through embracing all the comforts and conveniences of a city home" while the horse stable was also "splendidly fitted up with every convenience" (*Delta Times* 1911;

Figure 2.5 - Picture of Burns' Ranch manor house
Manor house is in the centre of the picture with a barn visible behind the house to the right and a second house on the left, taken in 1908 (Delta Museum and Archives collection).

figure 2.5). Amongst the men working the bog, the foreman had created "an excellent and up to date spirit of progressiveness" (*Delta Times* 1911). The 1911 article concluded that the ranch was "doing its share towards making the Delta district known to the outside world as one of the places where people do things" (*Delta Times* 1911). These descriptions of the ranch highlight modernity and wealth. Burns' Ranch was seen as a beacon of success and achievement for the emerging settler farming community of Delta.

Unfortunately for Burns, his cattle ranch on the bog was ultimately unsuccessful. Some of the cattle, too heavy to be supported by the peat, sank into the water and drowned; others ate the western bog laurel and bog-rosemary that grew across the bog and died from poisoning (Ho et al. 2004, 163). (Western laurel resembles Labrador tea, though it has pinkish flowers instead of white ones. Indigenous peoples who frequented the bog knew that western laurel is toxic and avoided it, see Turner 1995, 80.) Burns was unable to keep the cattle alive in the bog as it was, and he was not able to sufficiently reclaim the bog to the point that the poisonous plants and water were no longer dangers. It is unclear what Burns did from the mid-1910s until his death in 1933. A postcard from the 1920s shows sheep being raised

Figure 2.6 – Postcard depicting Burns' Ranch
Postcard shows sheep grazing on Burns Ranch, taken during the 1920s (Delta Museum and Archives collection).

on the ranch, though no other details are provided (figure 2.6). Beyond this, I could not find any newspaper articles about the bog during this time period, nor did any secondary sources include more details beyond the fact that the cattle ranch failed. Burns' Ranch disappeared from the public record during this time. Burns did not marry or have children and, as a result, after his death it took several years for his estate to be settled. His land holdings were sold in the late 1930s (Burns 1997, 78).

Other reshapings of the bog

While traveling across or around the bog via roads was still a challenge, other forms of transportation began to arise during this period. In 1907, land surveyors conducted new measurements of the bog, this time looking at elevation levels, as they were staking out the best route for a planned railroad extension (*Cumberland News* 1907). Surveyors had not previously collected information about the bog's elevation, so this pursuit of information marked settler consideration of a new dimension of the bog. The surveyors seemed especially interested in "following in the tracks which the big fire made several years ago" (*Cumberland News* 1907). Fires were a semi-regular occurrence in the bog which began more frequent as settlers made further encroachments into the bog. This new mapping of the bog for the railroad resulted in a slightly widened settler understanding of the bog, though only as much as was needed to make the bog legible for the new encroachment at hand. In 1913, poles were erected along the northern edge of the bog in order to extend BC Electric power lines through Burns' Ranch and to a part of Delta on the western side of the bog (*Delta Times* 1913). These different technologies, directed through the bog, opened up the region more and enabled settlers' further establishment.

A 1914 article in the *Review* also reveals that, beyond drainage and cultivation, settlers were engaged in hunting in the bog. A man was "accidentally shot by his partener [sic], near Burnes [sic] ranch, who mistook him for a deer" (*Review* 1914). Despite the activity occurring on private land, the article did not make any mention of hunting as an unusual activity, nor frame the activity as trespassing. This absence suggests that hunting was a common settler practice and that there was some system of tacit acceptance in place, whereby landowners allowed others to hunt on their property. While there are additional archival materials that provide more information about settler hunting in the bog in later decades of the nineteenth century, I was unable to find materials that discussed hunting practices during the early twentieth. This apparent

"settlers' agreement" raises questions about Indigenous access to the bog for hunting, fishing, and gathering plants in the same period. While Indigenous peoples continued to access the bog following the arrival of settlers, it is not clear how or if this access changed, or whether Indigenous peoples and settlers had different experiences of access to the bog.

Conclusion

The bog that is now known as Burns Bog formed over thousands of years as different waters, sediments, and plants affected and shaped one another, until the domed Sphagnum peat bog formed and grew. Prior to colonization, many Coast Salish peoples had relations to and with the bog, and also understood it as a meaningful place, yet European settlers worked from their arrival onward to replace Indigenous relations with their own ones of drainage and monocrop agriculture. Settlers initially struggled to understand how to approach the bog and how to transform it from undesirable wasteland and hindrance, as they initially saw it, into productive farmland. Land surveyors played a key role in making the bog legible within settler-colonial property systems, enabling both small farmers to begin draining the outer edges of the bog and larger owners to begin ambitious efforts to drain the entire bog.

Even though the reclamation practices in the centre of the bog largely failed to align the bog with the Lorne syndicate's or Burns and his family's visions, the efforts did manage to shore up the bog into a place that settlers could identify, and with which they could identify as places. Just as the layers of Sphagnum slowly built up over time to form the thick peat layers, the succession of major owners with extensive transformational desires built up to establish the bog as a place that mattered to settlers. The bog did not matter as a place that settlers wanted to maintain as it was; instead, the bog came to matter as a place that held the promise of wealth and modernity through its reclamation. By the end of the 1910s, the bog was a singular place for settlers that could be spoken about in its entirety. As the next chapter will explore, this process enabled debates among settlers about the best ways to make the bog useful.

Chapter 3 – (Re)working the bog

> You and your friends sneak into Burns Bog on All Hallows' Eve, unaware of the supernatural lurking in the shadows. Tethered to the land are 8 souls of World War II soldiers, killed by bombs made of the very peat you stand on. You must free their souls, or risk being trapped with them… forever! (BBCS 2016)
>
> -Bog Escape 2016 "Spectral soldiers: No man left behind"

By the time of Dominic Burns' death, the hope of reclaiming the bog and converting it into productive farmland was lost; perhaps partly because of Burns' dramatic failure, agriculture was no longer seen as the most feasible path for the further commodification of the bog. In the wake of this singular dream for the future came multiple possible futures and uses. A plethora of new practices and means of extracting value from the bog arose during this period; different schemes were engaged across the bog, including peat extraction, pipelines, railways, and landfills. In part, this increasingly complex geography of consumptive practices arose from the multiple entities that purchased portions of Burns' estate; unlike in early periods, no single person or group owned the entirety of the bog's centre. However, despite the new owners, the bog retained the Burns name; settlers stopped calling the bog Burns' Ranch and instead began calling it Burns Bog, reflecting their shift away from expecting the bog to be transformed into a cattle ranch and instead reflecting their growing acceptance of the bog's stubbornly wet ecology. Alongside the change in name, the map of property lines in 1950 shows a reversion away from the standard, small rectangular lots that had been projected onto most of the bog by 1896 and a return to the larger, square lots that echo the map from 1888 (figure 3.1). The bog became

Figure 3.1 – Delta property map from 1950
Segment of municipality of Delta property line map, showing a reversion back to larger lots in the bog, dated 1950 (Delta Museum and Archives collection).

Burns Bog and within its fluid boundaries multiple settlers worked to reshape the bog and the nonhuman beings on their property.

This chapter traces the different practices of consumption, extraction, and use that marked the 1930s through the 1990s, exploring the ways the bog was shaped and remade materially through these waves of encroachments and interventions. As in previous decades, water was a key consideration, and its presence and movements were directed and managed in new, and sometimes contradictory, ways. The bulk of the chapter focuses on the rise and fall of peat extraction in the bog, exploring how wider political and economic contexts influenced the operations and the particular extractive methods they employed. I then outline the multiple infrastructures that were built into and across the bog that enabled easier and greater access. The chapter then turns to the rise of landfills and waste disposal in the bog and considers how the conception of the bog as a wasteland perpetuated alongside other settler perceptions of the bog. Finally, I engage with the forms of cultivation, harvesting, and hunting that continued to occur within the bog in certain areas.

For peat's sake

Early efforts

Peat mining, whereby layers of the Sphagnum peat in the bog were removed and sold, signified a new kind of settler relation to the bog. In contrast to the efforts to reclaim the bog and transform it into arable land, peat mining employed a more extractive logic. Rather than stripping the bog of its features to align it with desires for farmland, peat extraction was based on commodifying a defining feature of the bog. Initial interest in extracting the peat from the bog began in the 1920s. Peat was used for many different purposes, including litter for chicken houses, bedding for stables, soil enhancement for gardeners and greenhouses, and packing material for the shipping of delicate or perishable foodstuffs (*Ladner Optimist* 1952; Ho et al. 2004, 164). During the 1920s, British Columbia lacked its own peat industry and imported peat from Europe, which became increasingly expensive (Warner and Buteau 2000, 62). In response, the government commissioned a study on the economic potential of local peat mining; the 1928 study identified Burns Bog as one of 10 possible sites for peat extraction but determined that operations in British Columbia would still be prohibitively expensive (Anrep 1928, 61).

Despite the assessment, in the early 1930s, B.C. Peat Company Ltd. purchased a portion of land from the Burns estate on the west side of the bog and began harvesting peat (Burns 1997, 78). Rather than focusing on domestic sales, the operation was aimed at entering the United States market as a peat supplier. However, at that point, they were unable to compete with European corporations (Warner and Buteau 2000, 57). As a result, the B.C. Peat Company Ltd. lost $300,000 and shut down the operation soon after (Burns 1997, 78). Other Vancouver-based companies formed and began their own peat extraction attempts towards the end of the 1930s. B.C. Peat Products Ltd. purchased 1000 acres of bog land from the Burns estate in 1938, with plans to purchase another 1000 acres; it was the first company to purchase land in the bog and begin peat extraction operations after the initial failure (*Delta Optimist* 1938).

World War II enabled the Canadian, and in particular the British Columbian, peat industry to expand and access the American market in two key ways. First, the United States banned all peat products from Germany, Sweden, and the Netherlands, which meant Canadian peat corporations no longer faced the stiff European competition that had stifled them before (Ho et al. 2004, 165). Second, demand for peat increased as part of the war effort. When magnesium fire bombs were used by German forces in aerial raids in London, Allied forces sought to increase their own magnesium fire bomb stores (Burns 1997, 78). A major factory was set up in Nevada to produce the bombs, and peat was in high demand because it was used as a catalytic agent in refining the magnesium (Burns 1997, 79). As a result, Canadian peat procurers had an opportunity to fulfill the suddenly increased and unmet demand. The peat became explicitly entangled in global webs of capitalism and militarism, shipped to the United States and spread across Europe through bombs.

In Burns Bog, two major peat extraction operations were established. The first was on the east side of the bog, where Industrial Peat Ltd. purchased an initial 648 hectares of the bog in 1942 (Ho et al. 2004, 166). They built a processing plant to dry and prepare the peat and focused on supplying peat for the Nevada factory, clearing 800 hectares of peat within the first years of operation (Warner and Buteau 2000, 65). In 1944, Atkins-Durbrow Ltd. purchased the land of the B.C. Peat Company Ltd. and began its own operation in the western portion of the bog (Burns 1997, 79). By the end of the war, Western Peat Ltd. bought out the Industrial Peat Ltd. holdings and continued the peat operations, at that point becoming the largest peat extraction operation in the Fraser Valley (Carncross 1968, 2; Warner and Buteau 2000, 58).

Extractive methods

As peat corporations transferred land titles like a game of musical chairs, they enacted divergent methods and practices of extraction, which had different impacts on the peat and the remaining land and water. Early methods of extracting peat involved workers cutting out blocks of peat by hand, which were then left to dry in the sun (Collier and Olson 2008, 1). The workers then used larger machines that could dig up the deeper and water-logged layers of peat (Burns 1997, 79). Industrial Peat Ltd. and Western Peat Ltd. both employed these hand-cutting methods of removing peat; workers used chainsaws to cut the peat, which was carried away in the railway tracks that the corporations built into the bog (Ho et al. 2004, 166). This traditional method also involved extensive drainage to lower the water table in order to reduce peat saturation.

On the west side of the bog, Atkins-Durbrow Ltd. used a different method of extraction, choosing to bring more water into the bog as opposed to draining it out. The company employed the hydraulic method of extraction, where water was blasted into the peat with high-pressured hoses, bringing more water into the bog as opposed to draining it out straight away (Madrone Consultants 2000, 43). The forceful pumping of water caused the peat to break apart into tiny pieces, which were carried away though ditches to a collection area where the peat was then filtered out of the water and processed (Biggs 1976, 35). With the ditches built to direct the peat-filled water away from area, it is likely that this method similarly resulted in lowering the water table, even if it may have temporarily increased the saturation in the process of extraction. In addition to manipulating water levels in the bog, both methods also involved removing all plants from the surface prior to stripping the peat.

After World War II, the European peat industry collapsed and the Canadian industry was able to continue to expand and supply American demand, with the BC Lower Mainland becoming "one of the largest peat-producing regions in the world" (Warner and Buteau 2000, 57). Indeed, the peat extraction industry in the Lower Mainland was so massive in the post-war period that, at its peak, most local residents were "either directly or indirectly connected to it in one way or another" (Warner and Buteau 2000, 65). The establishment of peat extraction in the bog was seen as a successful capitalization of the bog; reclamation and cultivation may have failed, but peat extraction "provided more economical use for the bog" (Carncross 1968, 2). The

end of the war also marked a shift in peat demand, which affected the extractive practices in the bog. The lower, denser layers of peat were better suited for the military processing market while the more porous upper layers of peat were in greater demand for the horticultural market that arose after the war because the more porous peat allowed for better soil aeration (Madrone Consultants 2000, 42). To extract more of the upper-layer peat, Western Peat Ltd. began using what was called the vacuum technique, wherein giant vacuum machines were driven through previously mined areas to suck up the remaining top layers of peat in the strips between ditches (Ho et al. 2004, 166-7). As a result, the areas of the bog where peat was extracted were marked by long, straight ditches that stretched out across the bog (*Ladner Optimist* 1952; figure 3.2). In 1964, Western Peat Ltd., now under the name Western Peat Moss Ltd., bought out the Atkins-Durbrown Ltd. holdings and became the sole peat operation in the bog (Burns 1997, 79). This move allowed the company to return to other previously-mined areas to extract the fragmented remaining peat.

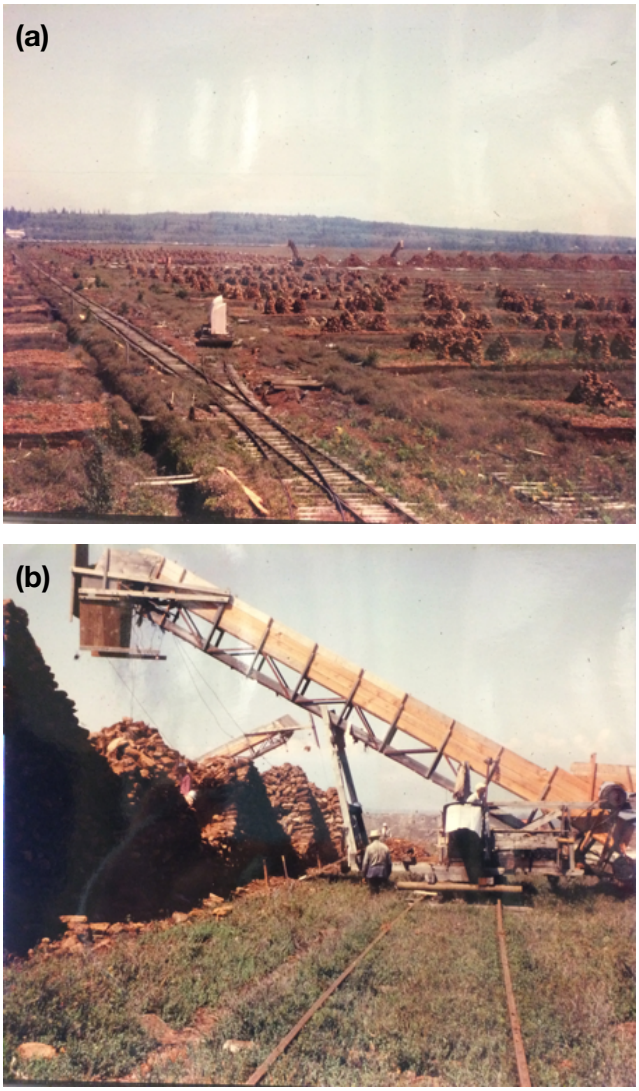

Figure 3.2 – Pictures of Western Peat Ltd. operations in 1956
Pictures show **(a)** rows of ditches leading to the railway track, with piles of cut peat blocks along the ditches, and **(b)** a crane loading cut peat blocks onto a platform to transport to the processing plant (Burns Bog Conservation Society collection).

By the 1970s, Western Peat Moss Ltd. began using a new method for peat extraction, which involved large clamshell digger-equipped hovercraft and air-floating barges (Burns 1997, 79; figure 3.3). It was this shift in method that allowed the company to return to previously-mined areas and extract more peat, and profits, from the bog. Water was pumped into the ditches

Figure 3.3 – Photograph of clamshell digger
Clamshell digger dumping peat moss into an air-floating barge, taken 1983 (Delta Museum and Archives collection).

to allow the hovercraft to pass along and excavate the remaining peat at the bottom of the ditches, making them even deeper as older layers of peat were removed (Ho et al. 2004, 167). The repeated returns to areas, subjecting them to multiple forms of peat extraction, removed any plants that may have begun to regrow and created an even more textured topography in the bog.

Topographies of extraction

The history of peat extraction left additional markings on the bog. By 1973, over 1600 hectares of the bog had been subjected to peat extraction and/or the additional impacts of the processing plants and transportation routes (Biggs 1976, 34). Peat extraction operations "converted relatively uniform, wet heathland vegetation into a complex of pools, lawns, heath, and scrub habitats" (Hebda et al. 2000, 145). One especially significant impact on the bog was the permanent lowering of the water table, both generally across the entire bog, and especially on a localized scale around the various ditches that were built for both the reclamation efforts and the peat extraction. The lower water table meant that the upper layers of peat were often drier than they had been previously, resulting in more frequent fires in the bog as the dry peat was quite flammable. Another result of the lower water table was a shift in the plant species present on the bog. Prior to the initial efforts to reclaim the bog, and especially before the 1940s and the rapid expansion of peat extraction, there were few forest stands in the bog (Hebda et al. 2000, 27). In fact, virtually no trees in the bog appear to have started growing before 1900 (Biggs 1976, 31). With less of the bog flooded, tree species were able to flourish, changing the dynamics and creating different ecosystems. Birch and Lodgepole pines did especially well in many portions of the bog during the twentieth century (Hebda et al. 2000, 146).

In addition to the lowering of the water table, peat extraction also changed the landscape and topography in other ways. This shifting topography had wide effects on the nonhuman animals that were able to thrive in the bog. The ditches—produced by the removal peat below the water table—created long ponds and lagoons. These ditches filled with water and became spaces that the migratory water birds, like the greater sandhill crane, were able to use as nesting areas (Burns 1997, 42). Beavers also took advantage of the ditches, making dams in them and causing the water levels to rise again in nearby areas, which promoted the regrowth of Sphagnum moss (Ho et al. 2004, 167). However, black bears were unable to live as easily in the shifting bog and their numbers dwindled as their available range shrank (Hebda et al. 2000, 145).

Peat harvesting in the bog ended in 1984, after 40% of the bog had been mined for peat (Ho et al. 2004, 167). Of course, the value of 40% should be questioned as the measure is completely contingent upon what actual boundaries are used to define Burns Bog. If the "original" or more historical area of the bog were used, then the statistic would be much smaller than 40%, while if all the area where peat was removed (either through commercial extraction or as part of reclamation for agricultural or other industrial purposes) was counted the number would in fact be much higher than 40%. In either case, the different methods and techniques used for peat extraction created a visibly heterogenous topography in the bog that highlights how settler ownerships reconfigured the bog in material ways (figures 3.4 and 3.5). Multiple operations took place across the bog, each extracting different depths of peat based on the market demand and particular owner at the time. The photographs in figure 3.5 point to the deeply textured effects of the peat

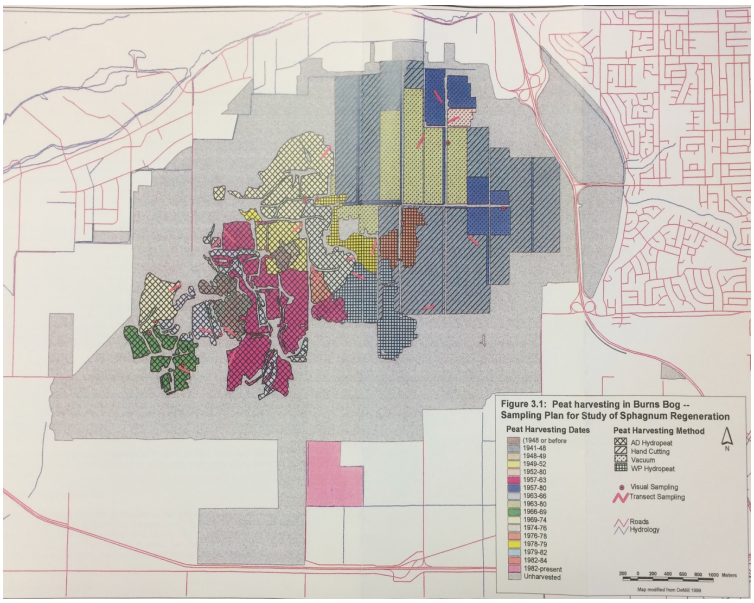

Figure 3.4 – Map of peat harvesting in Burns Bog
Map of historical peat harvesting in Burns Bog, showcasing both harvesting areas and methods (Madrone Consultants 2000, 46).

extraction on the landscape, shifting the balance between land and waterways on the surface of the bog.

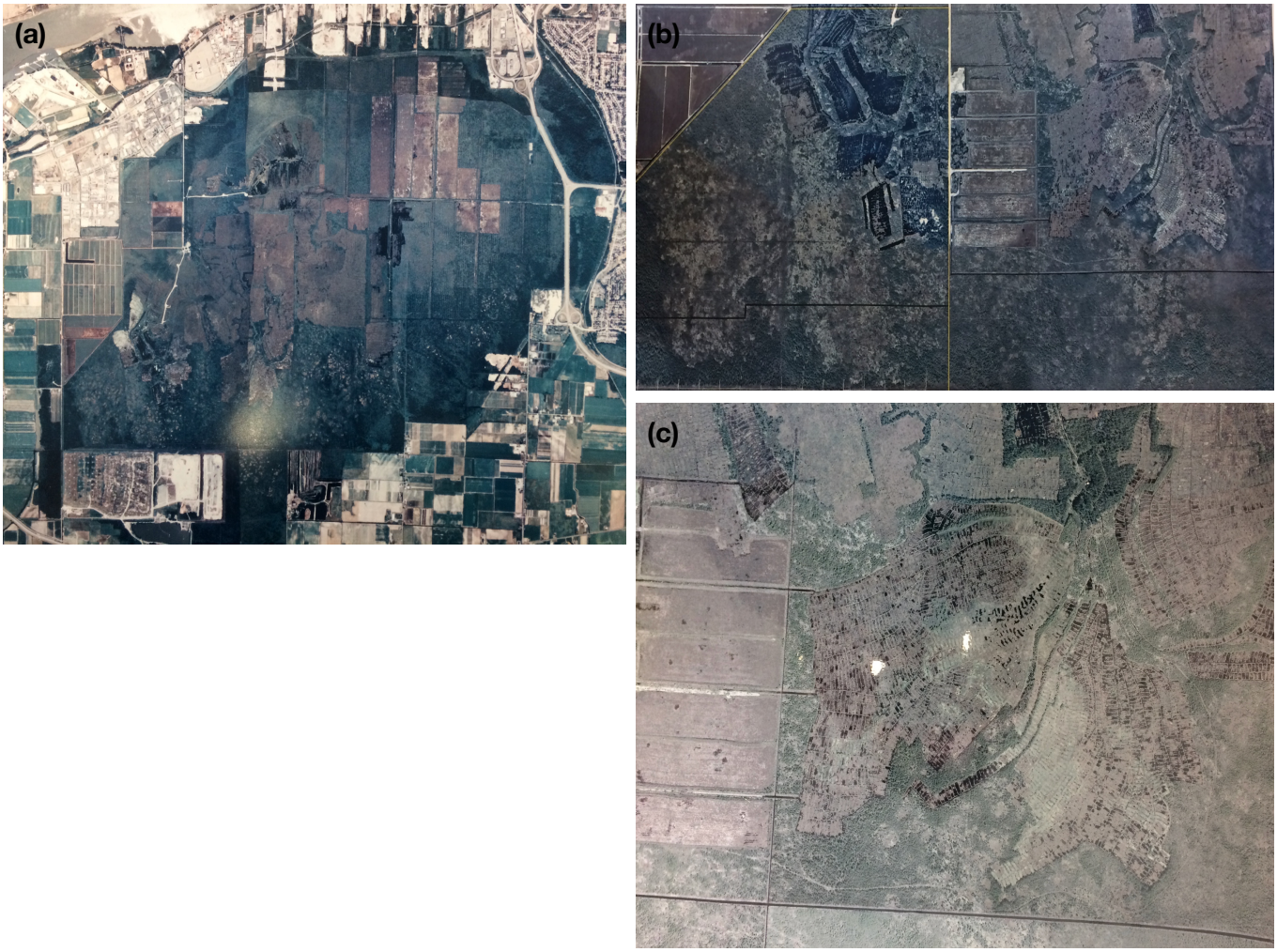

Figure 3.5 – Aerial photographs of peat-harvested areas in Burns Bog
The photographs show **(a)** a depiction of the entire bog, showing peat extraction throughout the centre, as well as the landfill visible in the southwestern corner; the darker brown rectangles on the eastern portion of the bog were areas subjected to vacuum extraction in the early 1950s, while the greener rectangles below them were areas where peat was extracted by hand in the 1940s; **(b)** a closer depiction of bog area above landfill, with cranberry farms visible in the top-left corner; all peat extraction in the area was done via the hydraulic method, with portions on the top and right side harvested before 1962 and the darker tracts on the left side harvested between 1966 and 1969; and **(c)** an even closer depiction of the top-left portion of (b), showing the small branching ditches that fed into larger channels to be collected and processed (Delta Museum and Archives collection).

Towards the end of the 1970s and early 1980s, the peat extraction operations became less profitable and Western Peat Moss Ltd. opted to cease operations entirely (Demwell 2019). With the end of peat harvesting also came a shift in land ownership. In 1973, Western Peat Moss Ltd. sold its 6000 acres of the bog to Western Delta Lands Inc., which continued peat extraction operations for several years before shifting its focus towards other endeavours, such as cranberry farming and industrial developments (*Delta Optimist* 1988a). Like the transition from Burns' Ranch to Burns Bog, the shift from Western Peat Moss to Western Delta Lands signified another shift in the settler geographies of the bog. The move away from "peat" and towards "lands" pointed to another reorientation of settler possibilities where, as will be explored below and especially in the next chapter, settlers considered new potential agricultural and industrial developments to commodify the bog, such as cranberry farming, landfills, and theme parks.

Infrastructure and access

Settlers increased access to the bog through building various forms of infrastructure into and across the bog, with much of the infrastructure developed in order to support peat extraction. Peat extraction operations in the bog required the rapid transportation of the harvested peat from the field to the processing plants to be dried, as the climate did not allow for it to sufficiently dry in the field (Swinnerton 1958, 20). As a result, railways were built into the bog to provide easy and quick transportation of the peat. By 1952, Western Peat Ltd. had a 22-mile railway track along the eastern edge of the bog, while Atkins-Durbrow Ltd. built a railway along the western edge of the bog in 1955 (*Ladner Optimist* 1952; *Ladner Optimist* 1955). The hydraulic method deployed by Atkins-Durbrow Ltd. also required the installation of a piping system to pump the water into the peat for extraction. After the peat industry in the bog ended, the piping system and railway lines were left in the bog to slowly rust away, leaving a lasting and visible impression on the landscape (Burns 1997, 79).

Multiple other forms of access were achieved through different infrastructure projects. By 1961, access roads were built into the bog along the southern edge (figure 3.6). As seen in figure 3.1, this access area involved the portion of the bog where the smaller, agricultural plots were maintained, indicating that they provided greater access for those reclaiming the edge of the bog. By the 1970s, two natural gas pipelines were laid across the northern and western edges of the bog, along with multiple electrical transmission lines (Biggs 1976, 43). However, workers

Figure 3.6 – Delta property map from 1961
Segment of Delta municipal map showing railways and roads across numerous areas of the bog, dated 1961 (Delta Museum and Archives collection).

installing the pipelines encountered numerous challenges in the bog: the soft, spongy peat caused the heavy cranes and machines to sink and falter; the water immediately flooded any ditches that were dug; the pipelines floated in the water when laid in the ditches because of the air inside them; and the dry, flammable top layer of peat meant that workers could not smoke on the job (*Ladner Optimist* 1959). These pipelines and transmission lines were installed to respond to the rapidly increasing population of Delta; the completion of a new bridge, a ferry terminal, and the rerouting of a highway between 1959 and 1962 significantly reduced Delta's geographical isolation and enabled the city's population to increase from 14,597 people in 1961 to 74,692 people in 1981 (Statistics Canada).

Finally, in 1992, a radio tower was built along the western edge of the bog, as seen in section 1 of figure 3.7. In addition to the clearing of trees and plants to erect the tower itself, a road was built into the bog to provide access to the tower (Glavin 1992). The radio tower was built to address the "dead spots" in the municipal radio system landscape, which "sometimes ma[d]e it impossible to establish radio contact with police officers in their cars" (Graziano 1992b). By producing different geographies of access and communication for police, this strengthened radio system enabled the greater policing of the bog, and therefore another avenue to control and manage human practices and presence within the bog.

Wasting the bog

Despite the bog's considerable productivity, settler perception that the bog was a useless wasteland continued throughout the twentieth century, leading to settlers using the bog as a site

for waste, like many other wetlands across the continent. Moreover, the degradation of the bog from successive reclamations and peat extractions ironically solidified the idea that the bog was damaged and useless in its current state, and therefore an ideal garbage receptacle. As the author of a 1985 Vancouver Sun article argued, "Burns Bog is, so to speak, going to waste—let's send waste to it" (Leach 1985). It is clear that many different settlers took this mindset to heart. In the 1960s, Dow Chemicals Canada used the bog as a site for dumping some of the waste products the company produced in a nearby plant, using the waste as fill for a road alongside the western edge of the bog (section 4 in figure 3.7). The waste, containing phenols, benzoic acid, cobalt, and copper, was laid along the path of a new road and covered in gravel, which only temporarily covered the refuse until rainfall exposed the chemical waste to the surface (Burns 1997, 95). The water movements ensured that waste dumped in the bog by settlers did not remain in place but instead moved and flowed through the area, spreading outward from the road. Upon the same area came additional waste storage in the form of metal sheds that Continental Explosives Ltd. used to stored explosive materials (Gulyas 1992b). Continental Explosives Ltd. was operating in the bog at least by 1967, when one of their workers was killed in a workplace accident (Allen 2013).

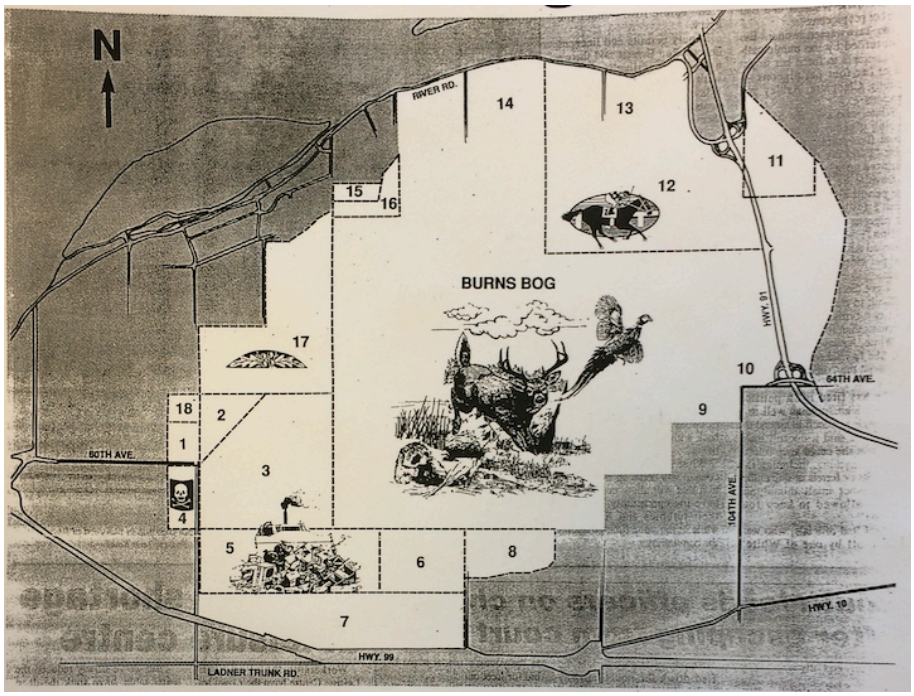

Figure 3.7 – Map of ownerships and land uses in Burns Bog in 1992
Map showcases the multiple different owners of portions of the bog and some of the diverse land practices they engaged in (Gulyas 1992b).

The cities of Vancouver and Delta formed an agreement in 1962 to allow Vancouver to use a portion of the bog as a landfill in exchange for royalty payments to Delta (*Ladner Optimist* 1962). Delta rezoned 405 hectares of the bog in the southwest corner for

landfill use, after which Vancouver purchased the property (Biggs 1976, 37). As part of the landfill agreement, Vancouver agreed to give Delta the portions of the landfill that were filled to the maximum height after they had been used (*Ladner Optimist* 1962). The landfill was officially opened and began operating in 1966, taking in approximately 250,000 tonnes of refuse each year (Biggs 1976, 37). By 1992, Vancouver had filled 250 acres of the now-1600 acres zoned for the landfill (Gulyas 1992b).

The growing pile of garbage in the Vancouver Landfill formed a new dome in the domed bog, one of waste and trash. The garbage dome compressed the peat underneath it, preventing water from flowing through the peat (Madrone Consultants 2000, 18). As a result, water began flowing in different directions as it found new paths to follow, changing the hydrology of the bog. The landfill also created new and concerning water flows in the form of leachate—a concentration of water and various contaminants that have leached out of garbage—that risked spreading into the bog. To prevent the leachate contamination of the bog, a system of two ditches was built around the landfill (Ho et al. 2004, 174). The water collected in the ditches was then pumped to a treatment plant on nearby Annacis Island to be treated, which was deeply concerning given that the treatment plant had "rack[ed] up a dozen citations for dumping toxic sewage into the Fraser River" (Burns 1997, 93). Thus, even as the landfill was denigrated for supposedly impeding the hydrology of the bog, the systems of drainage, transportation, treatment, and release maintained, at least in some sense, the flow of waters from the bog into the Fraser River, albeit in incredibly different forms. Above ground, the landfill also divided the southern portion of the bog from the rest (Hebda et al. 2000, 31). Like the roads, railways, and other encroachments into the bog, the landfill prevented many terrestrial nonhuman animals from moving through the area and into spaces to which they had previously had access.

Alongside the Vancouver Landfill, many other areas around the edges of the bog were used for dumping waste. Multiple dumpsites, predominantly filled with demolition materials, were established along the northern edge of the bog (section 14 in figure 3.7). These dumpsites created large amounts of leachate that leaked into, mixed with, and spread through, water in the bog (Gulyas 1992b). The provincial government continued to issue operation permits to the sites, despite the fact sites contravened Delta municipal bylaws, which highlighted tensions between different government levels (Glavin 1992). An illegal dumpsite also arose in the southern portion of the bog (section 8 in figure 3.7). In this site, individual citizens secretly dumped garbage and

household waste in the bog in order to avoid having to take the waste to designated facilities (Ferguson 2006).

The peat extraction operations drove further explorations into how to use the bog for waste. Describing the areas that were subjected to peat extraction, a 1982 article in the *Vancouver Sun* noted that, "in summer these open holes are dry wastes of red peat dust; in winter they are flooded with acidic water repellent to all forms of life" (Leach 1982). Several years later, based on the idea that these areas were desolated and wasted, conservation writer Barry Leach suggested that the peat-extracted areas should be turned into a biological sewage treatment system (Leach 1985). He proposed that the municipality purchase the land and turn the land into a sewage farm, pumping raw sewage through the peat and capitalizing on its properties to act as an anti-septic filter that would treat the water before the liquid was released into the Fraser River. This was not the first time such a proposal had been brought forward for considerations, with the focus being on subsuming the particular characteristics of the bog into new forms of productivity through waste treatment. For instance, efforts had also been made in 1966 to turn the bog into a sewage lagoon, though the Burns Bog Preservation Society leading the campaign to defeat the proposal (Gyarmati 2008a).

Finally, the connection between the bog and waste was not limited to material or nonhuman waste; some people also negatively connected the bog to marginalized communities they deemed undesirable. In 1994, the Canadian Liberty Net, a hate group that was brought in front of the Canadian Human Rights Tribunal multiple times in the 1990s for racist, anti-Semitic, xenophobic, and homophobic telephone messages, was brought in front the Tribunal again, this time for a homophobic message that referenced the bog (Fisher et al. 1998). The disturbing message in question argued for the execution of queer people and said, in part: "Hell, the ancient Celts used to take their queers and trample them into the peat bogs. It's not such a bad idea, maybe. Perhaps we have finally stumbled across the argument which will save Burns bog in Delta from development because it is the only bog big enough to service the needs of the progressive city of Vancouver" (MacDougall 2000, 147). This extraordinarily violent message highlights how perceptions of undesirable environmental spaces and marginalized peoples have been historically tied together (Sandilands and Erickson 2010, 13). The Canadian Liberty Net message underscored the strong continuing view that the bog was a wasteland into which

waste—and for the Canadian Liberty Net, "waste" also meant "queer people" —should be dumped.

Re-harvesting the bog

Cranberries

After the reclamation efforts to drain the bog and cultivate crops like wheat failed, new cultivation efforts focused on planting crops that better fit the ecology of the bog itself. Taking advantage of the bog's high water table, settlers cultivated and harvested cranberries around the bog's perimeter beginning in the 1920s through deliberate flooding (Cowan 2015, 5). These floods caused the berries to detach from the plant and float to the top of the water. Settlers also began growing blueberries (*Vaccinium corymbosum*). Of course, while cranberry and blueberry farming in the bog did not require the drainage of the bog, farmers still bulldozed the area and stripped away all plants there were there (Beutel 1998). Moreover, endeavours to replace the bog's plant life were emboldened by the difference between the historical berries and those brought into the bog to be cultivated. Both the cranberries (*Oxcoccus palustris*) and the blueberries (*Vaccinium corymbosum*) brought into the bog for cultivation were different species than the historical bog blueberries (*Vaccinium uliginosum*) or bog cranberries (*Oxcoccus macocarpus*). The introduction of these berries resulted in the new species spreading across the bog (Hebda et al. 2000, 152). Yet, it was not until the 1980s, and especially in the 1990s, when cranberry fields were cultivated towards the centre of the bog, taking fuller advantage of the hydrology of the bog to engage in a different form of agriculture.

It was not until the 1980s, and especially the 1990s, that cranberry fields were cultivated towards the centre of the bog, taking fuller advantage of the hydrology of the bog to engage in a different form of agriculture. Peat extraction in the centre of the bog played a role in facilitating cranberry and blueberry harvesting. Once the upper layers of peat were stripped away, the remaining peat and soil was very acidic, which is an ideal soil for blueberries (Swinnerton 1958, 26). By 1992, sections 2, 17, and 18 in figure 3.7 were all being used for cranberry farming, while an additional 80-acre tract along section 17 was approved in 1992 for bulldozing to expand the cranberry fields (Glavin 1992). Shortly thereafter, the Ocean Spray corporation purchased some of the bog for cranberry cultivation (Burns 1997, 80), while Western Delta Lands began

cranberry farming in the middle of the bog in 1998 (Beutel 1998). Western Delta Lands also repeatedly clear-cut trees in different areas of the bog, selling the timber as another practice of extracting and commodifying plants in the bog (Gulyas 1995; Gulyas 2003a). In addition to the active cultivation of cranberries for profit (as well as blueberries), residents living near the bog picked blueberries from the various bushes that had spread outside the farm plots and into other areas (Burns 1997, 123). The switch to cranberries and blueberries as the ideal crops to cultivate in the bog reflected an adjustment in settler approaches to the bog. Instead of wholesale transformation, they worked to capitalized upon some of the bog's characteristics, namely the acidic soil and abundance of water, to further the subsumption of the bog into capitalist modes of production.

Grow-ops

Cranberries were not the only crop cultivated in the bog. One particular crop harvested for significant profits was actively discouraged and fought by the municipality through its police department: marijuana. Repeatedly, large marijuana growing operations, typically valuing several hundred thousand dollars, were discovered by police and confiscated (Gulyas 1998; Ruttle 2006; Kerr 2010). The case of marijuana grow-ops in the bog reveals two important settler practices in the bog. The first is that there was active police surveillance of the bog, meant to block "undesirable," unwanted, and illegal relations within the bog. The Delta police force and RCMP used helicopters to fly over the bog and patrol the area on the lookout for grow-ops (Kerr 2010). Police surveillance played a role in managing the presences and activities allowed to occur in the bog, demarcating cultivation practices along the lines of legality.

The second important grammar revealed through the grow-ops is the further demarcation of the non-native plant species that could be introduced into the bog. The domesticated cranberries and blueberries grown on farms in the bog were, like marijuana, not species found within the bog prior to settlers' introduction of them (Ho et al. 2004, 94). However, these plants were not regarded as problems, for they did not figure as invasive or threatening species (a subject that will be discussed in the following chapter). Thus, it is important to recognize here how marijuana, while not discussed as an invasive species, was similarly incorporated within the settler imaginaries of unacceptable additions to the bog ecology. Media reports of the grow-ops reflect the judgment and disdain for the activities and present them as incompatible with the bog.

Articles about grow-ops dedicated a great deal of space to detailing the specific environmental harms of the ostensible pollution of the plant's cultivation: plastic bags and garbage (Gulyas 1998). An article in the *Delta Optimist* speculates that marijuana growers may have been responsible for a previous fire in the bog (Ruttle 2006). These articles linked undesirable activities to environmental harms, fitting within a wider dynamic whereby concern for the environment is presented as the motivation for policing even if the veracity of that alleged environmental harm is questionable (Gosine 2010, 149-50).

Hunting

As mentioned earlier, the bog was also the site of recreational hunting. Settlers continued to engage in hunting throughout the twentieth century, with pictures showing that men hunted black bears and deer in the 1930s (figure 3.8). An article in the *Ladner Optimist* from 1945 also noted people hunting bears in the "wild land" of the bog (*Ladner Optimist* 1945). Unfortunately, it is unclear what rules or dynamics shaped how hunting took place until the mid-twentieth century, when the governance of such practices become clearer. I was also unable to find any sources that discussed Indigenous people hunting in the bog so that remains unclear as well. During the second half of the twentieth century, there appear to have been two avenues through which people gained access to the bog for hunting: guns clubs and personal permissions. As of the

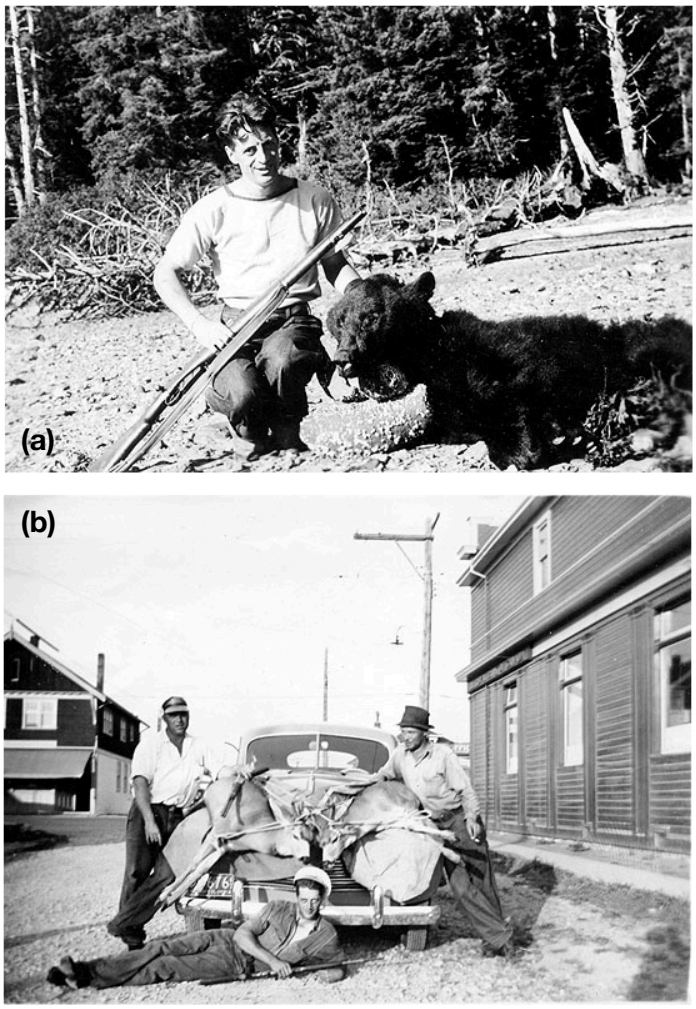

Figure 3.8 – Photographs of hunters from bog
Photographs depict **(a)** a man with a black bear he shot, taken in the 1930s, and **(b)** a group of three men with two deer they had hunted tied to the front of a car, taken between 1937 and 1940 (Delta Museum and Archives collection).

1970s, two separate gun clubs had been granted hunting rights in the bog (Biggs 1976, 43). Members were allowed to hunt in approximately 850 hectares of the bog, mostly around the central and southern portions, though also along the northwestern edge. They hunted waterfowl, deer, and sometimes bears as well. These clubs engaged in hunting practices through the turn of the century, until Burns Bog was purchased and converted into a conservation area (Burns 1997, 80). Individuals were also able to hunt on their own in the bog as long as they had a hunting license and received written permission from the owners of the privately-owned bog land on which they wanted to hunt (Burns 1997, 31). Thus, the bog came to be further demarcated through areas of allowed hunting and allowed hunters, mediated through the systems of land ownership and property.

Conclusion

The demise and parcelled selling of the Burns' estate enabled a greater diversity of different land use practices within the bog. Peat extraction was a central and key settler practice through the middle of the twentieth century, and it was also a practice that managed to penetrate the centre of the bog. The different methods of extracting peat caused the bog to drastically change as workers removed varying depths of peat. Settlers also established landfills around the edges of the bog, taking advantage of it as a space into which garbage could be piled without clear impacts. Further, farmers began using the water level and acidic soil of the bog to their advantage by cultivating crops like cranberries and blueberries (and marijuana) that could thrive in the boggy conditions. Finally, the mid-twentieth century was also marked by other increasing forms of settler access through roads, railways, and communication towers which all challenged the vastness and unapproachability of the bog.

By 1992, the land that continued to be considered part of Burns Bog was divided into multiple portions that were being used for vastly different purposes. These different usages resulted in distinct shifts in the water table, soil, peat, plants, and nonhuman animals present in the areas, creating a varied landscape that reflected the differing practices in the bog. Instead of the more uniform and gradual shifts that marked the peat depth and water tables across the gently domed bog, the different practices and commodification of portions of the bog led to localized fluctuations in the water table and peat depths across the bog. The very texture of the bog became more heterogeneous, with the peat, plants, and water coming to align with the property

divisions. During the twentieth century, the bog was further reconfigured into and through ownership, where property lines became visible through the sudden transitions between neighbouring transformations, passing between possibilities and potentialities that were enacted upon each settler's plot of land.

Chapter 4 - (Re)Stor(y)ing Burns Bog

> In a post-apocalyptic world, your ventilation system is in need of repairs. You must gather supplies, and replace the faulty parts before this new world leaves you breathless. (Global News 2017)
>
> Did anyone else notice the toxic gas signs in the Delta Nature Reserve? I guess that's what the world would be like it there were no bogs to filter the air… Lucky for you that's not the case. But you can explore that world this weekend at Bog Escape! Save your fellow survivors from the toxic fumes! (Bog Escape 2017)
>
> -Bog Escape 2017, "Post-Apocalyptic Panic"

Alongside diverse, obviously consumptive settler practices in the bog, the latter half of the twentieth century saw a rise in some new understandings and uses: conservation and more expansive scientific inquiry, particularly ecology and hydrology. Conservation activists, supported by most ecological researchers, challenged the view that Burns Bog should be transformed into more economically productive land, a view that had marked settler relations to the bog since their arrival. Instead, scientists and conservationists charted out new paths for understanding and engaging with the bog. Scientific inquiry brought forward a deeper understanding of the bog and the nonhuman beings within it, while conservation proponents argued for a future that included the continued existence of the bog as a bog, for ecological rather than economic ends. Beginning in the 1970s, and especially by the 1980s, scientists, conservationists, and development proponents fought increasingly contentious battles over what Burns Bog was and what it should be. However, these new investments in science and conservation did not signal a complete break from the previous iterations of settler control over the bog. Indeed, they maintained the underlying logic that the bog could and should be owned, and that through ownership the bog should be managed. Because they continued a foundation in settler-colonial conceptions of land and nonhuman beings, the debates that spanned the end of the twentieth and beginning of the twenty first centuries centred around the question of how the bog was most useful or productive, and concerned the forms of productivity for which the bog should be governed. These debates ultimately culminated in a group of multiple governmental bodies purchasing the bog in 2004 and developing a management plan for the bog in 2007.

This chapter explores these diversifying and contradictory settler dynamics. It begins by tracing the rise of scientific inquiry to consider how science shaped settler understandings of the bog and its wider relations, as well as understandings of development's impacts on the bog. I then map out the formation and solidification of the conservation movement, with particular attention to motivations for conservation and campaigns or actions organized in the name of conservation. Here, I explore in depth the tension that conservationists had, and continue to have, with Indigenous people: conservationists have simultaneously packaged Indigenous histories as a part of their promotion of the bog and been resistant to Indigenous peoples' claims to present and future relations to the bog. The remainder of the chapter focuses on how the three dynamics—science, conservation, development—interacted and created new settler conceptions of the bog. I demonstrate how this palimpsestic collection of settler views, aspirations, and desires for what the bog was, is, and could become, all became simultaneously overlain upon the land. First, I look at rising calls for municipal and regional governments to develop a long-term plan for the bog, and the way jurisdictional divisions between governmental bodies shaped management practices. From there, I outline the re-emergence of grand transformational visions, showcasing how developers sought to transform the bog in its entirety and how conservationists challenged these efforts. Next, I explore how conservation and development proponents both used scientific inquiry and understandings of the bog to further their own causes. I then detail the theme park development proposal that was the tipping point for conservation and the subsequent governmental purchase of the bog. Finally, I turn to the Burns Bog Ecological Conservancy Area Management Plan and consider the ways the bog, now conserved, is managed and directed in particular ways, as well as how Indigenous peoples maintain practices in spite of settler oversights.

The drive to measure

Early studies

Initial scientific studies of the bog began in the form of cataloguing plant species and peat, though always within projects that were focused on much wider regions. These initial studies conducted between the 1920s and 1930s were thus characterized by their wide range, wherein the bog itself was not the sole object of study. The first study was a 1928 government report that

outlined the availability of peat, and the feasibility of extraction, in the southwest portion of British Columbia (Anrep 1928, 53). The study measured peat depth to determine the potential economic viability of extraction operations. Anrep concluded that there was great potential for the Delta Peat Bog, as he called it, to be mined and then converted into agricultural land (Anrep 1928, 59).

Subsequent studies were largely exercises in cataloguing and accounting for the physical characteristics of the bog. A short book by Hugo Osvald, published in 1933, detailed the plant species present in various bogs along the Pacific coast and briefly contextualized them historically and geologically (Osvald 1933, 6). Osvald highlighted the intensive reclamation that had been done along the shallow edges of the bog but did not enter its centre (Osvald 1933, 7). Taking a similar geographic scope, George Rigg and Carl Richardson published an article in 1938 on Sphagnum peat bogs and included maps of their boundaries, as well as profile graphs of their peat depths (Rigg and Richardson 1938, 408). They defined the boundaries of each bog as "the portion having a layer of sphagnum at the surface" (1938, 410). Their bog profiles also only include information of the layers of peat in the bog, with everything below ignored (figure 4.1). In their study, Riggs and Richardson reduced the bog to peat, and established the boundaries of the bog accordingly.

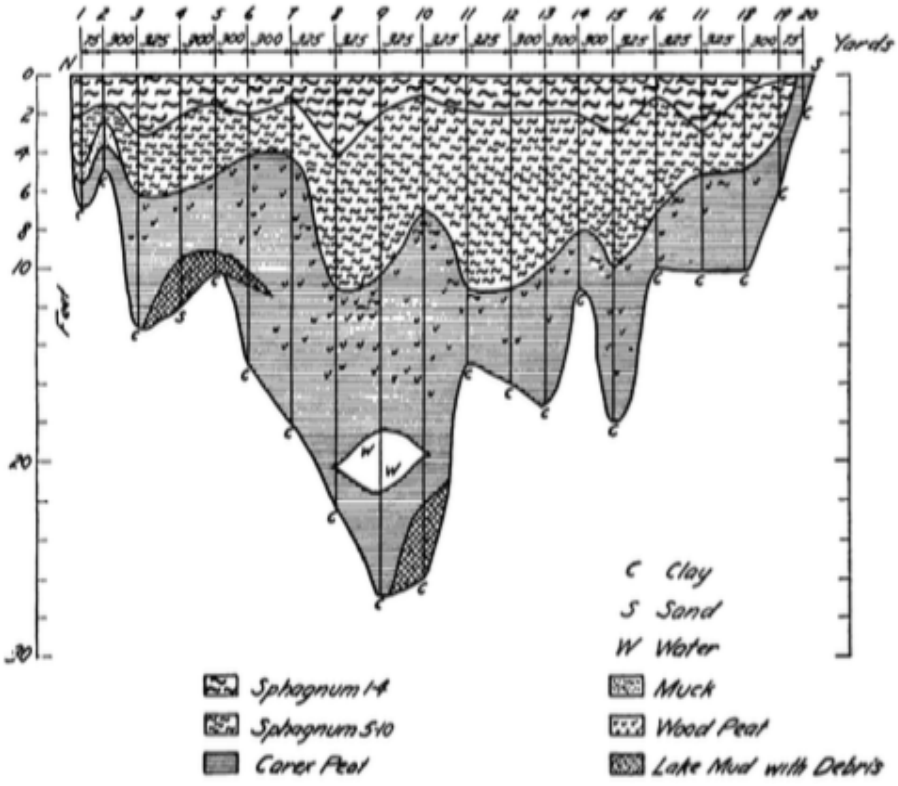

Figure 4.1 - Peat depth and composition profile
Profile of peat depth and composition of bog, based on series of samples taken along a line through the bog (Rigg and Richardson 1938, 426).

Burns Bog science

After several decades of minimal research related to the bog, the 1970s marked a key shift in how the bog was approached scientifically. It was during this decade that the first studies focused solely on Burns Bog were conducted, as opposed to wider regional works. These studies included a greater level of detail about the bog. Further, the studies from this period onward began including information about Indigenous peoples' relationships with the bog, though this information was often both minimal and firmly situated in the past.

The first major scientific research projects on Burns Bog at this time came in the form of graduate student projects, in the plant studies master's thesis of Wayne Biggs (1976) and the botany PhD dissertation of Richard Hebda (1977), who worked alongside one another to complete their respective research. Biggs' thesis was meant to address the problem that bog was "not well known, physically or biologically"; by compiling ecological data about the bog, his thesis aimed to enable "additional specialized ecological studies which should be done to effectively predict the impact of future developments on the bog area" (Biggs 1976, 1-2). He detailed the distribution and effects of peat extraction, landfills, roads, and recreational hunting on the bog, and prepared (alongside Hebda) a detailed inventory of the plant and nonhuman animal species that inhabited and comprised the bog. Biggs' work, like other scientific works that followed, produced new conceptualizations, representations, and understandings of the bog by taking the spatial complexity of the bog seriously. He also included a brief mention of the First Nations communities' relationships with the bog, although he (typically) presented their relations as part of "past land-use" (Biggs 1976, 31).

Hebda's dissertation used paleoecological techniques to construct a detailed history of the plant species present in the bog over the past millennia (Hebda 1977, 1). By applying contemporary settler wetland classifications to historical core samples and the different plant species they indicated, he charted out a history of the area shifting from sedge swamp to Sphagnum bog approximately 3000 years ago (Hebda 1977, 158). Alongside the other scientific works that re-established the geographical boundaries of the bog through the presence of Sphagnum peat, Hebda used the presence of Sphagnum peat to bound the bog temporally, demarcating the time the bog came into existence as a bog. The scientific studies, building upon the legacy and work of land surveyors, continued the process of defining Burns Bog, increasingly determining and solidifying the outer edges of the bog. However, these studies

diverged from the work of land surveyors by bringing forward a more expansive definition of the bog; the bog was not simply a large physical space, it was also an ecologically active space of numerous nonhuman beings with complex relationships, interactions, and distributions.

Fire

During this period (and continuing to the present), the bog was marked by increasingly frequent fires, as a result of the lowered water table and subsequently drier peat. Major fires in the bog occurred in 1977, 1990, 1992, 1996, 1999, 2005, and 2009 (Burns 1997, 60-1; Graziano 1990; Graziano 1992a; *Province* 1996; Gulyas 1999f; Gulyas 2005a; Kerr 2009). The porous peat allowed air through the lower layers, enabling fires to burn and travel underground, to the chagrin of firefighters (Burns 1997, 59-60). The fires of 1992 and 1996 were especially concerning because they occurred within several hundred metres of the explosives storage area and BC Gas lines respectively (Burns 1997, 58-9).

While initially the fires were typically described as "destroying" the bog (Graziano 1990), scientific research brought a shift, in the mid-1990s, that increasingly recognized how fire supported different ecological dynamics in bog landscapes. A 1996 *Delta Optimist* article described how "just five weeks after a blaze" there were "signs of life everywhere," including sedge, salal, huckleberry, Labrador tea, as well as spiders, voles, and mice (Salembler 1996). Burns' popular education book spoke of how the areas where recent fires occurred were the only places that sandhill cranes frequented (Burns 1997, 62-3). A 2005 article in the Delta Optimist entitled "Fire could actually be good for the bog" detailed how the recent fire could enable greater sphagnum growth by removing other woody plants from the area (Gulyas 2005b). Science enabled fire to enter the settler imaginary of the bog as a still undesirable experience in the moment, but one that was at least good for the bog in the long-term. The role and history of fire in the bog is an area that I was not able to explore in depth in this account. However, fire is bound up in important and complex relations with Indigenous peoples and settlers in Canada and deserves greater attention in future research on Burns Bog to consider how fire shaped the bog and relations to it (see Pyne 2011 for an example of fire histories).

Studying impacts

Much of the scientific research in the following decades followed Biggs' lead, studying the effects of various economic activities and encroachments into the bog. A major focus of this scientific research centred on the potential contamination of the bog from the various landfills that surrounded it, and governmental bodies increasingly collected and used data to direct decision-making and actions. The Greater Vancouver Regional District (GVRD) monitored the Vancouver Landfill for leachate leaks into the bog. Concerns over landfill leaks into the bog increased upon discovery of polychlorinated biphenyls—a highly carcinogenic group of compounds—in the leachate (*Delta Optimist* 1988c). Further, while the roads filled with Dow Chemical waste materials were visibly green and surrounded by dead fish, the Provincial Government would not take action until after Dow tested the water, soil, and fish for phenols (Gulyas 1992a). Legal action against the landfills along the northern edge of the bog for illegal dumping also depended on monitoring, sampling, and testing water (Pynn 1999a). Delta Mayor Beth Johnson explained the government's science-based approach to the bog, saying that "the bog has to be understood…. It's important to understand where the edges are, what will hurt it and what won't hurt it" (Glavin 1992). Increasingly, settler scientists and government officials amassed a collection of data points and maps through which they understood and engaged with the bog in more ecological terms. As I will explore in section below, this ecological conception of the bog enabled settlers to divide and demarcate the bog based on the spatial configuration of nonhuman relations and dynamics.

The most extensive research on the bog was the Burns Bog Ecological Review, which came out of a 1999 agreement between Delta Fraser Properties, the then-owners of most of the bog land, and the British Columbia provincial government. The review, led by Hebda, had a mandate to "determine what the critical areas of the bog are in order to maintain its viability as an ecosystem" (Gulyas 1999d). Consultants produced technical reports on, to name a few topics: amphibians and reptiles, fisheries, contaminated soils and waters, small mammals, regional atmospheric processes, soil conditions, past and current ecosystem dynamics, waterbirds, the Greater Sandhill Crane, Black Bears, and geology (Hebda et al. 2000, 2). The review team compiled the separate reports in order to determine "the factors crucial to preserving Burns Bog as a viable ecosystem" (Hebda et al. 2000, 1). Researchers drew new boundaries of the bog based on hydrologic functioning such that the Vancouver Landfill was discounted as a part of the

bog; as a result, the bog took on a strange tail in maps of the southern portion (figure 4.2). The review was meant to ensure that settler governments and corporations knew as much as possible about the bog—or as much as possible of what counted as important or valuable information—so that the "best" decision could be made. In a 1999 interview with the *Delta Optimist* about the review, Russ Anthony, the spokesperson for Delta Fraser Properties said, "if there's concern about protection of the bog, then let's understand what's important to protect the bog, understand the (eco) systems, what can and can't be done, and where it can be done, if anywhere" (quoted in Gulyas 1999d).

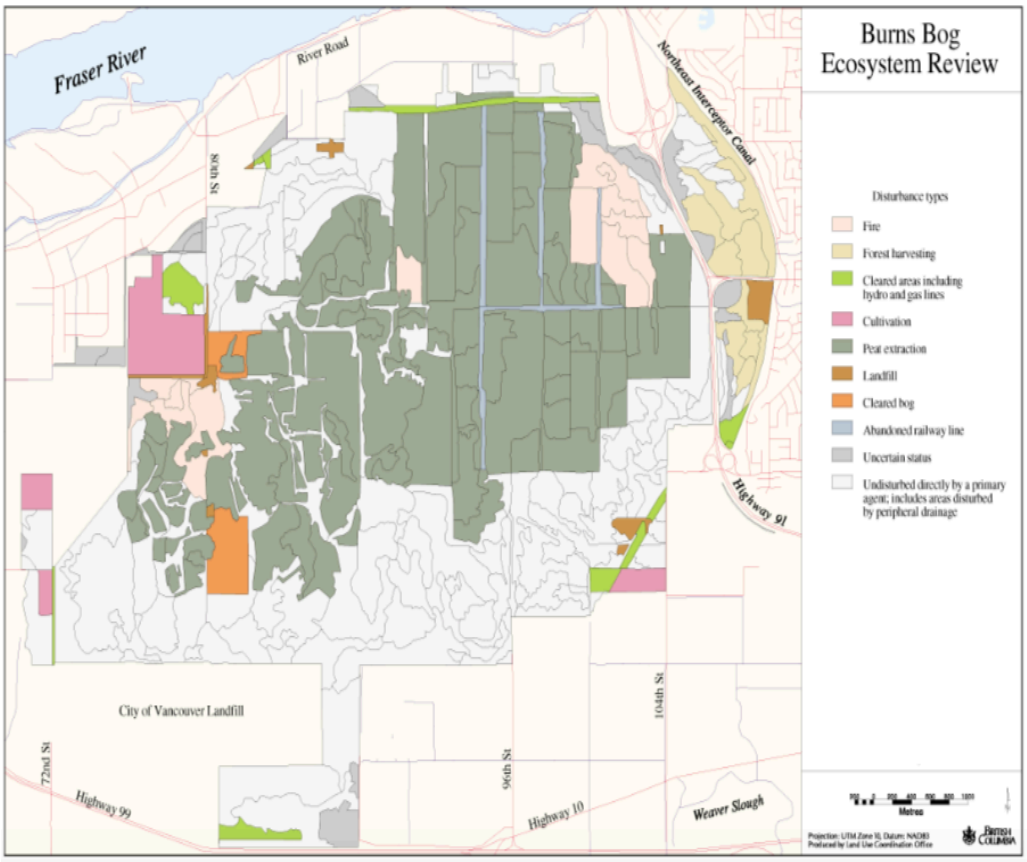

Figure 4.2 – Map of disturbances in Burns Bog
Map shows multiple different kinds of disturbances across the bog, with peat extract covering a significant area (Hebda et al. 2000, 147).

Scientific inquiry into the bog became another dimension to establish and assert settler geographies upon the landscape. Through studies of hydrology, soil, plant species, the bog came to coagulate into another kind of place, not simply one of potential usage and transformation, but one of ecological activity and productivity that could be incorporated into different consumptive

practices of ownership and extraction. New boundaries and borders could be drawn based on the water movement, distribution of plants, or depth of peat, which all informed different modes of classifying the land alongside property ownership while also informing property ownership. Scientific maps of the bog were meant to guide property owners on how and where to engage in conservation or development. The studies of the bog made it more legible and opened up new methods for management that optimized multiple desired forms of consumption and productivity, both explicitly economic (e.g., agriculture) and not (e.g., water filtration).

The drive to conserve

Conservation motivation

The latter half of the twentieth century also marked the rise of conservation as a potential future for the bog. One of the earliest calls for the government to purchase the bog land and preserve the landscape as a park came in 1972 from Bob Wenman, a Social Credit member of BC Legislative Assembly (*Delta Optimist* 1972). He argued that the Delta Municipal Council should put money towards the effort, so that the bog could be preserved but also have some hiking trails and other amenities for public access. While the government did not take up his idea at the time, others increasingly shared his recognition of both the ecological activity in the bog and its potential aesthetic or recreational value. A 1988 article in the *Delta Optimist* described the bog as "a wild and rather mysterious place" and suggested that readers "enjoy [the] bog's riches" (Eberts 1988). In a 1991 article in the *Vancouver Sun*, the author described his experience exploring the bog and the diverse plant and nonhuman animals he came across (Glavin 1991). These stories presented the bog as a challenging area that could be discovered, reflecting a pioneer mentality of exploring and conquering unknown lands.

The aesthetic and recreational value of the bog was coupled with a view of the bog as ecologically productive and therefore useful in its current state. A *Delta Optimist* article from 2000 explained that "in addition to a place of beauty and serenity, Burns Bog serves a more functional purpose" (Beutel 2000a). Hebda argued that the bog was important in part because it "scrubs" carbon dioxide from the atmosphere, saying that "it is not only a wilderness jewel, it is a biological, biophysical miracle" (Scott 1990). Similarly, prominent environmentalist David Suzuki described Burns Bog as "one of a vanishing kind—a special bit of nature as it has been

for millennia" (Scott 1990). Underlying conservation efforts was a fear that the bog would disappear without intervention. This perception is evident in the *Photo-Bography: Images of Burn Bog* project. A collection of artists photographed different aspects of the bog for an exhibit, *Photo-Bography*, in order to preserve the bog visually (Beutel 2000a). The goal was to ensure that the bog continued to exist in some form as a bog even as it was developed.

Conservation actions and practices

Leading the push for conserving the bog was the Burns Bog Conservation Society (BBCS). Initially founded in 1965 as the Burns Bog Preservation Society (BBPS), the group campaigned for a portion of the bog to be set aside as a park, successfully driving the establishment of the Delta Nature Reserve (*Delta Optimist* 1988b). Hiking trails were built into the 160-acre reserve to allow for greater public access (*Delta Optimist* 1972). After the successful campaign, the BBPS became inactive; the upkeep for the Delta Nature Reserve ended and the trails fell into disrepair by the late 1980s (*Delta Optimist* 1988b; Croutch 1990). The organization was restarted in the late 1980s in response to a proposal to build a megaport in the bog, under the leadership of Eliza Olson and using the name BBCS (*Delta Optimist* 1988b; Scott 1990).

The BBCS focused on both campaigning for the conservation of the bog in its entirety and maintaining the Delta Nature Reserve paths. Their goal was to ensure that the public land of the nature reserve was accessible to the public to explore and enjoy (Croutch 1990). However, there were also calls, like those from Suzuki, that the bog be left "completely alone" (Glavin 1992). The management of the Delta Nature Reserve reflected this tension between promoting and restricting public access. In the early 1990s, the BBCS embarked on a new project to rebuild the trails in the nature reserve and build a second educationally-focused trail alongside different bog plants with identifying signage (*Delta Optimist* 1993). However, less than a decade later, the BBCS replaced the trails with a wooden boardwalk, because "the trail grew wider as park users walked its edges to avoid the muck" (Hoekstra 2003). The boardwalk elevated park users above the bog and minimized their impact on the peat and other plants. The shift from trails to boardwalk reflected conflicting desires to both increase public engagement with the bog and limit public engagement because of its supposedly harmful effects. Similarly, the 1988 *Delta Optimist* article promoting exploration of the bog also reads, "if you see anyone dumping rubbish, get his number and report him to police" (Eberts 1988). The shift towards recreational

and non-extractive forms of consuming the bog thus occurred alongside additional practices of surveillance, policing, and control, including those detailed in chapter 3.

The BBCS described itself as "waging a war of education" and it contributed to establishing annual events that shaped how people engaged with the bog (Zytaruk 1995). In 1991, the BBCS proclaimed two weeks in November as Burns Bog Weeks and organized numerous education activities and displays around the city, though little in the bog itself (*Delta Optimist* 1991). The event series was also the launch of a joint project between the BBCS and the Global Education Committee, which organized elementary school field trips to visit both "pristine and disturbed areas of the bog" (*South Delta Today* 1991). After these first events, further activities were held in the bog itself, planned largely for the summer months. The Jog for the Bog, an annual five- and ten-kilometre run fundraiser for the BBCS, started in 1998, and a portion of the route went through the Delta Nature Reserve (*Delta Optimist* 2009c). International Bog Day was also a key annual event; the BBCS organized the event every July starting in 1996. Every year, the Bog Day celebrations included guided tours through the Delta Nature Reserve, speeches, musical acts, and educational displays (Unrau 1996; Emery 2003; Olson 2006; *Delta Optimist* 2010). The BBCS also sometimes changed the event to respond to current issues, such as in 1997 when, to address recent clear-cuttings, they added a "Plant a Tree by Donation" booth (*Delta Optimist* 1997b). These yearly events came to define how, when, and where the public entered the bog and how they were meant to view and understand the bog.

Conserving (certain) Indigenous relations

Settlers promoting conservation also became interested in Indigenous relations to the bog during this period, albeit in two very particular ways. First, conservationists pointed to Indigenous relations and histories with the bog, largely those prior to colonization, to bolster the argument for conservation. Conservations demonstrated a desire to gather and present information about Indigenous histories in the bog, which resulted in a large portion of the materials I was able to use when outlining the history of Indigenous peoples in the bog prior to colonization. In 1961, the *Delta Optimist* conducted interviews with Tsawwassen people and published the collection of stories, which included one about the bog (Optimist 1961). The story about an underground river connecting the bog to Strait of Georgia re-emerged in settler discourses in the 1990s. Burns' popular education book about the bog included a chapter entitled "Heritage and Native Myths of

Burns Bog" which recounts the Tsawwassen story, as well as the Katzie tradition about cranes, and details about historical Stó:lõ presence in the bog. A reporter who camped in the bog with settler conservation activists recounted how they "talked about the stories old Tsawwassen people tell" (Glavin 1991). The BBCS published a pamphlet guide to the bog in 1994, which discussed Indigenous hunting and gathering in the bog under the heading "Archeology" (Harco 1994, 4), while their *Teacher's Guide to Burns Bog* presented the Stó:lõ peoples' relation to the bog as an entirely historical fact (Atwal et al. 1996, 109). At one of the International Bog Day celebrations, "Native medicine man Raul Old Hands… added a spiritual element to the festival's opening ceremonies" and is pictured on the stage using a drum; it is unclear whether he also spoke at the event (Unrau 1997).

The *Burns Bog Ecological Review*, while acknowledging that the bog still held cultural importance for contemporary Tsawwassen, Semiahmoo, and Stó:lõ Fist Nations people, only provided a brief outline of historical practices. In fact, the nearly 300-page synthesis report included a mere two paragraph section entitled "First Nations Use/Interest" (Hebda et al. 2000, 31). The review largely positions Indigenous peoples' relations to the bog as historical and suggests that "further archaeological research is required to develop a more complete understanding" (Hebda et al. 2000, 32). A 2002 account of the fights over the bog in *The Environmental Guide* also highlighted Stó:lõ traditions, though largely in order to argue that it was necessary to "save this fragile, magic place so our children and grandchildren can experience it, too" (Christine 2002). While the review and the other materials provided settlers with a greater depth of knowledge about Indigenous relations to the bog, the knowledge they presented was incomplete and imperfect. Because they were often including the histories within larger arguments calling for the conservation of the bog, conservationists tended to present a condensed account. Further, the goal of conservation also limited the breadth of detail by leaving settler ownership of the bog unquestioned. As a result, they lacked consideration of how settler-colonialism (and their own presence as settlers) and its associated practices of land ownership had affected or harmed ancestral and ongoing relationships.

The second way settler conservationists engaged with Indigenous relations to the bog revealed the limits of their concern. Settler conservation proponents were uninterested in supporting ongoing and future Indigenous relations to and practices within the bog. In fact, conservationists often approached Indigenous land claims with wariness and distrust, viewing the

claims as threats to the bog. Burns explains that "other pressures cloud the future of the bog. The Katzie band, part of the Stó:lõ First Nations, recently launched a land claim that includes Burns Bog" (Burns 1997, 87). Olson said in a 1999 interview with the *Delta Optimist* that "there were concerns about expropriation and some were worried that if [Burns Bog] came into the possession of the provincial government that the land may be subject to the native land claims treaty process" (Gulyas 1999g). In a similar vein, the January 2007 BBCS newsletter responded to the impending Tsawwassen First Nation Agreement by saying that the agreement "needs to be carefully read to understand any implications for Burns Bog" and noted areas that mention the harvesting of wildlife or gathering of plants in the bog as areas that the organization needed to review. The skeptical tone taken in discussion Indigenous land claims was vastly different from the romantic tone used to invoke Indigenous peoples as historical figures to further the case for conservation. The tonal tension revealed settler-colonial logics at play, where settlers were more comfortable affirming Indigenous relations to land as prior relations that were replaced by settler relations; the land claims challenged the historical lens and forced settlers to confront the reality that Indigenous peoples continued to live and attend to their land relations.

Conflicting cartographies

Government oversight and tensions

The 1970s marked a more significant shift in how settlers reshaped the bog, with public views and governmental bodies exerting greater influence over landowners about the state and future of the bog. In some ways, this process mirrored the earlier colonial period of the Lorne Estate, where the government required the owners to undertake specific practices, i.e., reclamation. However, in this case, public discourse focused on the questions achieving a "balance" between development and conservation. Once conservation-alongside-development became a viable option, the need for public intervention and oversight was heightened as the public did not trust private owners to ensure that parts of the bog would be preserved. A 1982 *Vancouver Sun* article argued that the "need for a comprehensive plan is especially great in this area where some future uses, such as agriculture, will require drainage improvements while preservation of parts of the bog as natural areas will require the maintenance of high water levels" (Leach 1982). While no

comprehensive plan was developed until after the purchase of the bog more than two decades later, what did arise was a greater pushback against efforts to wholesale transform the bog.

Despite the lack of a comprehensive plan, governmental jurisdiction and zoning laws played a key role in affecting what occurred within the bog. Much of the bog through to the early 2000s was zoned for agricultural activities, as well as "sand, gravel, and peat extraction and other limited industrial uses" (Hebda et al. 2000, 1). As a result, in spite of increasing discussions around conservation, Western Delta Lands was able to begin cultivating cranberries over a 1000- to 1600-acre portion in the centre of the bog (Beutel 1998). Further, the company took advantage of the lack of municipal bylaws around tree cutting to clear cut portions of the bog (Gulyas 2003a). When the Delta Municipal Council passed bylaws and blocked the clear cutting, Western Delta Lands sued the municipality and used the results of the ecological review to argue that the trees being logged were not required for the viability of the bog (Holmes 2003).

There were also numerous jurisdictional tensions and issues between the municipality of Delta, the GVRD, and the BC Provincial Government. All three levels had different powers and responsibilities over aspects of the bog, which deeply complicated matters (Burns 1997, 85). For example, provincial officials argued that development issues fell under municipal jurisdiction, while municipal officials argued that most of the issues related to the preservation of the bog fell under provincial authority (Glavin 1992). At the same time, fights over the continuation of the Vancouver Landfill between the GVRD and Delta showcased how the GVRD could override Delta's zoning of the land in order to push the landfill expansion forward (*Vancouver Sun* 1982). These fights revealed the multiple overlapping maps of power and oversight that blanketed the bog, with the differing authorities and concerns of the Delta, GVRD, and BC governments abstracting the bog through the prisms of their own, particular controls.

Layers of failure

During the 1980s and 1990s, Western Delta Lands brought forward multiple proposals to wholesale transform the bog, and each ultimately failed to gain traction. In 1988, the corporation proposed a deep-sea port that would cover 2000 to 2500 acres of the bog, as part of a 6000-acre development project. The full project included a mixture of industrial, commercial, and residential areas that would have housed 100,000 people (*Delta Optimist* 1988a). After failing to get the requisite rezoning, Western Delta Lands then proposed the construction of a racehorse

track in the middle of the bog (Graziano 1991). While this proposal similarly received pushback and failed, the provincial government did remove provincial protections from 480 acres of bog land that would otherwise have prevented Delta from being able to rezone the land for non-agricultural development (Glavin 1992). There were also proposals for a golf course, other residential housing developments, a four-lane highway, and the relocation of the Pacific National Exhibit (PNE), all of which failed (Metro Vancouver 2007, 5; Burns 1997, 10).

While the major settler undertakings to transform the bog historically failed due to the resistance of the bog itself, these newer efforts were thwarted by other settlers who challenged the proposals. Multi-faith pilgrimages began in 1999 as a protest to the PNE proposal (Willis 2008). Rather than being annual occurrences like the BBCS events, the pilgrimages initially arose in reaction to threats to specific development proposals for the bog. While the first pilgrimage occurred in 1999, the second did not happen until 2008, when plans were being brought forward to expand the South Fraser Perimeter Road through the bog (Willis 2008). After this point, the pilgrimages became an annual occurrence as the road expansion plans dragged on and hung over the bog as a threat for years (*Delta Optimist* 2009a; Raphael 2010; *Delta Optimist* 2011; *Delta Optimist* 2013). The organizers of the pilgrimage argued that the bog needed to be seen as a holy space and that the bog's sacredness was part of why it must be conserved (Raphael 2010; *Delta Optimist* 2011). It is worth noting that while the pilgrimages focused on promoting spiritual relations with the bog across cultures and faiths, no reports mention Indigenous leaders or participants until 2013, when Aline LaFlamme, a "Metis grandmother, pipe carrier, Sundancer, drum maker, singer, traditional healer, therapist, and workshop facilitator" as well as founder of the Aboriginal Front Door Society—an organization that supports Indigenous people living in the Downtown Eastside—spoke at the event (*Delta Optimist* 2013; Aline LaFlamme 2015). LaFlamme became a regular speaker at the pilgrimages and performed at the event as part of the Daughters of the Drum, an Indigenous collective of women who drum and sing to celebrate and sustain their cultural heritage (*Delta Optimist* 2017). LaFlamme described the pilgrimages as "a beautiful way of honouring our relatives of the Winged Ones, the Four-Legged, those that live in the water, those that crawl in and on the earth, [and] the Rooted Ones among others" (quoted in BBCS 2017-03-22).

Even as smaller encroachments into the bog continued from the edges, the larger proposals to transform the entire bog—especially the centre of the bog—failed to garner support.

The larger development projects, in threatening the existence of the bog itself, rose to a threshold of public awareness that the smaller encroachments did not, resulting in intense pushback and resistance. However, while the major proposals did not materially transform the bog, they did transform settler views of the bog. As a 1999 *Delta Optimist* article so eloquently put it, "over the years one dream after another has sunk into the peat and cranberries of this rare wetland" (*Delta Optimist* 1999a). The proposals did not disappear; instead they layered on top of the Lorne Estate farm and Burns' cattle ranch, dead yet not gone, building up like the Sphagnum peat that they had hoped to replace.

Science wars

After its first several defeats, Western Delta Lands turned to scientific studies as a way to and respond to conservationists. In 1992, it hired Glenn Rouse, a professor from UBC, to determine "what's worth saving [of the bog] and what isn't. In other words, what areas can Western Delta Lands develop" (*Delta Optimist* 1992)? Rouse argued that the centre of the bog was a "wasteland" and that there were perhaps only 2000 acres of the "actual bog" remaining and worth saving (*Delta Optimist* 1992). Several years later, when that research proved insufficient, Western Delta Lands funded the Burns Bog Ecological Review. The ecological review was meant to provide a roadmap for balancing conservation and development, determining just how much needed to be conserved and therefore the maximum amount of the bog that could be developed without destroying the ecological functioning of the bog. Development proponents used scientific studies to create understandings of the bog as a combination of essential and non-essential areas, so that they could justify transforming supposedly non-essential areas into farmland or industrial developments.

On the other side, conservation advocates also turned to science to build their case. The BBCS in particular used scientific knowledge to bolster its call for preserving the remainder of the bog (Delesalle 1995, 113). The group relied upon two main framings of the knowledge in its campaigns. The first was to highlight rare and endangered species discovered in the bog. The Beller's ground beetle, which only lives in Sphagnum moss, was found in the bog in 1997, and BBCS president Eliza Olson argued that "this discovery is further evidence of the need for Burns Bog to be designated as a protected area" (*Delta Optimist* 1997a). During the ecological review, two other species of beetle and two rare dragonflies, as well as southern red-backed voles, were

all found to live in the bog (Pynn 1999c; *Delta Optimist* 1999b). Later on, a rare masked shrew was discovered in the bog, and conservationists hoped the discovery could be used to block a planned highway expansion into the northern edge of the bog (Raphael 2007). By using rare species to increase the ecological value of the bog, conservationists deployed an economy of scarcity as a driver for conservation, which was especially visible in how development proponents responded. Nick Westeinde, the spokesperson for Delta Fraser Properties, responded to one of the discoveries by asking if the same species was found in other bogs in BC or Canada (Pynn 1999c). If the conservation value of the bog depended on how rare the species inhabiting it are, then finding more of those species elsewhere diminished that value.

The second way conservation activists used science was to discuss the ecological functioning of the bog. The public began to understand the bog as "performing" specific functions, such as water purification or carbon sequestration (Burns 1997, 11-2; 1992-07-22). One the one hand, the BBCS often relied on economic framings for these ecological activities through discourses around future economic costs of losing the bog (Delesalle 1995, 114). On the other hand, the BBCS also presented the bog as embedded within wider regional relationships and dynamics. They extended the bog through bodily metaphors, describing the bog as the lungs, and sometimes also the kidneys, of the Lower Mainland for its role in improving air and water quality (Burns 1997, 119). Settlers increasingly adopted this metaphor with most newspaper articles from the 1990s onward, calling Burns Bog the "lungs of the Lower Mainland," which enabled settlers living in the region to recognize themselves as directly connected to the bog. Through this metaphorization, settlers were able to perceive themselves in a consumptive yet non-extractive relation with the bog; everyone in the Lower Mainland was deriving value from the bog and was using it, even if they never entered the bog itself.

Theme parks and nature parks

After the many megaproject proposals for the bog, the relocation of the PNE proved to be the catalyst for eventual government intervention toward conservation. The PNE proposal was for a "leisure and entertainment centre" that would cover 2500 acres of the bog, with the remaining 3000 acres of the Western Delta Lands holding preserved as a park (Gulyas 1999a). The centrepiece of the centre would have been the PNE, a theme park that was located in Hastings Park in Vancouver but looking to move its location, alongside high-tech industrial spaces and

residential housing (*Delta Optimist* 1999a). The proposal was presented as a public-private partnership between the provincial government and Calgary-based developer Byron Seaman (Gulyas 1999b). When presenting the proposal, BC Small Business and Tourism Minister Ian Waddell said that Delta had two choices: "it's either this or cranberry farming" (Gulyas 1999b).

The Delta Council and residents were largely against the proposed development. The Delta Council expressed immediate misgivings about the proposal's similarity to previous initiatives that had been rejected (*Vancouver Sun* 1999). The Council also received hundreds of letters and phone calls from Delta residents, with over 95% of them opposing the proposal (Gulyas 1999c). In response to the public outcry, the November 1999 civic elections included a referendum question asking residents if the municipal and provincial governments should move to purchase the bog (Cooke 1999). The result was a clear "yes" vote, with 75% voting in favour of the government attempting to acquire the bog (Gulyas 1999g). Even before the referendum, the Delta Council began taking steps to redesignated 1200 acres of the bog to park status, like the Delta Nature Reserve, as "the first step to protecting… civic-owned land in Burns Bog" (Gulyas 1999e). By converting the area's status to park land, the Delta Council restricted agricultural development and moved towards long-term conservation.

Haggling and buying

The fight between the municipality and Western Delta Lands was especially contentious as the two sides fought over the value of the bog and commissioned divergent economic appraisals ranging from $41 to $300 million (Gulyas 2001c). On one side, Western Delta Lands argued that the property had a higher value based on the potential industrial activities that could be conducted on the land (Pynn 1999b). At one point, it also proposed a land swap; Western Delta Lands was willing to trade the bog for an equivalent value of other municipal or provincial assets (Gulyas 2001a). On the other side, the government proposed offers based on the agricultural market value, rather than the commercial market value, reflecting the land's current zoning (Christine 2002). Both sides proposed valuations based on the theoretical profit derived from bringing the bog land into different modes of production, even though the purchase was meant to exclude the bog from these very uses. However, despite the back-and-forth negotiations lasting years, some people felt the bog would inevitably be conserved. A columnist for the *Delta*

Optimist wrote in 2002 that he "th[ought] it's already been well established" that the bog was "not going to be anything but a protected area" (Murphy 2002).

However, it was not until 2003 that the federal, provincial, regional, and municipal governments collectively put forward a $78.7-million bid for the bog and moved towards a deal with Western Delta Lands (Boei 2003). The bid was initially for 5426 acres of supposed "prime bog" that would be "preserved in perpetuity and w[ould] belong to the public" (Gulyas 2003b). The parties finalized the deal several months later, though in the end the governmental bodies purchased only 5004 acres of the bog for $73 million; Matthews Southwest, a Texas-based development firm—which briefly purchased the entire holding from Western Delta Lands before reselling it to the government—kept 500 acres on the periphery of the bog that was "not considered vital to preserving the bog's ecosystem" for agriculture and gravel extraction (Gulyas 2004). While the public celebrated the purchase as a win, the BBCS argued that the purchase was insufficient and that more of the bog needed to be secured to preserve the bog's integrity (Diakiw and Ferguson 2004). The *Burns Bog Ecological Review* had concluded that a minimum of 5920 acres of the bog had to be preserved to maintain its ecological integrity (Diakiw 2000). Luckily for the BBCS, the Delta municipal council was still quite interested in purchasing the remaining privately-owned portions of the bog (Gyarmati 2004b).

Parallel to Burns' experience of successive accumulations of the bog, different governments slowly purchased more of the bog from private owners and incorporated the portions into the conservation area (Gyarmati 2008a). In 2008, Vancouver transferred 494 acres of bog land that was previously earmarked for landfill expansion to Delta to preserve (Gyarmati 2008b). Delta also worked to expand the conservation area to 6000 acres through the acquisition of an additional 400 hectares of agricultural parcels (MacNair 2013). Alongside the expansion of the conservation area, the government increasingly looked at reclaiming and rehabilitating previously used landfill areas. In 2007, the Delta Municipal Council discussed plans to reclaim part of the landfill for the location of an educational centre (Gyarmati 2007). While the Council did not expect the landfill area could be restored to peat bog, there was some optimism that with topsoil treatments and restoration efforts, the areas could become "new open upland habitat for birds" (Hebda et al. 2000, 149).

Conservation proponents sought to further protect the bog by publicly asserting international recognition of its value. An unsuccessful campaign by Liberal Member of

Parliament Joyce Murray pushed to have Burns Bog designated as a UNESCO World Heritage Site (*Delta Optimist* 2009b). For those lobbying for the consideration, the designation and the associated provisions and protections would "afford the bog a buffer zone to keep development from creeping in" (Raphael 2009). Another campaign, led by Delta and the GVRD, sought and received Ramsar designation for the bog because of its importance as resting areas for migratory birds (Gyarmati 2010b). In 2012, Burns Bog was included as part of the Fraser River Ramsar site as a "Wetland of International Significance" (Gyarmati 2012). This higher designation further established the bog as a site that deserved care and attention by enmeshing the bog within transnational geographies of value and wider webs of recognition.

Managing the future

As the bog became increasingly understood in the context of the dual framings of ecological function and rare species habitat, new science-based forms of management arose. As Hebda explained, "we have to discover what is active bog and how much is needed to keep it working as a bog" (*Delta Optimist* 1992). Hebda even used an industrial metaphor for the bog in a 1999 interview with the *South Delta Leader*, saying that the bog "work[s] as a giant eco-factory, burning pollution and editing clean air and the black, soupy soil filters waters flowing through the delta" (Cooke 1999). This metaphor exemplified the continued capitalist framework through which settlers approached and perceived the bog, envisioning the bog a productive factory. Settlers increasingly understood the bog through geographies of biological productivity with nonhuman beings engaging in labour and by extension, sought to oversee that nonhuman labour to increase desirable production. To manage this eco-factory, the GVRD, which was still responsible for managing the bog as land, and Delta, which was responsible for all the water in the bog, came together to develop a best-practices plan for their shared asset (Gyarmati 2005; Gyarmati 2010a). The result, the *Burns Bog Ecological Conservancy Area Management Plan*, was completed in May 2007 and it outlined the 100-year vision for the bog (Metro Vancouver 2007).

One supposed threat to the bog that required action was the appearance and spread of introduced, invasive, or merely inconvenient species. The introduced blueberry and cranberry species cultivated in farms around the edges of the bog spread throughout the region and began replacing indigenous berry species (Burns 1997, 49). The landfills brought in seagulls and bald

eagles, with as many as 40,000 seagulls above the landfill at a time (Pynn 1997). A 1997 *Vancouver Sun* article described the birds as potential hazards for the nearby Boundary Bay airport and detailed efforts to reduce their numbers, including releasing hunting hawks (Pynn 1997). Finally, the ecological review pointed out that the lower water table allowed European birch, tawny cotton-grass, Canadian rush, and brown-fruit rush to thrive more than they had historically, especially in the areas subjected to peat extraction (Hebda et al. 2000, 151-2). While many of these species are indigenous to the region, the review lists them all as "invasive or potentially invasive" in large part because they were deemed to be in areas they should not be; the indigenous species became recategorized as invasive because their contemporary distributions and numbers exceeded historical benchmarks. One of the main management plan objectives was to "minimize or eliminate, if possible, introduced and invasive plant and animal species" (Metro Vancouver 2007, 8). In further detail, the plan outlined the need to "monitor areas of invasive species" and "develop management strategies for their control as required" (Metro Vancouver 2007, 28). The rhetoric of invasive species perpetuated a view of the bog that held any deviations from what had been estimated as a pre-settler state as inherently damaging or problematic, and thus in need of greater surveillance and likely removal.

A second major dimension of bog management concerned the reversal of the lowered water table. The ecological review concluded that the drainage ditches caused a "critical summer water-table position threatening the Bog's viability" (Hebda et al. 2000, 241). Starting in 2001, Delta began working to build water control devices around the perimeter of the existing bog (Gulyas 2001b). The Delta engineering department took further measures in 2004 and worked with cranberry farmers to add plate devices into their irrigation ditches to reduce the drainage of the bog (Gyarmati 2004a). The management plan also prioritized addressing the water table as part of the bog's restoration. All of the hydrology-related actions were marked as "high priority actions," with one being the development of a water balance model for the bog and another being an overall ditch-blocking program that continued on the initial efforts that had already been undertaken (Metro Vancouver 2007, 27). Interestingly, the human ditch damming work was embraced by beavers in the bog, who patched the initial dams and further reduced water drainage, leading to more rapid than expected restorations (Lyon 2008). Peat started expanding back into the drier areas that had been taken over by more pine trees soon after the initial ditch-blocking (Kerr 2008).

A third critical component to settler management of the bog was the controlling and minimizing of human presence. Prior to the 2004 purchase, there was growing public pushback against hunting in the bog. Delta's Environmental Advisory Committee called for the end of hunting, arguing that the bog was "too accessible by too many," though the municipal council declined the proposed hunting ban (Beutel 2000b; Beutel 20001). However, after the 2004 purchase, hunting was banned in these areas (Hoekstra 2004). The prevailing logic was that "Burns Bog was saved from private hands, but it also need[ed] to be protected from the public" (Ruttle 2006). Where there were disagreements over public access, officials typically opted for reduced public access. For example, the mayor of Delta rejected the GVRD proposal for recreational and educational uses of the main bog area in favour of continuing to restrict all public access (Nagel 2005).

One of the most striking recommendations of the Conservation Management Plan regarded Indigenous access to the bog. The plan included the objective of "respect[ing] First Nations rights that may exist to access Provincial Lands for ceremonial and traditional uses" (Metro Vancouver 2007, 9). However, the only recommended action to fulfill this objective was to "finalize arrangements with the Tsawwassen First Nation for near-by off-site gathering of Labrador Tea" (Metro Vancouver 2007, 27). There was no plan presented to support or ensure ongoing Indigenous access to the bog itself; instead the plan focused on diverting Indigenous practices away from the bog. By looking at near-by off-site areas for Labrador Tea gathering, this proposal abstracted plant gathering and separated the act from the bog itself, reflecting an understanding of land as tradable and also fully under settler control.

Yet the management plan has not prevented First Nations communities from continuing to have relationships with the bog and engage in traditional practices. In a 2015 article with the Georgia Straight, Tsawwassen elder Barbara Joe said that the bog was "still a great area to collect plants for cultural purposes, like our winter ceremonies" (Mothe 2015). The Katzie and Tsawwassen First Nations both participated in the environmental assessment process for the South Fraser Perimeter Road expansion and provided some information about their current practices with the bog, which continued after Burns Bog was closed to the public. The Katzie First Nation continue to catch salmon along the Fraser River to the north of the bog, as well as gather berries and root plants in the wetlands within their traditional territories (EAO 2008, 48). The Tsawwassen First nation "indicated that there are important hunting, plant, and material

harvesting sites within Burns Bog" and pointed to Sphagnum, Labrador tea, bog blueberries and cranberries, deer, and beaver as all being important nonhuman species that they hunt or gather (EAO 2008, 55).

The Katzie First Nation are also actively working to support the restoration of the bog, though they approach restoration quite differently from settlers. They highlight the "negative impact of colonization on [their] cultural practices and management systems, and the wisdom these embodied" (Katzie 2016). In their restoration work, rather than focusing ecological functions and productivity, the Katzie First Nation is focused on relationships and responsibility. They centre "the re-establishment of [their] sovereignty over the stewardship of the lands and waters in [their] territory, in part by revitalizing [their] traditional cultural practices and management systems that supported a healthy ecosystem for thousands of years" (Katzie 2016). These details point to ongoing Indigenous geographies and relations with the bog that have not been extinguished or ended despite more than a century of settler attempts to do so. Indigenous peoples have persisted in maintaining relationship in spite of the numerous successive settler transformations of the bog and its nonhuman inhabitants.

Conclusion

The twentieth century was bookended by government-directed interventions into the bog to reshape its relations and the dynamics occurring within it. Where initial settler government intervention was focused on destroying the bog by giving the land over to private owners to reclaim and drain it, latter interventions were based on reversing some of the effects of these earlier practices by conserving the bog and restoring its ecological functions. The end of the twentieth century saw a turn towards settlers understanding and valuing the bog for its own sake, rather than for its potential as a literal space for capitalist modes of production. However, these new settler understandings and valuations were based on an extension of previous encroachments that sought to optimize and take advantage of the bog to perform particular functions. The recognition that the bog is a carbon sink and also restores the water table to promote Sphagnum growth and increase carbon sequestration is not that discursively different from efforts to take advantage of the Sphagnum's characteristics to create a sewage treatment area in the bog. Instead, the conservation and management of the bog was a continuation of the impulse to make the space productive.

Above all else, conservation and scientific inquiry maintained settler control of the bog, and enabled different penetrations of settler-colonialism into the bog; settlers sought not to remove and replace the nonhuman beings in the bog, instead they sought to direct and manage those beings in more preferable ways (for settlers). As the bog transitioned from wasteland to Ramsar Wetland of International Significance, settlers grew to understand the nonhuman relationships and dynamics of the bog. They were able to further shape nonhuman beings through more deliberate and targeted practices, with strong interest in harnessing those relations to mitigate the effects of settler-colonial capitalism: climate change, air pollution, and depleting groundwater. The governmental purchase of the bog and the management plan reflect a discursive, and also quite literal monetary, investment in settler futures in the Fraser Delta and with the bog. By laying out a 100-year plan for managing the bog, settlers asserted a confidence both that the bog would continue to exist in a particular state, and that settlers would continue to be there to oversee and control it.

Conclusion

In between visits to the archives, I spent a day exploring Burns Bog. Or, more accurately, I explored the Delta Nature Reserve, the only area open to the public. As I walked along the boardwalk, I considered how my movements and presence in the bog were being managed and directed. The boardwalk lays out the literal path that people are supposed to follow, ensuring that people walk on wooden planks instead of the peat or water, minimizing the engagements with the nonhuman beings that live in the bog. I thought about how human/nonhuman relations have been controlled or governed through settler-colonial logics and institutions over the 150+ years. I thought of how peat extraction corporations directed workers to cut out blocks of Sphagnum peat, to operate trains in transporting the peat to processing plants, and to run the machines in those plants. In the Vancouver Landfill, city workers did (and still do) drive in trucks and dump collected garbage onto growing piles. Hydrologists wade through the bog to measure the water table and take samples to test the water content. Around the edges, settler farmers worked to dig ditches, clear away plants, and seed the dried ground with agricultural crop plants. In the Delta Nature Reserve itself, the BBCS puts on events that are meant to convince the public to become invested in the longevity of certain aspects of the bog.

While these cases encompass rather different practices with distinct effects, they share certain commonalities. Each involves some level of controlling human/nonhuman relations. Settlers attend to or engage with only some nonhuman beings in the bog and disregarding others. They also all rest on a shared affirmation of settler control over land. They all affirm logics of land as property and settlers' ownership of that land. Settlers have defined the bog through the "appropriate" practices of the time: peat extraction, agriculture, chemical testing, and recreational strolls. The history of settler practices and encroachments into the bog have not always been based on making the bog profitable, though most encroachments certainly have. Instead, settler encroachments into of the bog have been based on achieving a level of productivity and usefulness from the nonhuman entities that comprise and inhabit the bog. Practices like land reclamation, agriculture, peat extraction, and the landfills have aimed at commodifying the bog. Other practices, like hunting, conservation, or restoration, have sought to acquire non-economic value from the bog, such as water or air filtration. Yet they have all played a role in shaping the bog, and transforming it into Burns Bog, as a place within the settler

geographies of the region. As I have demonstrated through this historical account, settlers have engaged in a series of practices with(in) the bog and have visibly and materially shaped the bog through those practices.

Along the boardwalk paths are several signs and displays that inform visitors of the bog's story. They outline the narrative boundaries and definitions of the bog, presenting its history and relations to the wider region and world. One sign, entitled "History and First Nations," says that Indigenous peoples "harvested and traded berry crops, like blueberries and cranberries. They used Labrador Tea for medicinal purposes." The wording positions Indigenous peoples' relations to the bog as a purely historical fact, rather than a present and ongoing reality. Another sign, with the title "Why is Burns Bog Important?", explains that the bog is a habitat for rare and endangered species, that it acts as a carbon sink, and that it purifies the air. These reasons draw upon stories of usefulness and productivity: Burns Bog does important work, and that is why it is important. The sign's narratives re-enforce biopolitical capitalist values upon the bog, while also playing a key role in making Burns Bog as a place. The signs are just one practice of narrating the bog, actively defining its boundaries and relations to both Indigenous peoples and settlers.

While walking around the outer path, I could hear (and at certain points along the boardwalk could also see) cars driving on the highway that runs along the nature reserve. The nearby cars speeding down the highway was a reminder that the "urban" in this "undeveloped urban landmass" is never truly far away and that the claim of the bog as "undeveloped" is a fraught one. Burns Bog has not avoided developed, it has been made through development. Burns Bog is not the same bog it was 200 years ago, 100 years ago, or even 20 years ago, not the least because the bog has only been thought of as "Burns Bog" for the last approximately 80 years. Settlers have consumed the bog from the outside, eating away at the edges and expanding their reach inward, as well as from the inside, extracting peat and establishing cranberry farms in the centre of the bog. The description of the bog as "undeveloped" is intensely rooted in a conservation narrative that depends on asserting the naturalness or purity of a place as the basis for care. In this ethic of valuing pristine wilderness, to affirm the narrative that settlers have drastically changed the bog would strengthen the argument that the bog is not worth saving: if the bog is already "degraded", what is there to protect?

Yet the descriptor of "undeveloped" also functions to erase Indigenous relations and histories with the bog. To call the bog undeveloped is to say that it has not been impacted or

changed through human intervention. For this to be true, the long history of Indigenous peoples and their presence in and relation with the bog, which continue today, has to be erased. The narrative of "undeveloped" rests, at least in part, on the erasure of Indigenous histories and the denial of Indigenous presents and futures. This is a common dynamic across settler stories of the bog over the past century and more: the absence of Indigenous voices and stories. Certainly, my own paper does not escape this criticism. Without conducting interviews or working with First Nations communities in researching and writing this history, I have not raised or centred Indigenous voices beyond what I could find in the archives and other materials I accessed. Instead, what I have done, in reading those materials within the context of settler-colonial logics and practices, is to begin the process of detangling the bog from settler-colonialism. I have worked to reveal and demonstrate how seemingly disparate settler practices of the bog are informed by and rooted in similar logics and narratives. This is important but fundamentally incomplete and insufficient work. The necessary continuation of this research is to actively support Indigenous sovereignty over traditional territories and the flourishing of Indigenous knowledges and practices.

One potential entryway into future work that supports Indigenous sovereignty might be to look at the question of access. The history of Burns Bog is often marked by shifting levels of access for humans and nonhumans alike. Katzie families allowed others to come into the bog areas they were responsible for to pick berries. Early settlers struggled to access the centre of the bog and map property lines across it. Settler hunters were granted permission and gained access to private property though it is unclear is Indigenous people received similar permission. Water was denied continued access as ditches directed it away. Government officials work to restrict all access to the bog, yet Indigenous peoples are still findings ways to access the bog and engage in traditional practices. In some ways, the bog might be as porous as the peat that fills its, allowing human and nonhuman beings to easy flow into and through it yet, while at other times, land practices of ownership, extraction, and conservation have greatly diminished the bog's porosity and the flows through the bog.

In this paper, I have sought to contend with Burns Bog as a shifting set of material and narrative practices that have informed, flowed into, and interacted with one another. Burns Bog both is comprised and remade through settler practices and also is a settler practice in and of itself: Burns Bog is a collection of boundaries, definitions, relationships, practices, and narratives

that position the bog within settler geographies of the region. Conservation is one of those practices and shares more with its predecessors than we might care to admit. Conservation charts out the existence of the bog well into the future, maintained in a supposedly ideal state in perpetuity. Yet in positioning settlers as the managers of the bog, conservation extends settlers' presence and domination over the bog into the future as well. My hope is that this research challenges conservation activists to think more seriously about settler-colonialism and their own role in the ongoing systems of Indigenous dispossession from land. If conservation is as bound up in logics of settler control over land as previous extractive capitalist practices, then we must think beyond the paradigm of conservation and management, and instead work to affirm Indigenous sovereignty.

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