

**Communities and Health in Living Landscapes:
Linking Outdoor Recreation and Health in Northern British Columbia**

by

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ABSTRACT

Ongoing changes to landscapes, economies and demography in northern BC, have created dynamic and changing relationships among environment, communities and health. This study contributes to our understanding of these relationships by exploring the connections between nature and health in northern BC with a particular focus is on the roles of nature-based outdoor recreation for two communities experiencing different kinds of socio-demographic and landscape changes.

The research presented here was nested within a larger project entitled “Communities and Health in Living Landscapes” which seeks to gain insight into the nature of, participation in, barriers to and benefits of, nature-based outdoor recreation in northern BC communities of Mackenzie and Dawson Creek, and the associated influences on health and wellbeing within these communities. This particular research was focused on partners meetings and public workshops conducted in Mackenzie and Dawson Creek conducted as one component of the larger project.

This thesis presents and discusses literature, context, study design and findings from qualitative analysis of transcriptions from these activities. Constant comparison analysis was used to identify major and context-specific themes arising from analysis of the transcripts. The findings were compared between communities and with existing literature. Many of the research findings supported existing literature; however the study also helped to identify important context specific dynamics that helped to make evident the differences between individual communities within this region, and to highlight characteristics that are important to understanding health, environment and community dynamics in northern BC.

The study findings highlight the need for, and potential benefits of, bridging health, resource and conservation sectors in this region. Specific findings regarding practices of nature-based outdoor recreation in both Mackenzie and Dawson Creek may inform future research and highlight the value of ongoing attention to the influence of outdoor recreation on health and well-being in communities embedded within changing rural and northern landscapes.

DEDICATION

I would like to thank my parents for their everlasting love and support in all aspects of my life. You are both very special to me and have played a major role in my current endeavours. I am appreciative of the values you have instilled in me, including the importance of education. Thank you to Jamie and Adam, the best brothers in the world! They say your siblings experience life with you the longest – bodyguards forever. I am utterly grateful for having the most wonderful parents and brothers.

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LIST OF ABBREVIATIONS

BC: British Columbia

CHILL: Communities and Health in Living Landscapes

HEALBC: Healthy Eating, Active Living BC

NEAT: Northern Environment Action Team

NGO's: Non-governmental organizations

PEB: Pro-environmental behaviours

UK: United Kingdom

UNBC: University of Northern British Columbia

USA: United States of America

WHO: World Health Organization

1 Chapter 1: Introduction

Understanding the relationship between health, community and the environment, particularly through engagement via nature-based outdoor recreation in the northern BC region, warrants further exploration. The benefits that arise from contact with nature for individuals in regards to physical, mental and spiritual health, have been well documented (Astell-Burt, Feng, & Kolt, 2013; Bossen, 2010; Boyes, 2013; Brook, 2010; Korpela & Ylén, 2007; Mitchell, 2013). At the collective level, a connection with nature has translated into noticeable societal profits and environmental returns, by increasing social capital and promoting environmental stewardship (Cervinka, Röderer, & Hefler, 2011; Hawe & Shiell, 2000; Kruger, 2006).

The World Health Organization (WHO) emphasized the association between health, the environment and society through their calls for a socio-ecological approach to health in the Ottawa Charter for Health Promotion (1986). The Ottawa Charter states that “health cannot be separated from other goals...world nations, regions and communities alike ...need to encourage reciprocal maintenance to take care of each other, our communities and our natural environment.” (1986, npag). Prerequisites for health in the Ottawa Charter for Health Promotion include a stable ecosystem and sustainable resources, which goes beyond the importance of human health to also include ecosystem health (1986).

The social and ecological changes associated with participation in the natural environment have highlighted the need for intersectoral collaboration, furthering the understanding of the association between health, community and the environment (Northern Health, 2012). Engagement in natural environments through activities such as environmental volunteering or participation in outdoor recreation has direct and indirect influences on pro-environmental behaviours (PEBs) and social capital (Larson, Writing, & Green, 2011; O’Brien, Burls,

Townsend, & Ebden, 2011; Pillemer, Fuller-Rowell, Reid, & Wells, 2010). These associations reaffirm that participation in nature-based activity has the power to positively influence both communities and the environment, in addition to human health.

The overall goal of the Communities and Health in Living Landscapes (CHILL) project is to gain insight and become informed about emerging themes that relate to the nature of, participation in, barriers to and benefits of nature-based outdoor recreation, specific to the context of rural communities in northern British Columbia (BC).¹ Within this larger context, the overall aim of my Honours research is to gain particular insights into these aspects of nature-based outdoor recreation, informed by partners meetings and public workshops conducted by the CHILL team in Mackenzie and Dawson Creek. Specific objectives of my Honours research will be described further on. This chapter will begin by providing an introduction to the larger CHILL project, followed by a summary of the landscape, economies and recreation opportunities, specific to northern BC. Context will be provided for two communities of interest, located in the northeast of British Columbia: Mackenzie and Dawson Creek. Lastly, the research questions and rationale for this research project will be provided.

1.1 Communities and Health in Living Landscapes

The “Communities and Health in Living Landscapes” (CHILL) project is aimed at exploring the themes ‘healthy by nature’, ‘healthy parks, healthy people’, and ‘place integration’. It seeks to improve the understanding of the nature, accessibility, and participation in nature-based outdoor recreation, specific to the Peace River region and their implications for health and wellbeing. Focusing attention to the Mackenzie-Peace Corridor, the project chose to use various methods to evaluate the nature and involvement in outdoor recreation by the populations of Dawson Creek and Mackenzie (see Figure 1.1). Attention toward these two communities was

due their representations of economic opportunity and challenges faced. It is a challenge to identify how residents and workers within northern BC can integrate into their local environments, to improve health and promote sustainability. Awareness of the underlying differences between northern BC and the rest of the province, as well as within this region itself, allows for better understanding of health and community benefits and barriers experienced in relation to outdoor recreation.



Figure 1.1 Map of British Columbia regional districts, highlighting the Peace River region (BC Region Map, 2014).

Current public health strategies are shifting focus to upstream health promotion; however, the benefits of nature contact and participation in recreation as an upstream approach are generally understated (Maller, Townsend, Pryor, Brown, & St Leger, 2006). It is important to identify and understand any barriers that may limit accessibility to these natural environments for persons from a variety of socio-demographic backgrounds (Maller et al., 2006). The CHILL project has

developed during a time in which there is a growing interest to study natural resource-based rural communities and assess the distinctive relationships and behaviours between people and their surrounding environments (Kruger, 2006). This project is a first step towards understanding the existing links between health and nature in northern BC and the importance of nature-based recreation for this population. Research may be able to indicate the benefits of what is currently being done in this region, as well as identify areas of improvement to build and sustain healthy, strong, and unique communities.

1.2 Study Area: Northern British Columbia, Mackenzie, & Dawson Creek

Northern BC is known for its vast wilderness, providing immense opportunities for residents to engage with nature (Destination BC Corp., 2013). The extensive web of river and lake systems, rugged coastlines, and mountain ranges, provide exceptional settings for residents and travelers to experience recreational activities, catering to many personal interests and skill levels (Destination BC Corp., 2013). Recreational opportunities in northern BC include, but are not limited to: hiking, trekking, camping, canoeing, fishing, golfing, biking, nature viewing, and swimming (Destination BC Corp., 2013; NRG Research Group, 2013). Much of the region is protected through provincial park systems and nature reserves, in place to promote conservation, environmental stewardship, and nature-based outdoor recreation (Destination BC Corp., 2013). Barriers and motivations to participation in nature-based recreation across the province are generally similar; however, previous research has provided limited insight into the unique characteristics featured in the north (NRG Research Group, 2013).

The dynamics of rural communities in northern BC are unique when compared to other regions within the province. Northern communities are closely tied to the land in many ways; therefore, merely generalizing the communities as having rural and remote features, as

contextualized from other parts of the country, does not provide an understanding of their distinct characteristics (Northern Health, 2012). British Columbia is recognized as a primary source of natural resources, extracted and processed for export to other provinces and international markets for manufacturing (Northern Health, 2013). These resources have influenced the development of this region economically, socially, culturally, and ecologically (Northern Health, 2012). Many communities within northern BC are termed single-industry resource communities, affected greatly by alterations in supply and demand, as a single resource encompasses a majority of their economic activity (Hanlon & Halseth, 2005; McLeod & Hovorka, 2008; Northern Health, 2013). Others are termed multi-industry communities, reliant on multiple resources, which provide more economic stability and a broader scope for employment opportunities (Hanlon & Halseth, 2005).

A majority of citizens in northern BC work in the resource industry and service sectors, with a small percentage working in the growing service sector (Northern Health, 2012). As these communities are highly dependent on global demand for their success, they face fluctuations in the form of booming and waning cycles. Mackenzie, a single-industry town with a population nearing 4,500, relies heavily on the forestry sector to provide employment, which has caused economic instability over the years (Hanlon et al., 2007). Dawson Creek, located in the centre of the Peace River region, has a population above 10,000 (City of Dawson Creek, 2014a). With a number of industries in the area, as well as an expanding tourism and service sector, the economy in Dawson Creek is thriving (City of Dawson Creek, 2014a). However, both communities face unsustainable development – Mackenzie faces major shifts in demographic structure due to loss of major employers, while Dawson Creek must adapt to a population of

transient and immigrant workers interested in a solid income, usually underutilizing what the community has to offer (Northern Health, 2012; Northern Health, 2013).

Diverse landscapes provide many recreation and employment opportunities, appealing to many individuals and families (Northern Health, 2012). The opportunities existing have drawn in a very diverse population (Northern Health, 2012). The existing Aboriginal population, along with the influx of migrants and transient workers, has resulted in a diverse population (Kirby, Lévesque, Wabano, & Robertson-Wilson, 2007; Northern Health, 2013). While migration is required to fuel the economy, it results in many challenges for healthcare servicing in the area. Attention towards populations in northern BC is increasing, as northerners often face higher rates of obesity, mental illness, chronic disease, and injuries than their southern counterparts (Statistics Canada, 2012). The northeast region has the highest rate of overweight or obese people within BC at 61.9%, versus the rest of the province at 44.5% in 2007/08 (Provincial Health Services Authority, 2010). Exploring the roles of industry, local organizations and health advocates, with respect to promoting or discouraging interactions with nature, provides insights that can be used to make locally-relevant decisions.

1.3 Study Rationale & Research Questions

The overall aim of the CHILL Project is to: understand the nature and type of participation in nature-based outdoor recreation in northern BC communities (both booming and waning) and the health and community benefits and barriers experienced by individuals in these populations. Within this larger project, the objectives of this Honours research project are:

- (a) to examine the literature in order to contextualize the health and community benefits of nature-based outdoor recreation in northern BC, and
- (b) to conduct a qualitative analysis of data collected during partners meetings and public

meetings in Mackenzie and Dawson Creek, to gain contextual insights regarding nature-based outdoor recreation and potential health and wellbeing impacts in these two communities.

In addressing these objectives, my Honours research has drawn on the literature review and qualitative analysis to focus especially on the following three research questions:

- I. What natural settings and outdoor recreation opportunities are identified in Mackenzie and Dawson Creek?
- II. How do the experiences of natural settings and outdoor recreation opportunities compare between Mackenzie and Dawson Creek, and with literature?
- III. How do similarities and differences between Mackenzie and Dawson Creek contribute to our understanding of the relationships between health, environment and community in relation to nature-based recreation, both in northern BC and in general?

This thesis will begin with an introduction to the existing literature exploring the interactions between health, community, and environment with regards to participation in natural environments through outdoor recreation in Chapter 2. The focus will be on material concerning topics or issues relating to the experiences of residents and workers in northern BC. Following the literature review, the detailed methods for this research project will be provided in Chapter 3. The results of the project will be presented in Chapter 4 and discussed further in Chapter 5. A final conclusion will be given, revisiting the purpose and highlighting key results from this research.

2 Chapter 2: Literature Review

2.1 Introduction

For this Honours thesis a collection of literature was explored, with focus towards the interplay of health, outdoor recreation, community, and the environment. This review emphasized literature focusing on nature exposure or contact with nature, particularly through means of outdoor recreation. Works relevant to northern BC were flagged and explored further. Faced with difficulties finding literature specific to northern BC, related international research was considered relevant for exploring particular topics, especially those based in rural context.

To determine natural settings for outdoor recreation within the two communities of interest, the literature review also involved document review. Using the following electronic databases, individual searches were done between January 2014 and March 2014 to collect peer reviewed literature: PubMed, Academic Search Premier, CINAHL, and Google Scholar. The citations were entered into Zotero referencing software, and abstracts for each study were read. Full-text articles were retrieved if they were determined to be relevant. A thorough reading of all studies collected followed, defining which ones were eligible for inclusion. Supplementary methods for finding studies or to gather information on various organizations included a review of article reference lists, Internet searches, and scans of annotated bibliographies written by colleagues.

Search terms for identifying journal articles included combinations of outdoor recreation or activities, parks, nature or outdoors or green space, participation or access or engagement, rural or remote, health or well-being. Studies written in English, that reported a range of benefits of

nature exposure through recreation or by other means, were included. Additionally, literature reflecting on the larger themes of ‘Healthy by Nature’ and ‘Healthy Parks Healthy People’ met the inclusion criteria.

This chapter will begin with an overview of literature identifying the benefits and barriers of participation in nature, with a discussion of initiatives promoting nature contact, including ‘Healthy by Nature’. A focus on built environments, including parks and associated trail systems, and their role within the context of outdoor recreation, will be considered. Literature on the association between the environment and human health will be explored, as well as the effects of resource development on participation in outdoor leisure, community capacity building, and the welfare of natural landscapes. A document review of the target communities, Mackenzie and Dawson Creek, will provide insight into their economies, resources, and opportunities for recreating. Sources included peer-reviewed journal articles on various topic, grey literature, and other documents including published community profiles, tourism-based webpages, BC Parks webpages, along with other pertinent information discovered through specific Internet searches. As material on particular topics were sparse in the literature, it was appropriate to include websites as supplementary sources. Finally, understanding ways in which sustainable, healthy communities are fostered in northern BC, in relation to Mackenzie and Dawson Creek, will be considered.

2.2 Health and Nature

As the world faces increasing urbanization, accessing nature is becoming progressively more challenging (Townsend & Weerasuriya, 2010). Humans have spent years adapting and evolving among natural environments, and there is concern that disconnect with nature-based settings will be damaging to the health of individuals, communities, and the environment (Townsend &

Weerasuriya, 2010). Children are spending less time outdoors, and health trend such as an increased incidence of obesity and mental health concerns among this population are being linked to this alteration in lifestyle (Brook, 2010). Reduced ecological sensibility, or the awareness that being involved in nature will produce an understanding and appreciation of the natural world, has contributed to the lessening sense of responsibility for the environment (Hansen-Ketchum, Marck, Reutter, & Halpenny, 2011).

Defining nature is a challenging task, as the term encompasses a multitude of settings; however, understanding the definition of nature can be useful to promote nature-based recreation for individuals to obtain the greatest number of health and wellbeing benefits (Kaplan & Kaplan, 1989). Nature includes areas that are near or far, common or unusual, managed or unkempt, big or small (Kaplan & Kaplan, 1989). Its wide range of meanings has led to generated terms that are refined to enforce clarity, such as ‘nearby nature’, referring more specifically to street trees, house plants, or companion animals (Brook, 2010). However, some terms still require explanation; for example, natural environments are not always required to consist solely of natural elements (Kaplan & Kaplan, 1989).

The term biophilia is used to describe the interconnectedness with nature that human beings feel; stimulation by means of viewing or engaging with nature leads to physiological, psychological, and/or emotional processes (Bossen, 2010). Furthermore, a sense of connectedness to nature contributes to positive emotional states and predicts pro-environmental behaviours (PEBs) (Cervinka, Röderer, & Hefler, 2011; Kruger, 2006). Engaging with nature can be passive or active, simply through visitation of a preferred outdoor environment, or by embracing the natural landscapes as places to recreate (Korpela & Ylén, 2007). Those who

recreate on public land tend to develop connections to these places, and the strength of these relationships plays an important role in prompting regular involvement in nature (Kruger, 2006).

There is a movement worldwide, with the aim of improving human health and well-being by encouraging contact with nature (Healthy by Nature, 2006). The umbrella phrase, ‘Healthy by Nature’, is an initiative contributing to this movement within Canada, following three principles: spending time in nature improves human health; human health depends on healthy ecosystems; and parks and protected areas contribute to vibrant, healthy communities (Healthy by Nature, 2006). It should be noted that there are many related initiatives or studies that follow similar principles and not all. Research studying health and the environment fits under the ‘Healthy by Nature’ “banner” phrase. In addition, while many resources relate to the concept of ‘Healthy by Nature’ or health and nature within the context of Canada, resources specific to northern Canadian communities are limited.

2.2.1 Health and Nature-Based Initiatives

There are many initiatives in place that are working to increase participation in nature, for adults, children, and communities (Ashbulby, Pahl, Webley, & White, 2013; Healthy Children, Healthy Spaces, 2012; Healthy Parks, Healthy People Central, 2012). These initiatives often involve a single sector, employed to engage individuals or groups to participate in nature. Often, they acknowledge the health benefits of engagement with natural settings, and incorporate environmental stewardship into the programming. An overview of initiatives connecting health and nature are provided here introducing a range of international and Canadian examples.

International Initiatives

In the United Kingdom (UK), the *Health and Wellbeing in Britain’s Woodlands* launches programs and social media campaigns, including organized walking or cycling clubs among

public forests, to portray the health benefits of engaging with the outdoors (Healthy Parks, Healthy People Central, 2012). This initiative also includes outdoor referrals by doctors or healthcare workers, to promote participation in the outdoors for patients (Healthy Parks, Healthy People Central, 2012). The *Conservation Volunteers* have initiated the *Green Gym Program* in the UK as well, to teach individuals about environmental conservation and the health benefits associated with performing moderate physical activity in outdoor settings (The Conservation Volunteers, 2014). Australia and New Zealand shares similar promotional strategies as the UK, in which health professionals prescribe ‘lifestyle prescriptions’ or ‘green prescriptions’ to encourage patients to increase their physical activity among natural environments (Townsend, 2006).

The United States (US) has a hub known as the *Children and Nature Network*, using innovative ideas and collaboration with researchers, to foster the connection of families and the community to nature (Children and Nature Network, 2011). *Green Hearts* is a non-profit, conservation organization that works through advocacy, partnerships, and development of nature-based pre-schools to encourage children to play outside, with hopes that they will learn and practice forest stewardship as they grow older (Green Hearts, 2008). The *Natural Learning Initiative* recognizes the importance of information dissemination among youth, and utilizes education and action research to stress the importance of daily nature contact among children (Natural Learning Initiative, 2012).

In Cambodia, Madagascar, and the Philippines, programs were aimed at providing health services for these developing countries, as well as encouraging environmental stewardship (Conservation International, 2012). The *Healthy Families Healthy Forests* project educated the youth, communities, and healthcare professionals about conservation, and promoted family

planning to help reduce strain on the local environments and natural resources (Conservation International, 2012).

The World Health Organization (2014) annually promotes the *Move for Health Day* on May 10th, encouraging Member States to plan and organize events that bring awareness to the health benefits of physical activity. The flexibility of this event has allows Member States to incorporate nature contact and outdoor activities into their promotional efforts (British Columbia Medical Association, 2012; WHO, 2014).

Canadian and Local Initiatives

In Canada, the *Healthy Children, Healthy Spaces* initiative is aimed towards youth, focusing on creating policies to promote activity in outdoor environments, ensuring access and safety are met in these settings (Healthy Children, Healthy Spaces, 2012). *Kid Active* is oriented more towards addressing the health issues associated with dissociation from the outdoors, by utilizing outdoor environments. The *Take Me Outside* initiative is committed to providing education and increasing awareness of the importance of establishing a connection with nature. Projects aimed at getting youth outside are done through collaboration with organizations, school boards, and community members (Kid Active, 2011). The *Child and Nature Alliance of Canada* use family nature walks and summer camps, along with other programs, to get families and children outside, interacting with nature (Child and Nature Alliance, 2012). Constructed by the *Child and Nature Alliance*, the *Natural Leaders Alliance* is a current youth-led initiative, aiming to provide opportunities and empower youth to get outside (Child and Nature Alliance, 2012). The *Palisades Stewardship Education Centre* in Jasper National Park promotes youth ambassadorship by bringing together students in grade 9 to 12 for a weeklong experiential and

conservation-based opportunity (Grande Yellowhead Public School Division, 2014). Some initiatives explicitly connecting health and nature are also underway in BC.

The *Young Naturalist Club* in BC, established in 2000, is a charity supporting local experts working with youth between 5 and 12 years (n.d.). This program extends across the province, from Fort St John in the north to Vancouver in the south, supporting youth to explore the diverse ecosystems of BC (Young Naturalist Club of BC, n.d.). One youth project established from this initiative is the Beaver Lake Bog restoration, which helps to develop a sense of pride and responsibility for the natural heritage (Young Naturalist Club of BC, n.d.). A partnership between Northern Health and the District of Mackenzie since 2009 has led to the implementation of the *Walk with your Doc* program, inviting community members to join a local doctor on a walk or run outside (British Columbia Medical Association, 2012). Throughout the rest of the province, similar programs have been established by the British Columbia Medical Association Council on Health and Promotion. During the International Move for Health Day in 2011, 80 doctors and nearly 2,600 patients from across the province came together to increase physical activity outdoors and sharing of health knowledge (British Columbia Medical Association, 2012; WHO, 2014).

Get Outside BC, established by the Canadian Parks and Wilderness Society, is a collaborative youth leadership project, aimed towards improving nature contact for youth (Get Outside BC, 2012). At-risk youth are provided outdoor recreation experience and leadership skills through the *Zero Ceiling Society of Canada* program (2014). These youth are provided winter sport skills training at Whistler or Grouse Mountains, aiming for empowerment and pushing them towards personal growth (Zero Ceiling Society of Canada, 2014). The *Rural BC Network* is a program which aims to improve features and provide feedback on established

programs in rural communities, including those that are associated with nature participation or benefits (BC Rural Network, 2005). In Northern BC, the *Healthy Eating, Active Living BC* (HEALBC) is a funding provider that supports initiatives aimed at improving the health of local residents, such as community garden projects (Healthy Eating, Active Living BC, 2008). The *Northern Environment Action Team* (NEAT) is a non-profit, collaborative group established in 1989, with a vision to promote environmental sustainability by supporting projects that help community member's live greener lives in the Peace & Northern Rockies region (2014).

These descriptions are not extensive, acting merely as a sample of the total initiatives established internationally, nationally, and locally. It is evident that a vast range of opportunity is emerging, focused on providing communities more options to promote nature exposure and outdoor recreation, often integrating health, community and environmental components.

2.2.2 Nature Exposure

Nature exposure, or nature experience, are terms that reflect an array of active and passive interactions within natural environments, at both the individual and collective level (Bossen, 2010). Viewing landscapes or sitting in parks are considered passive interactions, while walking through trails or on paths are considered more active (Bossen, 2010). Enjoyment of nature as a motivator for increasing nature exposure is a common theme among multiple facets of research (Armstrong, 2000; O'Brien, Townsend, & Ebdon, 2010). Korpela & Ylén (2007) revealed people with health complaints, including headaches, back pain, sore muscles, or low energy, selected natural settings as their top favourite places to relieve their accompanying negative moods or feelings (Korpela & Ylén, 2007). Being in close proximity to nature, or simply viewing nature, is known to improve positive health outcomes among individuals in both rural and urban settings (Brook, 2010; de Vries, Verneij, Groenewegen, & Spreeuwenberg, 2003;

Kaplan & Kaplan, 1989; Maller, Townsend, Pryor, Brown, & St Leger, 2006). However, an interactive relationship with natural environments has been shown to magnify the health and social benefits (Brook, 2010).

Natural environments

Natural environments are commonly referred to as uncultivated, unstructured landscapes, bursting with natural features, such as forests or river networks (Fjørtoft, 2001). In a 2008 definition, Mitchell & Popham describe natural environments as analogous to green spaces, defined as open, undeveloped areas containing natural vegetation. In this definition, parks, playing fields, and river corridors are considered natural environments, yet parks and playing fields generally contain cultivated and maintained features, and may be considered built environments (Mitchell & Popham, 2008). It is important to note these grey areas among the literature, as individuals will conceptualize terms in an assortment of ways. For the purpose of a study examining different types of natural environments in relation to mental health benefits, Mitchell (2003) assessed physical activity within natural or non-natural environments. Non-natural environments included woods/forests, open space/parks, non-tarmac paths, and beach/water-side banks, as areas considered to be natural for the purpose of the study. This definition, while providing a streamlined approach to outlining these areas, fails to account for the variable interpretation of the term presented by the general public, or as depicted through definitions in other research.

In a 2012 study, Mitchell assessed the differences in mental health and well-being for individuals visiting natural environments versus individuals who are physically active in non-natural environments. It was found that participants who engaged in physical activity at least once a week in natural environments, such as parks or the forest, had a lower risk of mental

health issues (Mitchell, 2012). Although the findings suggested regular use of the non-natural environments, like sporting facilities, relate to improved well-being, they acknowledged that this may be due to the social interactions associated with the activities taking place (Mitchell, 2012). The findings did, however, suggest that physical activity in woodlands and parks once a week or more, is enough to potentially reduced mental illness risks (Mitchell, 2012). Kaczynski & Henderson (2007) also reviewed 13 studies examining physical activity and park proximity, finding an increased level of physical activity associated with outdoor settings versus indoor centres, such as recreational facilities, suggesting more outdoor settings will lead to greater physical activity. Natural settings are associated with increased physical and mental health benefits (Mitchell & Popham, 2008); therefore, understanding the various ways in which individuals can become exposed to nature can play a key role in improving health outcomes.

Green Spaces

Green spaces are defined as either private or public open spaces in urban areas, predominantly covered with vegetation, including grass or trees (Atiqul Haq, 2011). Green spaces include parks, community gardens, and other areas that are used directly or indirectly, through recreation, visitations, or as a positive influence on the urban surroundings (Atiqul Haq, 2011). Open spaces provide a sense of autonomy for those engaging with the environment, as they provide a range of opportunities for participation (Ashbulby et al., 2013).

An Australian study conducted by Astell-Burt, Feng, & Kolt (2013) surveyed an older population to examine the relationship between green space and mental health. There are many types of green space; however, these studies have found the total amount of green space surpasses the need for differentiating the various types of green space (Astell-Burt, Feng, & Kolt, 2013; de Vries et al., 2003). Participants living in neighbourhoods with more green space have

been found to suffer from less psychological distress. Participants in this Australian study were also found to experience more psychological distress if they had fewer social interactions or did not participate often in physical activities (Astell-Burt et al., 2013).

A quantitative study regarding green space and perceived health, assessed whether people living in greener areas were healthier, taking into account the drifter (selection) and breeder (causation) mechanisms (de Vries et al., 2003). Selection occurs when more healthy people choose to live in greener environments; causation is determined when living in greener areas is found to directly affect health (de Vries et al., 2003). Causation was determined through assessment of behaviours or being in the presence of natural settings (de Vries et al., 2003). By controlling for demographics and socioeconomic factors, results showed that people living in urban areas, with less green space, had more symptoms and a greater risk of acquiring mental illnesses (de Vries et al., 2003). Greener areas were found to reduce the number of symptoms and to increase the participants perceived health status (de Vries et al., 2003). There was a notable health effect on participants in the middle range of urbanity; thus, selection may have been possible, indicating that those with unhealthy lifestyles select urban areas to live (de Vries et al., 2003). Nevertheless, the study also determined that those who are most sensitive to green space had lesser education, potentially counteracting this assumption (de Vries et al., 2003).

Nature Therapy and Volunteering

Other forms of fostering contact with nature include horticultural therapy and environmental volunteering. Horticultural therapy includes “interventions mediated by nature-oriented views and spaces such as gardens and everything associated with them...for healing and for restoring or improving health and well-being or for rehabilitation or simply for general benefit.” (Söderback, Söderström, & Schäländer, 2004, p.245). Gardening is a social activity

known to increase feelings of self-confidence and self-worth, through its collaborative effort to reach established goals (Brook, 2010). Gardening is becoming increasingly known for its stress-reducing qualities, as well (Van Den Berg & Custers, 2011). Four motivations for participation in gardening have been identified by Armstrong (2000) and Söderback et al. (2004) and include: access to fresh foods; enjoying nature; social interaction; and perceived health benefits such as improved mental health. de Vries et al. (2003) found a unique health effect among their research participants, which was separate from the effects of viewing or accessing natural environments; this indicates the potential for a mechanistic difference specific to this form of nature engagement (de Vries et al., 2003).

Environmental volunteering involves contributing one's time to partake in an activity that benefits or provides gains for the environment, either as an individual or group (O'Brien et al., 2010). One study found individuals, especially male participants, who participated in land management groups, had greater perceived health status and felt greater feelings of safety and sense of community when compared to those who did not participate (Moore, Townsend, & Oldroyd, 2006). Studies have found that those who volunteer in one area, such as environmental volunteering through trail maintenance, tend to participate in other types of volunteering (Pillemer, Fuller-Rowell, Reid, & Wells, 2010; Reed & Selbee, 2001). Pillemer, Fuller-Rowell, Reid, & Wells (2010) have associated environmental volunteering as a stronger predictor of physical activity when compared to other forms of volunteering.

O'Brien, Townsend, & Ebden (2010) sought to identify the motivations for, the barriers of, and the benefits of environmental volunteering on their participants. The volunteers indicated various health and well-being benefits from participation in environmental volunteering, such as stress reduction, improved mental health, mental stimulation, and the development of social

networks (O'Brien et al., 2010). Participants in this study indicated their enjoyment of getting outdoors stemmed from their childhood or the sense of accomplishment they acquired (O'Brien et al., 2010). Efforts towards conservation or restoration in natural environments have been associated with fostering a sense of responsibility to look after these landscapes (Hansen-Ketchum et al., 2011; O'Brien et al., 2010). Barriers to environmental volunteering included lack of information, lack of confidence, not knowing what to expect, and travel expenses (Hansen-Ketchum et al., 2011; O'Brien et al., 2010). This research suggests that bringing together volunteers in natural environments has the ability to increase participation, confidence, develop a shared identity, and increase the sense of ownership.

2.2.3 Factors Influencing Nature Exposure

“There is risk outdoors but there is a huge risk in raising future generations under protective house arrest.”

– Richard Louv (HPHP Central, 2014)

Accessing nature is referred to as a complex behaviour, influenced by various features associated with individuals and structures present in the environments (Whitelaw, Graham, Black, & Coburn, 2010). In a review by Whitelaw and colleagues (2010), a range of factors were found to influence access and physical engagement in nature, including: structural (aesthetics, safety, barriers), collective normative domains (social networks or cultural influences), and cognitive functions (beliefs or attitudes).

Studies have listed various barriers to getting connected with nature: perceived safety, proximity to home, effort needed, time required, seasonal and weather difficulties, lack of confidence, lack of information, and not knowing what is involved (Ashbulby et al., 2013; Hansen-Ketchum et al., 2011; O'Brien et al., 2010). However, it was reported that the natural

and dynamic features of outdoor environments, perceived health benefits, as well as social and familial cohesion, acted as promoters (Ashbulby et al., 2013; O'Brien et al., 2010). While one barrier may discourage an individual or group from visiting or engaging in certain natural environments, it may not be quite the same for others. This statement is supported by a study conducted with families, where effort involved in going outdoors was seen as a barrier to only some parents (Ashbulby et al., 2013). It was also determined that parental perceptions are directly influential to the children's exposure to nature, acting as a promoter (Ashbulby et al., 2013). Additionally, based on the structure of rural communities, fears involving nature or crimes may not be as influential on nature exposure when compared to those associated with individuals living in more urban areas (Hansen-Ketchum et al., 2011). Gatersleben (2013) limited their study by not accounting for the promoting effects achieved by individuals when recreating or visiting nature with others, rather than alone. For some individuals, being alone in nature is desired and may actually be more restorative; however, recreating alone may be undesirable or perceived as a barrier by others (Gatersleben, 2013).

Unhealthy physical environments can threaten human health, just as healthy places or health-promoting environments may enhance health (Largo-Wight, 2011). Gatersleben (2013) argues that natural settings may not always be restorative. As noted by the Stress Recovery Theory (SRT) and Attention Restoration Theory (ART), natural settings that are perceived as non-threatening can improve attention, stress levels, and negative emotions of those exposed (Gatersleben, 2013). This study sought to analyze the effects of prospect (vision) and refuge (hiding) on how a natural setting is perceived to be threatening or non-threatening by users (Gatersleben, 2013). In this 2013 study, Gatersleben noted that natural settings such as open fields surround by trees, with low refuge, or few hiding places, with high prospect were more

restorative, were seen as non-threatening environments whereas areas of higher refuge were even considered to reduce attention and mood levels at the individual level.

2.3 Health and Parks

The health benefits associated with visiting and recreating within park landscapes has been under exploration for many years. The umbrella phrase, *Healthy Parks Healthy People*, represents a range of initiatives that explore the relationships between nature and human health, specific to nature exposure in parks (HPHP Central, 2014). Parks were first designed in the 19th century, and as noted earlier, are green spaces, maintained locally, provincially, or federally (Maller et al., 2009). While parks were originally created to provide natural spaces in urban cities, with the hope that these spaces would reduce negative health outcomes and generate social capital, they are commonly sought today for their physical health benefits (Maller et al., 2009). They include a variety of structures that cater to the activity needs of multiple types of users (e.g. hikers, runners, cyclers); research supports efficient park planning to include versatile and attractive features to promote physical activity (Giles-Corti et al., 2005; Kaczynski & Henderson, 2007; Kaczynski, Potwarka, & Saelens, 2008).

In British Columbia (BC), parks are managed at the regional, provincial, or federal levels (NRG Research Group, 2013). Parks offer a variety of outdoor recreation opportunities; however, settings for outdoor recreation in the province include more than simply designated parks (NRG Research Group, 2013). BC Rec Sites & Trails, formerly known as Forest Service Rec Sites & Trails, manage features of Crown Land not reserved by parks or within city limits: public campgrounds, day use sites, and trails (NRG Research Group, 2013).

In a study designed to assess proximity to and the structures of neighbourhood parks in a medium-sized city in Ontario, Canada. Kaczynski, Potwarka, & Saelens (2008) found that

proximity to parks promoted physical activity of adult residents. The authors controlled for perceived safety and aesthetics, but focused their attention to the proximity and various features of the 33 parks included in the study. Facilities were considered features of parks that primarily promote physical activity (e.g. paved or unpaved trails, open space, wooded areas, playgrounds), while amenities were considered features that support physical activity indirectly (e.g. picnic areas, restrooms, drinking fountains, shelters, parking lots, historical or educational features). Overall, Kaczynski, Potwarka & Saelens (2008) found that increase in the number of features in total was a positive predictor of physical activity.

Another study, conducted by Giles-Corti et al., looked at 500 public open spaces and their proximity, size, attractiveness, and amenity factors for users. Park size was a greater motivator for physical activity than park attractiveness, and having good access to these parks was related to an increase in walking levels among participants. Both studies determined that large open spaces, trails, and wooded areas, which tend to have multipurpose functionality, encourage active use for many types of users.

2.4 Efforts to Link Health, Environment & Community

“Nature has the potential to be a key resource for health promotion and for upstream initiatives aimed at improving the quality of life for people and the planet” (Hansen-Ketchum et al., 2011, p.569). Emphasizing the links between health, the environment, and the community within the context of outdoor recreation and nature participation requires collaboration and integration between various sectors (Parkes et al., 2012). However, many individuals or organizations are unaware or do not fully understand their multifaceted roles as community builders, or recognize their contributions to health and well-being (Hancock, 2011). Efforts to increase contact with nature through recreation are generally aimed towards health promotion at

an individual level; however, understanding the collective benefit of contact with nature, as a means of building healthy communities through construction of shared identities, should not be missed.

2.4.1 Integrated Settings Approach

Largo-Wight (2011) stresses the importance of health educators as advocates for nature conservation, “with the goal of protecting resources necessary for health” (p.44). Furthermore, health educators can incorporate green spaces into communities, bring nature exposure into built environments or indoor settings, and promote greener activities among citizens, such as gardening (Largo-Wight, 2011). Healthy built environments are defined as areas containing health-promoting factors, which “promote behavioural, social, psychological and biological health” (Largo-Wight, 2011, p.42). The integrated settings approach proposed by Northern Health’s (2012) Position Paper on Environment as a Context for Health provides an overview of the efforts by this health authority to encourage collaboration between professionals in each sector (Figure 2.1) (Northern Health, 2012). The ‘greening’ of built environments, such as schools, workplaces, and health care facilities, and recognition of the upstream role of the environment on human health, is at the core of this approach (Northern Health, 2012).

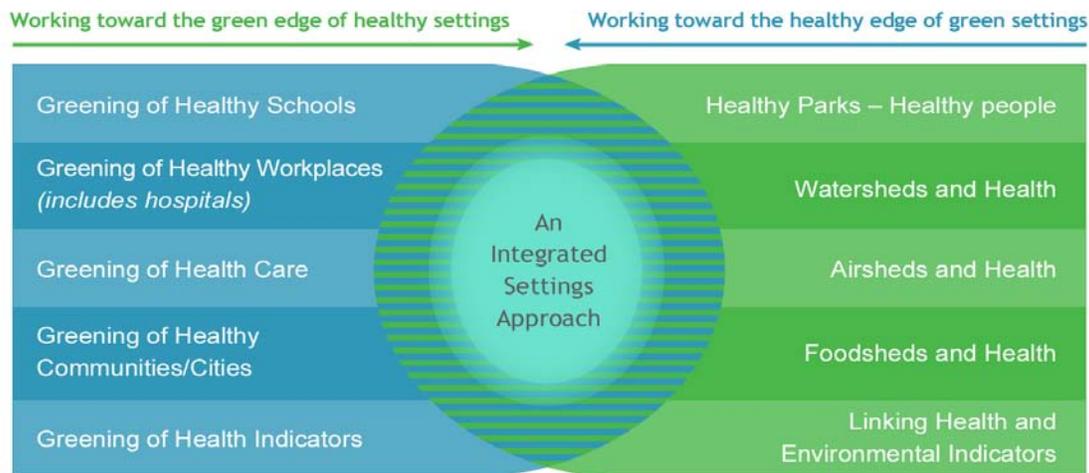


Figure 2.1 Integrated Settings Approach (Northern Health, 2012).

The integrated settings approach goes beyond looking at simply the health educators role; individuals from each sector must work together to foster healthy environments (Northern Health, 2013). Living landscapes are constantly changing and provide immense health benefits for individuals and the collective (Northern Health, 2012). In Figure 2.1, the settings on the right-hand side are all considered living landscapes, and are natural environments engaged with in various ways, often through recreation activities. The traditional healthy settings, given on the left-hand side of Figure 2.1, have the ability to incorporate more natural features from living landscapes. Combining the *green edge* of the traditional healthy settings with the *healthy edge* of the traditionally green settings provides an integrative approach used to acquire the greatest individual and collective benefits from these locations (Figure 2.1; Northern Health, 2012).

Work by Kruger et al. (2010) reinforces themes that are raised in the Northern Health Position Paper, highlighting the importance of going beyond single-sector approaches to outdoor physical activity program development, to avoid competition for resources or repetition of programs. These authors stressed the importance of program evaluation for initiatives that get youth exposed to nature, and suggest health professionals share knowledge with land

management professionals to increase program efficiency (Kruger et al., 2010). The integrated settings approach helps to classify or stress the importance of initiatives on the *healthy edge* side that include clear links to the environment, as well as the *green edge* initiatives with health linkages (Figure 2.1; Northern Health, 2012).

2.4.2 Building Social Capital within Living Landscapes

Health benefits of contact and engagement with traditional living landscapes at an individual level are often discussed; however, there has been increasing interest in the collective benefits of nature exposure. The term “social capital” reflects on the importance of social bonds and social norms that encourage sustainability (Pretty & Ward, 2001). Social capital is one element of the broader social determinants of health, applied broadly to characterize individuals or groups, with many alternative definitions focusing on the singular or the collective separately (Macinko & Starfield, 2001). Social capital influences social networking and employment opportunities for individuals, while an inverse relationship between social cohesion and prevalence of violent crimes within communities depicts the benefits of this determinant for the collective (Macinko & Starfield, 2001).

In a study focused on social capital and the environment, Pretty & Ward (2001) found that restricting access to particular natural settings in an attempt to conserve these settings provides a superficial change in behaviour of locals. While providing a change in behaviour temporarily, it fails to account for attitudes which may reset once those barriers, such as laws and regulations, are no longer established or enforced. Labonte et al. (2002) discuss how community capacity building can be paired with health promotion efforts in a parallel fashion. The management of watersheds is a notable example of efforts to link social capital and natural resource

management. A complex web of potential connections for watersheds, existing between local and external sources, has been illustrated by Pretty & Ward (2001).

Watersheds contain significance in their contributions to sustaining life, and portray multiple principles of social capital, including reciprocity and collective action (Northern Health, 2012; Pretty & Ward, 2001). Governments and non-governmental organizations (NGOs) have worked together to establish micro-catchments for management, promoting multilevel collaboration, while eliciting a change in behaviours *and* attitudes at the local level (Pretty & Ward, 2001). Managing watersheds in segments versus as a whole has elicited a stronger desire for those directly affected by the immediate environment to protect and sustain this area (Pretty & Ward, 2001). Additionally, a substantial improvement in groundwater recharge, tree coverage, and reappearance of springs is an indicator of the success of this approach (Pretty & Ward, 2001). Watershed management reveals the broader health, environmental, and community benefits associated with collaboration existing at multiple elevations. “Our increased understanding of watersheds and health encourages a view of health and well-being that is embedded with the wider landscapes in which we live, work, learn and play” (Northern Health, 2012, p.9). Watersheds are distinguished living landscapes in northern BC, a key component of the integrated settings approach (Figure 2.1)

2.5 Outdoor Recreation, Resource Development, & Communities

2.5.1 Place Making & Community Building

Outdoor recreation is one method in which place making, or place attachment, creates meanings around natural settings (Kaltenborn, 1997). In this project, outdoor recreation is considered to be a potential factor influencing health and wellbeing for resource dependent communities in northern BC. “A sociocultural conception of place enables the identification of

networks through which place and community are constructed and reconstructed through collective action” (Kruger, 2006, p.384). Kruger (2006) explains how place making and community building are intertwined concepts. Place making involves the relationships between individuals and the settings they interact with (Kruger, 2006). Meaningfulness is defined by Cervinka, Röderer, & Hefler (2011) as being a developmental motive, in which individuals seek refuge in the world by attaching a sense of purpose to their existence and build connections with the things around them. The researchers found that well-being and connectedness with nature contributed to the concept of meaningfulness (Cervinka, Röderer, & Hefler, 2011). Increasing capacity and networking between community members leads to community building, in which people are able to better respond to issues as they arise (Kruger, 2006). Those who recreate in natural settings often develop attachments to the places they recreate (Kaltenborn, 1997; Kruger, 2006). The notions of place making and community building, as depicted by Kruger (2006), in relation to outdoor recreation, are represented in figure 1 by the solid, bidirectional arrows.

The arrows are bidirectional to depict how individual familiarity and meaning can construct the concept of place, while shared experiences with others and recreation can do the same. There is no distinct endpoint to this concept; everything is interconnected (Hawe & Shiell, 2000). The solid lines depict what Kruger had provided in her rationale for community building and place-making; however, five dashed, bidirectional arrows were included, to express how community building can contribute to familiarity of place, to meaning of place, and to participation. The arrows to participation relate to the contribution of community toward participation in recreation not just in relation to others, but also conducted at an individual level.

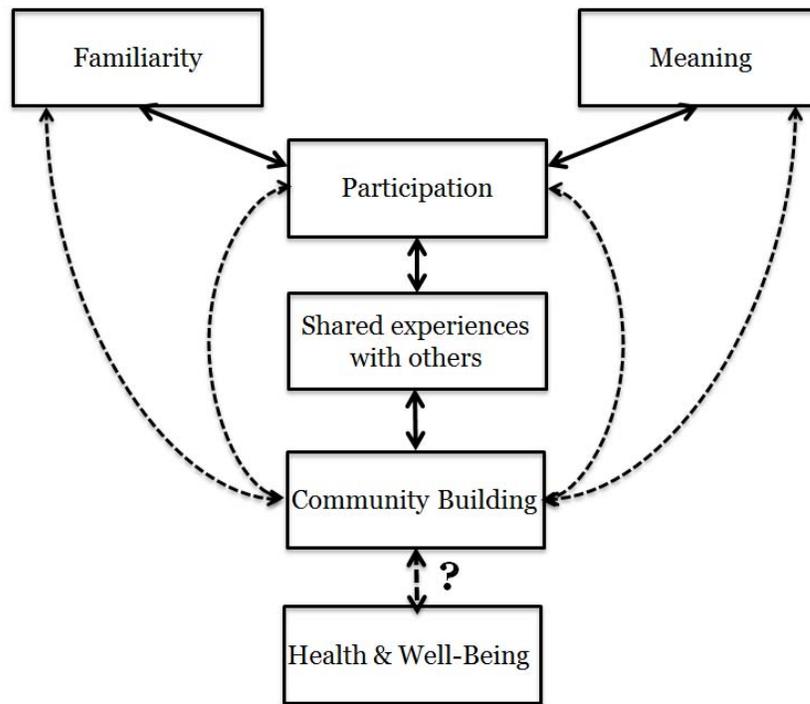


Figure 2.2 The theoretical interconnectedness between place making, community building, recreation, and health and well-being.

Experiences do not have to be shared in the way Kruger (2006) describes, where individuals participate in the recreation activity together and share that experience, but also by sharing experiences through discussions, photographs, and other mediums. Kaltenborn (2009) explains how places may exist as being either tangible or symbolic; therefore, place meanings are generally complex and diverse among individuals. Despite the unique ways each person conceptualizes place, the significance of one area can be shared. Kruger (2006) does discuss how place making involves ongoing construction and knowledge exchange of the place, providing a collective meaning through the discussion, the planning, and the development of the place in question.

The final dashed, bidirectional arrow leads to the box labelled “health and well-being”. This is hypothetical and was not explicitly or thoroughly explored in Kruger’s 2006 paper. The ways

in which community building leads to health and well-being are not totally clear, hence the inclusion of the question mark; however, an assortment of other literature has indicated the importance of social capital and community building on inducing positive health outcomes of populations (Labonte et al., 2002). Arrows do not extend from health and well-being to the other boxes as this depiction is focused on the role of community building and place making on health and well-being, as exploring the reverse would be full of content beyond the scope of this research. The connection between health and nature exposure have been introduced earlier, portraying how these settings lead to positive health outcomes at the individual level. However, it should be acknowledged that health and well-being does play a role in participation, engagement with others, and the other components of this diagram. These relationships are minor points of interest for this research but may influence future work.

2.5.2 Role of Outdoor Recreation

Outdoor recreation is defined as “outdoor activities that take place in a natural setting as opposed to a highly cultivated or managed landscape such as a playing field or golf course” (NRG Research Group, 2013). Recreation most definitely occurs among the outdoor built environments (e.g. baseball diamonds, soccer fields) within a community, or in more natural environments. For the purpose of this research, however, outdoor recreation will follow the above definition, focusing on engagement with natural settings.

Outdoor activities can be classified into two categories: consumptive and non-consumptive (Burger, Gochfield, Jeitner, Pittfield, & Marchioni, 2012). Consumptive activities are those which extract or consume resources from the natural setting (e.g. hunting or fishing), while non-consumptive encompasses all other activities (Burger et al., 2012). One study sought to explore

how nuclear energy facilities may affect outdoor recreation participation in regions of close proximity, due to perceived risk.

In their 2012 study Burger et al. attempted to understand how people utilize natural settings and what qualities they seek for engaging in either consumptive or non-consumptive recreation. Burger et al.'s work focuses on Interest Group Theory, as presented by Floyd et al., which proposes that individuals of various ethnicities living together in rich environments, providing an abundance of opportunities for outdoor activities, will have similar preferences and opinions (as cited in Burger et al., 2012). It was found that a majority of Native American and Caucasian participants engaged in non-consumptive activities (90%), mostly in areas perceived to be of low risk to personal health (Burger et al., 2012). This study did determine, however, that there were ethnic differences in the percent and frequency of participation in outdoor activities (Burger et al., 2012). In contrast, a study by Johnson, Bowker & Cordell (2001), assessing how traditionally marginalized groups in the United States, including African Americans, women, and rural dwellers, face barriers to outdoor recreation versus other races or groups, found race to only play a minor role. This study identified that the main barriers to participation in outdoor activities by women were: perceived safety concerns, insufficient funds, outdoor pests, and inadequate facilities or information (Johnson, Bowker, & Cordell, 2001).

Results from a survey distributed to BC residents identified various constraints for outdoor recreation in parks including not enough time or health and physical disability constraints (NRG Research Group, 2013). Primary motivations included spending time with family and friends, to be closer to nature, and to rest, relax and recuperate (NRG Research Group, 2013). Most participants had indicated that information about parks and recreation was distributed through word of mouth and previous experiences (NRG Research Group, 2013). It was also found that

most non-public land users had incomes of less than \$25,000, including the senior population, burdened with health restrictions that further reducing their participation (NRG Research Group, 2013). Therefore, although there are many parks in BC that offer an abundance of recreating opportunities, barriers still do exist to prevent individuals or groups to use these spaces.

2.5.3 Role of Industry in Resource-Based Communities

In understanding the interplay of health, outdoor recreation, environment and community in northern BC, it is important to understand the role of industry and resource extraction influencing these communities. Halseth & Sullivan (2003) argue that, in order for a natural resource-based town to thrive, it is essential to foster a sense of community, which can function as a point of identity between industry and government. Although these communities faced growth by in-migration, ageing-in-place and difficulties with retaining the population have posed new challenges (Hanlon & Halseth, 2005). Restructuring of the resource industry over time has had direct effects on the economies and demographics of northern BC communities (Northern Health, 2013). The effects may be seen as both positive and negative, depending on the context.

These characteristics of natural resource-dependent communities are variable, as some may contain single or multiple industries (McLeod & Hovorka, 2008) and the proportion of the population dependent on resource extraction will also vary, depending on the size and history of the community. Many resource towns in Canada today are expanding their employment sectors, providing new job opportunities for their residents in the service sector. McLeod & Hovorka (2008) exemplify this through the example of an isolated community in north western Alberta known as High Level, which has a population of nearly 4,000 (McLeod & Hovorka, 2008). The introduction of the service sector provided jobs to this community for many women, as their presence in industry has always been relatively low. By integrating into the economy through the

service sector, women stated that their feelings of disconnect had been altered, and they have more positive living experiences in these areas (McLeod & Hovorka, 2008).

Historically, transient workers were attracted to northern BC for the Gold Rush, to build railways and highways, and more recently, for contract or seasonal employment (Northern Health, 2013). In terms of community demographics, it is important to note that industries seek highly skilled and specialized labour, more easily found outside of rural populations (Northern Health, 2013). In addition, regulations have changed in regards to having workers reside in permanent communities nearby; therefore, industrial camps have gained momentum (Northern Health, 2013). An increase in transient labour has led to issues for these resource communities, including a greater *flyover effect*, where employees are flown directly in and out of camps, preventing their need to incorporate into the community (Northern Health, 2013). Food may also be provided to these camps by outside sources, contributing to this effect (Northern Health, 2013).

Industry directly influences health planning and servicing in these resource-based communities (Northern Health, 2013). Many industries rely on migrant workers to sustain their employee population (Gushulak, Pottie, Roberts, Torres, & DesMeules, 2011). Migrants have a number of factors that affect their well-being: pre-migration, migration, and post-migration resettlement, and the social determinants of health (Gushulak et al., 2011). It is known that health status is not the same for all subgroups of immigrants in Canada, an implication for health professionals working in areas where heterogeneity exists (Gushulak et al., 2011; Northern Health, 2013). A change in resource development, the attractiveness of industrial camps resulting in an increased transient workforce, the ageing-in-place of residents, and the uncertainty for long-term sustainability of these markets presents complex challenges for the provision of

community and health (Northern Health 2013). These challenges include a need for greater diversity in services and infrastructure changes, to ensure growth of the resource sector and community development (Northern Health, 2013).

3 Chapter 3: Study Context

3.1 Orienting to Mackenzie & Dawson Creek as Northern BC Communities

Mackenzie and Dawson Creek are situated in the Peace River Region of North East British Columbia. Mackenzie, located within the Rocky Mountain Trench, is a left-turn 29km off of Highway 97, 180 km north of the urban centre of Prince George (Hanlon, Halseth, Clasby, & Pow, 2007). Dawson Creek is located in the Boreal Plains Ecozone; its connection with the Alaska Highway has attracted many industries for establishment (City of Dawson Creek, 2014a). Both communities are located in the same region (Figure 2.3); however, there are many distinct differences that affect their community structure, their economies, resident's participation in outdoor recreation, and their health outcomes.

Internet searches for documents containing information regarding settings and types of outdoor activities were done, and Google Scholar was used to find other literature providing demographics, histories, and additional material specific to Mackenzie and Dawson Creek.

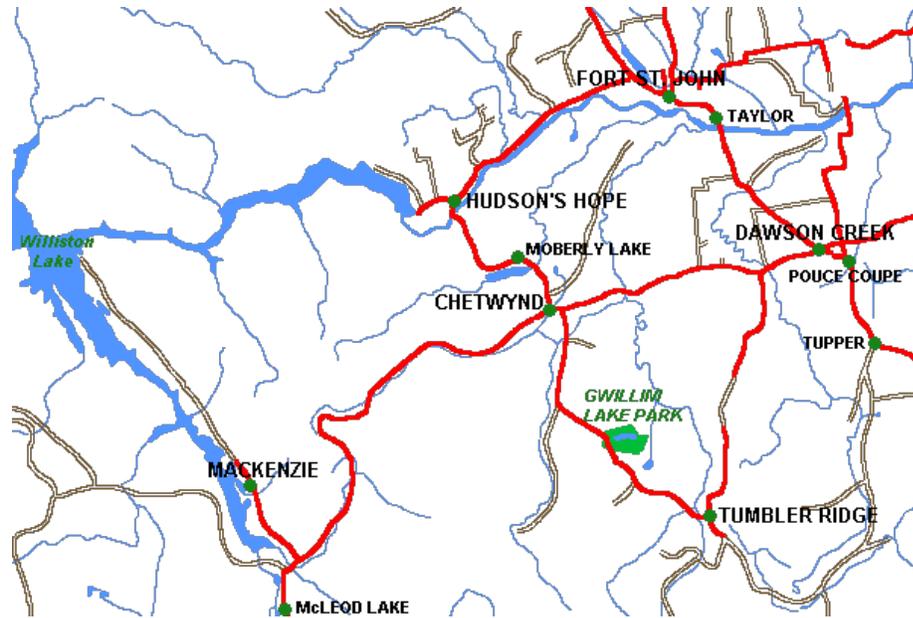


Figure 3.1 Map of northeast BC depicting Mackenzie, Dawson Creek, and surrounding communities. (Peace River & Pine Pass Map, 2013).

3.1.1 Mackenzie

Mackenzie is a single-industry community, or instant town, formed in 1966 under British Columbia's *Instant Town Act*. The Act expanded the natural resource extraction and development in the province, with hopes of stimulating economic growth (Hanlon et al., 2007). It's location to the urban centre of Prince George in North East British Columbia does provide access to various services; however, it also contributes to considerable retail leakage (Hanlon & Halseth, 2005). Mackenzie was constructed with reference to Kitimat, an instant town in the Northwest. It was designed to be family-oriented, with large single-family homes in clustered neighbourhoods and an intricate system of walkways linking these areas with schools and shopping services (Hanlon & Halseth, 2005).

Located approximately 200km north of Prince George, Mackenzie houses workers and their families employed by the local natural resource firms (Hanlon et al., 2007). The town attracted the young families seeking employment from World War II and the baby boom, as well

as an array of ethnically diverse transient worker. Three dominant demographic-related issues Mackenzie faces today including: an aging population who require extra care, a lack of expansion in providing these required services, and a struggle to retain young family members, who have an indirect role of support for the senior population (Hayter, 2003). Hanlon & Halseth (2005) have defined ageing-in-place as an important dynamic for Mackenzie, causing a shift in demands for resources and service needs among the population due to the fact that the growth rate of the senior population (65+) is increasing over time.

The first inhabitants of this area were the Tse'khene First Nations and the Tsay Keh Dene, Kwadacha Nation, and McLeod Lake Indian Band are still recognized to have traditional territories in this region (Hello BC, 2013). The First Nations population have rather opposite demographics from the rest of Mackenzie's residents, as the age of this population is generally younger (Hanlon & Halseth, 2005). This population faces many additional challenges, including material deprivation, and an increased risk for chronic disease and mental health issues, which require additional services to face these complexities (Hanlon & Halseth, 2005).

Mackenzie is one of the most forestry-dependent communities in the province, and has faced multiple occasions of economic downturn (Hanlon et al., 2007). Industry is separate from the town-site, located along the shoreline of the man-made Williston Lake (Halseth & Sullivan, 2003). The community is oriented to be family friendly, and workers tend to live with families in town, versus in camps (Halseth & Sullivan, 2003). The pulp and saw mills in Mackenzie contribute to the global forest resource market; however, an economic downturn in 2008 due to the closure of a pulp mill had caused many changes to the structure of this community (Hello BC, 2013). Prior to this downturn, the forest industry had faced many years of reformation, which has led to population loss or stagnation (Hanlon et al., 2007). In the 1980's there was a

recession in BC's forest economy struck Mackenzie hard. Today, young adults are forced to migrate out of the community to find jobs elsewhere, as the industry jobs are taken up by those with seniority (Hayter, 2003).

Mackenzie is located relatively close to a number of provincial parks, providing various opportunities for outdoor recreation and nature exposure (Table 2.1). These living landscapes support leisure activities such as fishing, hiking, front country and backcountry camping, and more. The neighbourhood design of this town provides many opportunities for trail walking and parks for children enjoy (Hanlon & Halseth, 2005). There are many lakes in the area, including Williston Lake, a large, man-made body of water situated close to the town, with multiple points of access along its shores (City of Mackenzie, 2013; Table 2.1). Other sites of interest are the two ski hills are nearby for use, along with a cross-country ski club and trails (Table 2.1).

Table 3.1 Settings for Outdoor Recreation for Residents of Mackenzie, B.C.

Setting	Description
Provincial Parks	Bijoux Falls (bird watching), Whiskers Point (playground, hunting, waterski, windsurf, interpretive trails), Pine Le Moray (canoeing, fishing, swimming, snowmobiling), Heather-Dina Lakes (Dina Lakes 6km Canoe Circuit, hiking trails), Sir Alexander Mackenzie (canoeing, fishing, hunting, trail to monument), Tudyah Lake (boat launch, waterki, hiking, fishing, canoe/kayak), Carp Lake (fishing, trail system, hunting, War Falls, playground), Omineca (Germansen Landing, backcountry adventures), Kiskatinaw
Regional Parks	John Dahl Regional Park (diverse trail system, hiking, biking)
Community Parks	Mackenzie Municipal RV Park; easily accessible parks from all neighbourhoods, many with playgrounds, baseball diamonds, soccer fields, tennis courts
Mackenzie Natural Observatory	Established July 2013. Bird watching and banding station at Mugaha Marsh.
Morfee Lake	Morfee Lake Road Trails (cross country in winter, viewpoints)
Williston Lake	Largest man-made lake. Boating, camping, fishing, beaches. Alexander Mackenzie's Landing; day use area, natural amphitheatre.
Little Mac Ski Hill & Bike Park	Night skiing. Starting point for trail system.
Mackenzie Nordic Cross Country Ski Club & Trails	Skate and classic skiing, 9.0m wide trails. 2.5km lit skiing. 5.0km ski circuit
Powder King Mountain Ski Resort	45 min. drive north; downhill ski/snowboard.

Sources: BC Parks, n.d. City of Mackenzie, 2013, Hosting BC, 2014.

3.1.2 Dawson Creek

Trading posts were established in 1805 in Dawson Creek, and following the Klondike Gold Rush in 1899, people began to settle in this region (City of Dawson Creek, 2014a). In 1942, Dawson Creek saw an immediate growth in the population during the construction of the Alaska Highway (City of Dawson Creek, 2014c). The Alaska Highway was developed to fuel the economy, through the collaboration of Canada and the USA, providing a link to the natural resources of Alaska and the Yukon (City of Dawson Creek, 2014a). The community grew from a mere 600 people to over 10,000 in the matter of weeks (City of Dawson Creek, 2014a). Railways, highways, and an airport link this community with the rest of Canada, Alaska, and the USA in the south, attracting many industries to relocate there (City of Dawson Creek, 2014a).

In 2001 the population of Dawson Creek was approximately 10,754, quite close to the 2011 count of 11,500 (City of Dawson Creek, 2014a). Dawson Creek has a larger number of younger individuals in the age range of less than 1 year to 19 years, much greater than the proportion of seniors over 65 years (City of Dawson Creek, 2014a). The community has altered their neighbourhood design and transit services to be accompanying for all ages and mobility ranges (City of Dawson Creek, 2014a). The Sekani, Beaver, and Cree peoples traditionally inhabit this region and traditional territories as outlined in Treaty 8, overlap with the boundaries of the city (City of Dawson Creek, 2014a; Madill, 1986). Their presence and traditional style of living should be accounted for when considering conceptualizations of health and wellbeing and

Located in the centre of the Peace River region, this community acts as a hub for services and industries of various sectors (City of Dawson Creek, 2014c). Dawson Creek has nearly 1,800 farms, and over \$100 million is produced annually from agricultural products. The oil & gas and mining industries play a large role in the economy, along with the three wood products

manufacturing operations, Louisiana-Pacific, Canfor, and West Fraser (City of Dawson Creek, 2014a). There are logging activities, custom sawmills, and one log home mill (City of Dawson Creek, 2014a). Dawson Creek prides itself on its alternate energy sources generated by wind, light, biomass, geothermal, and moving water, produced alongside hydroelectricity (City of Dawson Creek, 2014a). Tourism, retail trade, transport and warehousing, education, technical services, healthcare and social assistance, accommodation, and food services all contribute to the diversified economy of this community (City of Dawson Creek, 2014a).

Settings for Outdoor Recreation

The documents reviewed provide a variety of information on natural and cultivated settings for outdoor recreation in the Dawson Creek and surrounding areas (Table 2.2). There are few provincial parks in the area; however, many regional and community parks were listed (Table 2.1). The City of Dawson Creek has placed significance on their parks, indicating that this community has an enviable park system (Holland Barrs Planning Group, 2007). These parks offer many trail systems for residents, especially Kin Park with the “Dawson Trail”, which functions as more than just a walking path (Table 2.1).

The Pat O’Reilly Outdoor/Environmental Studies Centre is one example of an initiative combined with an outdoor setting, established along Gwillim Lake. Settings identified for recreation activities in Dawson Creek included a mix of cultivated areas, such as sporting fields and playgrounds, or more natural settings, like McQueen’s Slough (Table 2.2).

Table 3.2 Settings for Outdoor Activity for Residents of Dawson Creek, B.C.

Setting	Description
Provincial Parks	Swan Lake (picnic area, playground, swimming, fishing, vehicle camping, windsurf, scubadive/snorkel, developed trails, canoeing, bird watching, boat launch), One Island (picnic area, playground, swimming, fishing, vehicle camping, windsurf, scubadive/snorkel, canoeing, boat launch), Kiskatinaw (picnic area, playground, swimming, fishing, vehicle camping)
Regional Parks	Pouce Coupe Regional Park, Blackfoot Regional Park (larger, unserviced campsites)
Community Parks	14 community parks: 9 playgrounds, 5 soccer pitches, 5 with designated picnic areas, 5 baseball diamonds. Other selective features include: an outdoor pool, walking paths, community forest, horseshoes, outdoor fitness facility, toilets
Kin Park Walking Path	“Dawson Trail”; 4.5 km walking path with plans for expansion. Dual function as a cart path for Dawson Creek Golf & Country Club
Pat O’Reilly Outdoor/Environment Studies Centre	Located at Gwillim Lake. Utilized by approximately 1,000 students annually; 5 cabins, kitchen cabin, climbing walls, sauna, access to canoes.
Radar Lake Community Forest	Contains well-marked interpretive trails, wildlife viewing, and location in-town.
McQueen’s Slough	Bird watching, interpretive trails.
Bear Mountain Ski Hill	Established in 1959. Night skiing. Governed by Local Board of Directors

Sources: BC Parks, n.d., Bear Mountain Ski Hill, 2014, Community of Dawson Creek, 2014a/2014b

3.2 Conclusion

This literature review sets the scene for the rest of the Honours thesis. It has introduced key concepts of health within living landscapes, through various forms of nature exposure. Specific focus was made to living landscapes fostering nature-based recreation within the northern context, including provincial parks. The literature was initially assessed to determine the settings for outdoor recreation within these communities. This review of existing knowledge offers points for comparison for this specific study, a basis to discuss the findings and implications of this research in relation to health, community, and the environment. Overall, the literature focuses on topics that will be useful in understanding the dynamics of these northern communities, with respect to their living landscapes, their recreation opportunities, and health of the communities and their populations.

4 Chapter 4: Methods

4.1 Introduction

The CHILL project is funded by the Real Estate Foundation of BC Partnering Fund administered by the University of Northern British Columbia (UNBC). Prior to the meetings, the CHILL project was approved by the Research Ethics Board [E2013.0122.006.00]. Within this context, this research was focused on analysis of adapted focus group interviews. The methods for this honours research can therefore be considered as a qualitative analysis study within a larger process of multiskateholder research focused on focus group interviews.

Participatory research methods are used to ensure those who are under study are involved in the planning and action steps of research, focusing on collaboration (Bergold & Thomas, 2012). A great deal of emphasis was placed on the participants to provide opinions and personal views during the initial stages, to gather insight on issues and topics that should be explored in later stages.

This section will begin by describing the methods used to conduct the focus group discussions in Mackenzie and Dawson Creek, as conducted by the CHILL team in March 2013. A description of the methods used to transcribe the audio-recordings from those meetings will be given. The steps taken to qualitatively analyze these transcripts, for major and context-specific themes, will follow. Finally, a description of the steps taken to analyse findings to identify contextual information for Mackenzie and Dawson Creek will be discussed. My role for this project was to transcribe the partners and public meetings in both communities, to explore literature and the transcripts to determine existing links between outdoor recreation and health, community and environment in northern BC, and to compare the findings with current themes present in the literature.

4.2 Qualitative Research: Focus Groups Interviews

Adapted focus group meetings were conducted in Mackenzie and Dawson Creek in March of 2013. All of the meetings began with a welcoming and collection of consent by the moderator team, with notes taken by a research assistant. The following is an example of a question asked during the interviews: “*How do outdoor recreation, community, place and health interrelate in your experience?*” These focus groups were based on an emergent-systematic design, used for investigative purposes (Onwuegbuzie, Dickinson, Leech, & Zoran, 2009).

Participants in the partners meetings included representatives from industry, local organizations, health professionals, government workers, community leaders, and so on. They were structured group interviews, beginning with an introduction and progressing into a discussion (Appendix A). The meetings lasted nearly three hours each, and food and beverages were provided as incentives for participants after conversing. The public meetings were unstructured, aside from initial introductions. These meetings were open to the public; however, individuals participating in the partners meeting were also invited to partake in the public meetings. The facilitators kept conversation on task and maps were provided for participants to relate and discuss their descriptions in relation to a visual format (Appendix A). Pictures of the maps and the information provided by participants can be found in Appendix B.

4.2.1 Transcription of Audio Recordings

A combination of NVivo 8 and 10 software was used to transcribe the Mackenzie and Dawson Creek public and partners meetings. Figure 3.1 shows the general structure of the transcripts; time-stamping was used, speakers (SP) were indicated using numbers, and content was written in accordance with the dialogue (Denzin & Lincoln, 2011). The notes taken by the research assistant were used to help identify speakers or content that was obscured on the audio.

As there was a focus towards obtaining the content of the meetings, literature suggested some areas of the transcripts are denaturalized for clarity; laughter or agreement was often indicated, yet stutters or word repetitions were removed in some instances (Denzin & Lincoln, 2011). Names of the participants were removed within the content to keep anonymity (Denzin & Lincoln, 2011). Blank spaces indicate either a name, or a word or phrase that was illegible.

4.3 Analysis of Qualitative Data

4.3.1 Initial Analysis of Transcripts

In keeping with the research questions presented in Chapter 1, the transcripts were analyzed using an inductive approach to determine major themes that emerged in the partners meetings, for both Mackenzie and Dawson Creek. The partners meetings were also analyzed for context-specific themes regarding issues specific to Mackenzie, and those specific to Dawson Creek. The public meeting transcripts were used mostly for constructing a community profile for each community, providing extra insight into the types of outdoor activities engaged in, and their respective natural settings.

While NVivo software was used as a template to transcribe the audio-recordings, coding of the partners meetings was done manually. Informed by the approach to focus group research proposed by Onwuebuozie et al. (2009) and Oliver, Serovich, & Mason (2005), a “constant comparison analysis” approach was used as a method to analyze the transcripts.

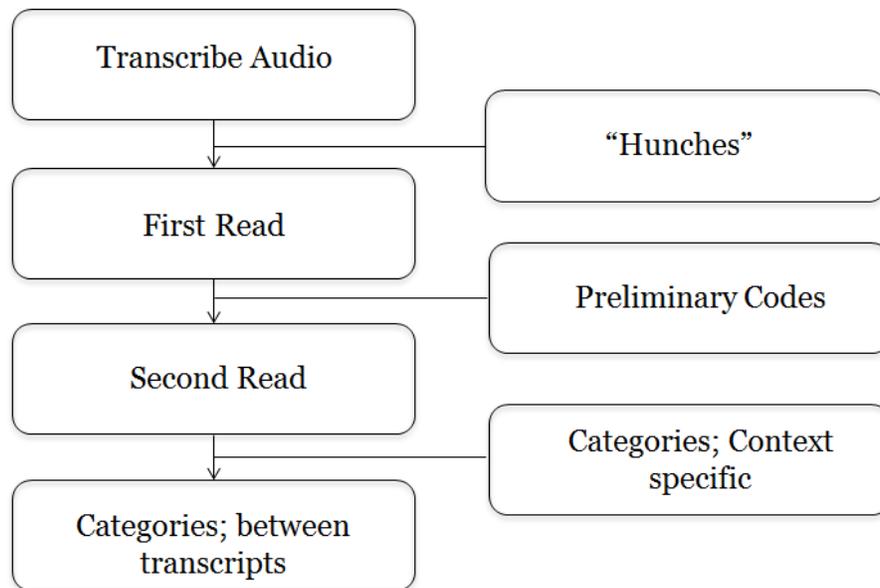


Figure 4.1 Steps taken to analyze transcripts using the constant comparison analysis framework (adapted from Onwuegbuzie et al., 2009).

As described by Onwuegbuzie et al. (2009) comparison analysis is broken into three major stages: chunking data into small units and ascribing codes to each unit, grouping codes into categories, and developing themes that express the content of these codes. Comparison analysis stems from the *grounded theory*, which has “less to do with mechanics of speech and more to do with the content of the interview” (Oliver, Serovich & Mason, 2005, p. 11) Emerging “hunches” or ideas were collected during the transcribing process, including areas of significance and phrases found that related back to the literature.

Once the transcribing process was complete, during the first read of the transcripts, preliminary coding began (Oliver, Serovich & Mason, 2005). Codes were often a single word or phrase, and after initial coding, many were found to overlap or be closely related. Participant quotes were classified under each code, and often one quote fell under many codes. These codes were then categorized, through comparison of codes and by reflecting on the research questions. Categories were then constructed into larger themes, specific to the context of each community.

Categories from the partners meetings were then compared to each other, to determine major themes that emerged from both sets of transcripts, relating back to the literature.

4.3.2 Analysis in Relation to Study Context and Literature

Literature was analyzed to initially determine the settings for outdoor recreation and types of activities fostered by these areas in Mackenzie (Table 2.1) and Dawson Creek (Table 2.2). An important phase in the analysis of the data collection was comparing the findings with themes and insights that emerged from the document and literature review presented in the previous chapter. In particular, the transcripts were analyzed for ways in which the experiences in Dawson Creek and Mackenzie were compared with the settings for outdoor recreation identified in the literature (e.g. health, parks, and outdoor recreation – see chapter 2). An analogous method was used to collect information from the transcripts in order to identify the characteristics of the nature, types of, and participation in outdoor recreation for residents of Mackenzie and Dawson Creek (Table 5.1; Table 5.2).

The coding was a bottoms-up approach to analyzing the data for emerging themes; however, the literature was informative for understanding the content of the transcripts and aims of this project. However, the literature plays a larger role in understanding the transcript content post-analysis; the themes and definitions which emerged following qualitative analysis were explored further to determine their relevance to existing literature during the discussion. The literature indicated ambiguity within three definitions that were explored during the analysis process: health, parks, and outdoor recreation. A separate “code” was used to construct theoretical definitions of terms by participants in the partners meetings. The approach to determining these terms, or codes, was top-down. This method provided an opportunity for further comparison to views of the participants with the literature.

4.3.3 Research Methods in Relation to Larger CHILL Project

The methods presented in this chapter are considered contributions within a larger research project. Specific roles and contributions of this research reflect the objectives and research questions in Chapter 1. Reviewing the existing literature and analyzing the information obtained from the focus groups meetings helps to support or provide direction for further exploration within the larger project. It was important to determine similarities and differences between the two communities to gain a better sense of the experiences of northern BC dwellers in relation to outdoor recreation, health, community and the environment.

Following the transcription of the audio-recordings from the public and partners meetings, areas of interest were identified as settings for recreation. As the researcher had never visited these northern communities, it was determined that this would be an enriching experience. A familiarity excursion was done to Mackenzie and Dawson Creek during February of 2014. Photographs were taken of identified settings where recreating occurs for future use, and to provide context for the researcher. These photographs are used to provide visual prompts associated with the findings in the next chapter.

4.3.4 Conclusion

The methods used for this Honours thesis were focused on analysis of existing literature and adapted focus group partner meetings in Mackenzie and Dawson Creek. Public meetings held by the CHILL team provided additional insight into natural settings for recreating, specific to each community. The meetings were aimed to promote collaboration and foster knowledge-sharing among participants and researchers. Transcription, followed by coding of the meetings, led to the construction of themes that bring awareness to the relationships between health, community and environment in northern BC and for Mackenzie and Dawson Creek separately.

5 Chapter 5: Results

5.1 Introduction

The following chapter will present the results arising from analysis of transcripts from the partners and public meetings in Mackenzie and Dawson Creek. Results pertaining to the natural settings and types of outdoor recreation present in these communities will be presented first, followed by the findings from qualitative analysis in relation to the literature. Major themes emerging across the partners meetings will be explained, then theoretical definitions of health, parks, and outdoor recreation, informed by the participant experiences, will be identified. Finally, the themes specific to the context of each community, determined from the respective partners meetings, will be presented.

5.2 Contextualizing Mackenzie & Dawson Creek

Various recreation activities were identified during both the partners and public meetings. These findings provided further context for the activities identified in Chapter 3, indicating where they occur, along with supplemental details that offer a locally relevant perspective. A summary of these findings are presented in Table 5.1 (Mackenzie) and



Figure 5.1 Snowmobiling in the north (February 2014, Alissa MacMullin).

Table 5.2 (Dawson Creek). Additionally, participants expressed their personal definitions for

Table 5.1 Outdoor Activities in Mackenzie.

Outdoor Activity	Locations	Description
Skiing/Snowboarding	Cross-country trails, downhill skiing; Powder King, Azu, local ski hill	Lit ski trails, honour system of payment, cross-country ski team who did family workshops, 50km trails total; 3 cabins, 5km loop and 10km loop; can also walk the trails; downhill ski club; local ski hill very close. Backcountry skiing
Snowmobiling	Park trails, other Crown Land, Morfee Mountain	Snowmobile clubs. Provide access to new areas for exploration.
Hiking	Park trails, walking trails, unmanaged trails, indoors in the winter, Morfee Lake, Nass Lake	Walking trail to be expanded with 100ft bridge; Rotary Lake to multiplex. Trail running; Walk with your Doc every Wednesday night at 6:30pm
Prospecting	Unspecified	Panning for gold individuals, with other prospectors, or teaching youth groups.
Skating	Lakes, recreation centre	Skating Carnival
Biking	Biking trail from town to the two mills.	(Mountain) Bike club; Bike to Work Week
Birding	Unspecified	Banding group or watching.
Water Skiing	Morfee Lake, other local lakes	North half for water skiing;
Canoeing	Local lakes, Gwillim Lake Education Centre	Can also snowshoe, ski, develop appreciation at this facility.
Fishing	Williston Lake, Heather-Dina Lakes, Nation Lake	Fish only for certain types, as specified; popular Family Ice Fishing Day annually. Fishing 200m from industry camps.

Table 5.1 continued.

Outdoor Activity	Locations	Description
Snowshoeing	Trails	Snowshoeing becoming popular; stack of snowshoes for use at an elementary school
Camping	BC Parks, Whisker's Point, Crooked River Park, Heather-Dina Lake Park, Germansen Landing, Omeneca Park	Front country, backcountry, wilderness, vehicle or tenting.
Visiting Nature	Crown Land, BC Parks, Dog Parks, Picnic Areas, Gravel Pit	Free to do own thing; lots of dog parks and designated dog beaches by BC Parks; summer camps for youth (Ness Lake); waterfalls; campfire and sleigh riding at gravel pit
Sports	Golfing, skateboarding, hockey, ball diamonds	Golf course is a 20 minute walk from recreation centre; skateboard park completed in fall of 2012; pond hockey

Table 5.2 Outdoor Activities in Dawson Creek

Outdoor Activity	Locations	Description
Skiing	Bear Mountain Ski Hill, Powder King Ski Resort, Jasper (Marmot)	Bear Mountain Nordic Ski Association, night skiing, 25km trail at Bear Mountain (horseback). Backcountry skiing. Cross Country BC; cross country ski lessons (classic/skate)
Snowmobiling	Park trails, Stewart Lake, seismic	Snowmobile clubs have their own trails, maps, and cabins.
Hiking	Park trails, other Crown Land, Kin Park walking trail, McQueen Slough, Radar Lake, Piper Pond	McQueen slough has boardwalks
Rock-climbing	Tumbler Ridge, Astler (20km west Chetwynd), Rock-climbing pits	Wolverine Nordic Mountain Society in Tumbler Ridge, Peace Climbers; pits also used for rope rescue training
Snowshoeing	Bear Mountain Ski Hill	15km of snowshoe trails on the hill; 17 th street has 4 sets of trails
ATV/Quad/Dirtbike	Park trails, Crown Land, seismic lines, Gravel pit	Provide access to new areas for exploration.
Birding	Not specified.	Watching.
Biking	Forest/Mountain biking	During summer months.
Hunting	McQueen's Slough, other sloughs	Waterfowl hunting; gun club
Fishing	Rivers and lakes. Pine River, One-Island	Ice fishing in the winter.
Sightseeing	Wind Towers, Rock-Climbing pits	Influenced by industry; photography; across from tower 18
Boating	Peace River, Radar Lake	Riverboats, jet boating, float, East Pine boat launch; canoeing
Camping	Charlie & Gwillim lakes, Pine River	Front country, backcountry, wilderness, vehicle or tent
Visiting Nature	Rotary Lake beaches, Radar Lake	Picnic areas at Radar Lake
Sports	Outdoor soccer fields, baseball diamonds,	Outdoor soccer participation is quite high; annual rodeo

various terminologies during the discussions, providing insight on how certain terms are perceived or conceptualized to this population.

Of the outdoor recreation opportunities discussed during the meetings, many occurred in both Mackenzie and Dawson Creek, including: skiing, snowmobiling, hiking, bird watching, fishing, hunting, and camping (Table 5.1, Table 5.2, Figure 5.1). The participants provided knowledge about which sites are commonly used as settings for these outdoor recreation activities.

The Mackenzie and Dawson Creek participants spoke about other built environments promoting recreation in natural settings, aimed towards youth, such as community parks playgrounds. Dawson Creek participants also discussed the usefulness of having an indoor recreation centre established in their town, as they indicated very harsh winters and a lack of indoor facilities for their youth. They spoke fondly of the Dawson Creek’s Kiwanis Early Learning Centre and it’s indoor playground and other opportunities aimed at young children.



Figure 5.2 Mackenzie Recreation Centre (February 2014, Alissa MacMullin).

Expanding on the details presented in tables 5.1 and 5.2, natural settings were discussed often, as they were found to support many different activities. Lakes and rivers were seen as areas to go boating, waterskiing, swimming, fishing, canoeing, skating, to hike adjacent trails, or simply for visiting nature. A participant in the Dawson Creek partners meeting spoke

about Rotary Lake, its close proximity to town, and how it provides an outdoor space nearby for families to visit, something not commonly found within Dawson Creek. Williston Lake was discussed for its enormous size and respective abundance of opportunities by a participant in the Mackenzie public meeting (Figure 5.3).



Figure 5.3 Williston Lake (February 2014, Alissa MacMullin).

Trails and trail management were discussed frequently in all meetings by most participants. Trails included those maintained by BC Parks, BC Rec Sites & Trails, and those maintained by the community or other organizations. For example, Dawson Creek's ski club was said to have their own sets of trails, which they maintain (Table 5.2). In the Mackenzie partners meeting, attention was drawn to the trails connecting neighbourhoods to the retail areas or schools, with a high frequency of use indicated. In the Dawson Creek partners meeting, emphasis was placed on the Kin Park Trail and its functionality for walkers,

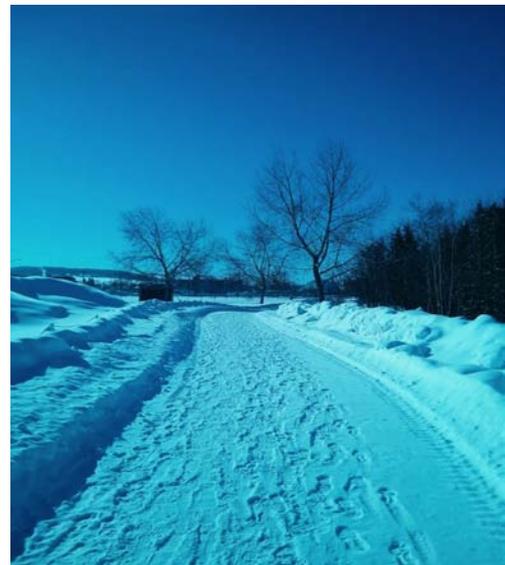


Figure 5.4 Kin Park Trail (February 2014, Alissa MacMullin).

runners, cross-country skiers, snowshoers, and golfers (Figure 5.4). While they do satisfy the needs of many recreators, one participant did propose that not everyone uses them:

Basically the trails have a limited audience of people that use them. I mean, not everyone in town is a hiker or a cross-country skier or snowshoer.

Of note in Dawson Creek is the use of seismic lines as ATVing or snowmobiling trails by residents:

It's a tremendous network that doesn't really register with many people that aren't familiar with what the seismic network, what it provides. Like it's just endless web of access. This entire sedimentary basin. (DC Partner Meeting)

Mackenzie participants spoke fondly of their indoor recreation complex and library, and its role in their community (Figure 5.2):

This facility is another example of how we win. In other communities our size, no one has our full-size lap pool. And no one has a recreation centre as phenomenal as this one. (MK Partners Meeting)

Additionally, during the public meetings, Mackenzie residents spoke about using the gravel pits as an area for socialization and recreation:

Have a campfire there and people are roasting hot dogs and everything, and the kids were just up and down all day long, and uh, just having a great time, eh. And it's not anything organized, it's just a gravel pit that's just been re-contoured and everything and all that. It's just a fun spot. (MK Public Meeting)

Further descriptions of settings was included in Table 5.1 and Table 5.2, grouped from the Mackenzie and Dawson Creek public and partners meetings. Information about the settings in which these various activities take place was often provided, as well as additional insight given about organizations promoting these activities, what time of year they are done, and so on.

5.3 Findings from Qualitative Analysis

As presented in the previous chapter an important aspect of analysis was coding and identification of themes arising from the partners meetings. When comparing codes between the Mackenzie and Dawson Creek partner's meetings transcripts, nine individual themes emerged. In section 5.3.1, these themes are introduced, providing examples of participant experiences, followed by a summary and comparison across the two communities presented in table form (Table 4.3). In section 5.3.2, findings are presented relating to participant definitions and understanding of 'health', 'outdoor recreation', and 'parks'. Finally, findings that reflect context-specific themes relevant to each community are presented.

5.3.1 Major Themes

Barriers to Nature Exposure

Participants in both the partners and public meetings discussed their perceived barriers to nature exposure, specific to northern BC and their respective communities. Barriers that were discussed included: proximity, age, weather, perceived safety, and time. Perceived safety was not seen as a very big concern for most participants, although they did note that certain populations required extra safety before choosing to engage in outdoor recreation. During the Dawson Creek partners meeting, it was said that certain individuals want to participate in nature activities, but don't know how or are scared to do it. One participant in the Mackenzie partners meeting did note that having proper gear before recreating was required by some individuals, before they were comfortable enough to visit outdoor settings.

...some people believe they need the walking sticks and the hiking boots and the bear spray before they go out. They're like, "I don't wanna go up!" I wanna go up the mountain, they say well bring your bear spray! Because, y'know. I'm like, I don't

have bear spray so I can't go up the mountain. Some people are all “I can't go outside unless I have the gear. (MK partners meeting)

During the Mackenzie partners meeting, it was found that acquiring the gear for recreating could be done by borrowing skis and snowshoes available; however, if one wanted to invest in their own gear, they had to seek services outside of Mackenzie.

The weather was also seen as a barrier to recreating too, tying in with the barrier of perceived safety. One participant noted that there are very harsh, extended winters in Dawson Creek; therefore, many people can't be outside as much as they'd hope for during those months. Most outdoor activities require daylight, and one participant did note that the early darkness also inhibited people from recreating. However, both Mackenzie and Dawson Creek have some portions of ski trails that are lit, to encourage use later in the day.

The winter climate was associated with reduced walkability in these communities. In Mackenzie, the Walk with your Doc program was discussed, where every Wednesday evening the public is invited to join a local doctor in a walk. During the winter months, this program is held indoors at a local school, as residents note that many people are concerned about the risks of seniors walking in icy conditions.

Some of the barriers to that is just simply not being able to, and I know you should be able to walk, but in the winter a lot of older people don't want to be walking in the icy streets. So getting them to the Walk with your Doc program, a lot of them will say they can't afford the taxi. We don't have any handicapped buses 'cause we're not big enough for that transport. But I think transportation and getting people out is a challenge. (MK Partners meeting)

Transportation to recreation activities was seen as a barrier in the Dawson Creek meetings as well. The distance to get to various places is often long, and requires transportation to get to.

Everything is far away. You have to take a vehicle to get to wherever you want to go. (DC Partners Meeting)

One participant in the Dawson Creek partner meeting mentions that transportation is a barrier to some but not others, suggesting differences between the poor and the wealthy of the area when it came to transportation and access.

Most of us don't mind travelling the distance if we can afford to. (DC Partners Meeting)

Participants in the Mackenzie partners meeting identified the low cost associated with recreating in their community, as the town heavily subsidizes the local recreation complex and certain activities. The related efforts made by volunteers and organizations over the years have helped to retain affordability were emphasized and are highlighted by the following comment.

But there are organizations in town...usually there's a core group in that organization that are focused on that activity. Like the cross-country ski team, our club is very active. We've got quite a few leaders in that group that drives it forward. And it's cheap, very cheap.

The participants in the Dawson Creek partner meeting, mentioned that income per capita in their community is one of the highest in British Columbia and also noted that there are still huge costs associated with living, transportation, owning motorized vehicles for recreating, and for families to recreate. A Dawson Creek partners meeting participant stated that for many Dawson Creek citizens, the barrier to recreating is not so much the distance but the affordability and time taken to access recreation. While a barrier may exist in both communities, they appear to be weighed differently among the two communities.

Self-Identity Influences Exposure

Participants in both partners meetings referred to their recreation as their “identity” and one participant also spoke of the urban and rural cultures associated with this concept.

Participants described a self-selection processes where moving to an area with limited indoor facilities pushes those engage with the outdoors. Thus, urbanites or “indoorsy” people may

become adapted to the more rural setting and consider themselves more “outdoorsy”. During the Mackenzie partners meeting, a participant discussed their association with and preference for more urban built environments than natural settings. In Mackenzie, it was identified that those who consider themselves more “outdoorsy” were probably more likely to move to their community if they already had a strong connection with outdoor recreation.

So, if you aren't the type of person to even be attracted to move to Mackenzie, besides low housing prices, you are already kind of self-selecting for outdoors activity preferences. (MK Partners Meeting)

Participants in both partners meetings also spoke about athleticism and its relation to engaging with nature. Those deemed “athletes” were perceived to be engaging with the outdoors more frequently, and in more direct ways. During discussion that ensued, participants were reminded by the moderator team that you don’t necessarily have to be an athlete to be able to engage with nature, and consensus was provided for this notion.

Need for Collaboration

Multiple participants identified that a degree of collaboration is already evident among the sectors associated with outdoor recreation. For some participants in Mackenzie they suggested there are “no lines” between relevant groups. An example was given of a time where collaboration led to increase outdoor recreation opportunities in Mackenzie:

We lost about 40% of our tax base during the closure of the paper mill in town. So that was a big hit. So the maintenance of the trails is often hard, and I know the Mayor is working with the Flinrow rep manager in town, and actually the standby firefighting crews last year were actually going out and cutting, clearing the trails, and then burning the debris. So it was for practice, or whatever, but we didn't have the revenue to do it. So, the Mayor and the manager actually got together and said yeah, we can do this. We can utilize these people and it will be training for them as well. So that was something that was unique to the community I think, that that cooperation once again. (MK Partners meeting)

While it was recognized that some collaboration did exist, as the partners meeting progressed, individuals at the partners meetings also expressed their concerns of lack of collaboration in other ways. A barrier to collaboration, as well as time for outdoor activities, was noted for those working often or volunteering for multiple roles:

The other challenge could be most health care people in Mackenzie wear a lot of different hats. And to add one more job to 50 hats can be just, I just can't do one more thing. Um, and like ____'s intention to be here today, too many things just came up, and you have to work from priority. And then, so the many hats that we wear, and also, you can have times when you're very challenged to have enough staff to keep the hospital open, let alone have time or energy to get into the volunteer parts of the small community. (MK Partner Meeting)

In the Dawson Creek partners meeting, collaboration within similar sectors was often discussed:

I'm _____, with the Rec Sites and Trails BC program. And our program we're involved with, well we work with ah along with parks, as a lot of our stuff interconnects with it.

Participants in both partners meetings described the need for research to be done and disseminated, so community members and organizations can identify and solve issues together, in order to make the greatest change. In the Dawson Creek partners meeting, participants also identified areas of collaboration that do not currently exist, but potentially could be developed:

But I think there's definitely a good opportunity there for health and parks and recreation to work together to get your information out from the little pamphlet boxes that are in the offices, out to the field. Just when we're talking with people, we go along, we do inspections, and whether it's compliance enforcement or just looking at our stuff and talking with people, um, just breaking off into a conversation about health... (DC Partner meeting)

Collaboration also occurred during the partners meeting itself; participants shared their business cards and discussed working together on websites, presentations in the schools, and identified ways to acknowledge broader roles within their job positions.

I'll give you my card before you leave. Do you have digital copies of the maps in the area? That we could post on our website? Ok, if you do well I'll give you my card and you can get them to me. (DC Partners Meeting)

Past, present and future collaboration was an important theme arising from the partners meetings and assisted in informing and finding overlap with the other identified themes.

Working with Youth

When discussing what is being done or should be done in these communities, participants commonly referred to the needs of children, to engage youth with the outdoors. It was said that children could be exposed to nature, recreate, and learn conservation all in one setting:

...we worked hard to teach the cubs of the responsible use of our environment, our ground. Once a month we'd try to have an outdoor activity, usually there'd be a hike involved. There'd always be some spot around town where people had gathered, left a mess. So, we'd hike out there, clean up the mess. (MK Partners Meeting)

Participants in Dawson Creek noted that outdoor education in schools began for kids in middle school. However, in Mackenzie, outdoor education was said to be removed from the school system and largely a collaboration of various organizations in the community. One participant discussed the barriers faced in Mackenzie to connect with youth:

There was some discussion about it before we went broke, building a convention centre on a small scale. Y'know, something down by the ball diamonds, down by Ness lake. Which would have been a perfect venue for camps, 'cause it's right beside the lake, it would have been perfect. But we just don't have money to do it right now, unfortunately. (MK Partners Meeting)

Therefore, participants not only discussed ways in which youth are actively involved in the environment, but also their ideals to continue or elaborate on what is currently done.

Passion for Outdoor Recreation

Multiple references to the term “passion” were made by participants in both partners meetings. One participant explained the importance of creating an innate sense of passion for nature among people to encourage recreation, going beyond simply sharing information about the benefits of nature exposure.

It's one thing to throw out pamphlets, but it's another thing to actually utilize the passion that exists in people. When they try to utilize the passion people have about different programs or outdoor possibilities, that's the most powerful way to get people really interested and into it. (DC Partners Meeting)

Individual within the meetings spoke about their innate sense of passion, or personal interests, as their drive to do the things they do to promote the outdoors

So um, that's another project that I've been involved with. I've been involved with the BC Recreational Canoeing Association, Cross Country BC for many years. My interests, simply put is to provide opportunities to get people outside, especially families. Get out with their kids and ski. (DC Partners Meeting)

Other participants spoke of their life experiences that helped to build this sense of passion for the environment, and how their exposure throughout their lives has led them to where they are today. In the Dawson Creek partners meeting, one individual spoke about how they were raised in a cottage and had immense opportunities to recreate. Another participant spoke of their combined interest in the outdoors and technology, and how their education played a role.

I got my certificate in Eco-tourism and degree in recreation and my diploma in recreation and leisure services. So I grew up for this sort of job, and I have a passion for leisure. I got a make-shift blog and videos and I try to do a lot on the Internet in regards to recreation leisure. I just really obsess with what people do in their free time, what's their outlet, and what's their passion in leisure. (MK Partners Meeting).

Participants discussed ways to foster this passion for the environment. Some participants work with youth to teach forest stewardship and expose them to various activities. Others

explained how they've bought homes with land that can be recreated on, satisfying their interests, as well as their families.

Champions

During the discussions, various participants spoke of the need for people to be the promoters of nature exposure and outdoor recreation in their communities. In the Mackenzie partners meeting, it was noted that many individuals have many positions on various committees, while trying to also balance work and family. One participant noted the importance of key individuals or a core group, taking on multiple roles in the community:

About 25% of the people do 75% of the work, right? And we have movers and shakers in Mackenzie and I sit on a lot of different committees and things, now even one's I don't know about [laughter]. I sit with Performing Arts, Arts Council, we do a Success by 6, for the kids. There's the community awareness, community in health, there's tonnes. And every single one of them has someone from the health unit and someone from Arts Council. There's a lady named _____, who is part of everything in this town. (MK Partners Meeting)

In the Dawson Creek partners meeting, a participant did share their opinion on the negatives associated with focusing solely on individuals as a means for change. They indicated that at the individual level, health and outdoor recreation may be endorsed; however, in Dawson Creek, these concepts evade policy of the district:

So there's something on the negative side I guess too though, is that it's not coming from the district, it is coming from individual teachers or administrators that have a passion for the outdoors, instead of coming from the district that says hey, these are healthy activities and we endorse them.(DC Partners Meeting)

Another barrier associated with focusing on the individuals role to promoting health and recreation was discussed in the Mackenzie partners meeting by one participant, who indicated that volunteers experience burnout.

Once again, it's getting people, core group of people involved, and not burning them out. The big thing is burn out, too. But all these volunteer organizations, that's a huge factor. (MK Partners Meeting)

During the Mackenzie partners meeting, one participant referred back to the notion that new ideas need to be brought forward, in order for new changes to occur. Instead of the responsibility lying solely on the individual, one participant states how a spark is required, which can be contributed by an individual, to drive plans forward.

...in the community there's no lines. So there's always that cooperation going on. It just takes somebody to have the idea, the spark of a different idea. Thinking outside of the box, that actually makes it move forward. Cause once the ideas on the table, usually it can move forward. So, it's just getting those ideas, those new ideas on the table, is what needs to be done, I guess. (Mackenzie Partners Meeting)

The champions discussed were often individual community members wearing many hats within the community. There was a strong focus on the acquisition and retention of physicians in both Mackenzie and Dawson Creek, and their role in promoting health, community and environment through outdoor recreation.

Importance of Physicians

Throughout the partners meetings, participants in both communities discussed ways in which they attract and retain physicians, the roles physicians play within healthcare and in their community and the types of recreation that may influence physician retention. Reference was often made to Dr. Charles Helm of Tumbler Ridge, who is considered a catalyst for change in that region, promoting itself as a recreation community:

But I think the key there is, he's [Dr. Helm] driving, it's his interest. He's driving it, he's putting it out there, he's putting himself out there, and he's bringing it out there and engaging the community, and it's one person. (DC Partners Meeting)

In the Mackenzie partners meeting, participants spoke about how physicians are paid with a salary, providing them with more time to volunteer in the community. During the Mackenzie

partners meeting, one participant discussed their association with and preference for more urban built environments than natural settings.

The Dawson Creek participations shed light on the fact that there may constraints physicians in this community to volunteer.

The next challenge that I've been spending time on for the past year or so is that because they run a business, we have to pay for their time outside the environment, because there are overages and things like that. It's not because they don't want to do it for free, but that 10,000 dollar a month overage per doctor. (DC Partners Meeting)

In the Dawson Creek partners meeting, one participant suggested a similar ideal for Dawson Creek's physicians:

So, how can you connect all these activities with recreation and say, as part of that, connect your doctor to a trail or something like that, and maybe on the topic... afterwards could talk about hypertension or lifestyle choices? (DC Partner Meeting)

It is important to recognize and try to understand why physicians are seen as integral members of the community, whether it is due to their status or the typical associations made between health and environment.

Roles of Technology & Media

Participants in Dawson Creek and Mackenzie partners meetings referred to using technology and media often, for a variety of purposes. Technology and media is seen as a vital approach to connecting individuals, acting as a "hub" with information, and for knowledge sharing.

One participant discussed the duality of media, and how it can be good or bad in promoting the outdoors. The Internet is perceived in the same way; it was said to be useful for

bringing people together if it was done right, or frustrated individuals who could not find the information they were looking for.

...media plays a good and bad thing. And, one of the ones, you always hear about, search and rescue in the media down in north shore; if something goes wrong, we shouldn't do it. No, I don't know that, I'm not going to do it. You can do it, you can do it safely, and you can have a great time doing it. (DC Partners Meeting)

One participant noted the importance of YouTube in sharing videos of recreation activities, to motivate others to recreate. Another participant indicated their enjoyment in using blogs and social media to encourage others to participate by sharing their experiences. Members of the Mackenzie partners meeting used the opportunity of meeting with the group of people gathered to discuss possible website initiatives.

Roles of Industry

The participants in Mackenzie and Dawson Creek partners meetings spoke often about the impacts industry has on their interactions with nature and participation in outdoor recreation. One individual noted how industry is beneficial for their community, yet with the establishment, concerns do arise.

In Dawson Creek, industry provides access to natural environments, through road building or the seismic lines acting as trails. One participant discussed three impacts of industry:

...so forestry cut blocks, we start there, park the truck, hop off on a quad and take the kids in and we go and explore and see where we're going. But these seismic lines, they're great trails. But they're access into the middle of nowhere. And they really cut up and fragmented the landscape and I'm sure you guys have that issue a lot too. But that's a huge trail network for us up here. (DC Partners meeting)

Participants of the Mackenzie partners meeting also reflected on the beneficial roles of industry to the community. Forestry has allowed for access to the seismic trails for ATVing and to the areas that are usually unexplored; however, industry has disrupted the living landscape.

I think for parks and outdoor rec trails, um. One of the partners we need to be working closely with is industry. You need the Canfor's and the paper mill companies because they provide us our access to a lot of these recreational opportunities. (MK partners meeting)

One participant spoke about how they have seen groups of people viewing the wind mills in the area. Another Dawson Creek participant reflected on the impact industry has economically, funding recreation opportunities, such as ski hill improvements, in the area:

So it's on the upside right now, and it's capitalizing on the upswing economy and oil and gas sector that has funds available to put into it...an active organization that's taking the time to go out and, and pursue hill improvements. (DC Partners Meeting)

As noted by the participants in both Mackenzie and Dawson Creek, industry plays an important role in providing and supporting outdoor recreation opportunities for residents.

Table 5.3 Common Themes from Mackenzie and Dawson Creek Transcripts.

Common Theme	Description	Example from DC Transcript	Example from MK Transcript
Barriers to Nature Exposure	Many common barriers were noted across participants in all meeting, including: age, safety, distance, walkability, weather, and time.	<i>“ I have a sled, don't have time to use it. Work too hard, or work too much. Y'know, I got the 17 day, 12 overshift. Don't have time for these.”</i>	<i>“A single parent family might not be able to have their child in many activities. And it may be a barrier for them to be physically active themselves, 'cause they can't afford babysitter.”</i>
Self-Identity Influences Exposure	How individuals perceived themselves and others plays a role in the types of activities they engage in, and the frequency of participation.	<i>“I thought, the notion that this is under study I thought was quite interesting, and to me it's inherent, you either love the outdoors or you don't.”</i>	<i>“But I would say, in terms of the young families moving and the young doctors coming here, there is that self-selection process where, because Mackenzie has branded itself as an outdoor recreational area, you would attract people that are outdoor recreators.”</i>
Need for Collaboration	There is a recognized need for collaboration between the various sectors, to reduce barriers and increase participation, and bring light to the different roles of persons.	<i>“ We never even talked about the health benefits. We talked about the environment and we talked about the wildlife, but in our interp. program, we didn't go branch out with the other organizations...”</i>	<i>“It's my plan. I want to be the mafia for recreation. [laughter]. So like, the mob boss. If you're going to do recreation in this town, come through me.”</i>
Working with Youth	Participants indicated the importance of providing nature contact to the youth. Conservation and health benefits were often indicated.	<i>“...start with the kids, getting those kind of motivational discussions or speakers coming to schools, having principals or some role models coming at that level. To get started young, because when you're young, you're very impressionable...”</i>	<i>“...we worked hard to teach the cubs of the responsible use of our environment, our ground. Once a month we'd try to have an outdoor activity, usually there'd be a hike involved. There'd always be some spot around town where people had gathered, left a mess. So, we'd hike out there, clean up the mess.”</i>
Passion for Outdoor Recreation	Outdoor recreation stems from an innate passion or personal interest in the outdoors.	<i>“It's one thing to throw out pamphlets, but it's another thing to actually utilize the passion that exists in people. When they try to utilize the passion people have about different programs or outdoor possibilities, that's the most powerful way to get people really interested and into it.”</i>	<i>“I got my certificate in Eco-tourism and degree in recreation, and my diploma in recreation and leisure services. So I grew up for this sort of job, and I have a passion for leisure.”</i>

Table 5.3 continued.

Common Theme	Description	Example from DC Transcript	Example from MK Transcript
Champions	Both meetings had participants who spoke about individual leaders and the importance of leadership as a catalyst for change. Reference was consistently made to Tumbler Ridge. Importance of taking ownership was also recognized.	<i>“But I think the key there is, he’s [Dr. Helm] driving, it’s his interest. He’s driving it, he’s putting it out there, he’s putting himself out there, and he’s bringing it out there and engaging the community, and it’s one person.”</i>	<i>“But it’s the people. The people that can draw other people out there, the people that are champion in certain things, they want things to get going, they organize a club and get things going.”</i>
Importance of Physicians	The issues regarding doctor attainment, retention were discussed, leading to consensus for their important roles in these communities.	<i>“So, how can you connect all these activities with recreation and say, as part of that, connect your doctor to a trail or something like that, and maybe on the topic... afterwards could talk about hypertension or lifestyle choices.”</i>	<i>“Well, yeah, the doctors would be able to go anywhere across northern BC. And if they wanted to be rural, they would pick Mackenzie and that’s because of the outdoor recreation, and the rec centre.”</i>
Roles of Technology & Media	Technology and social media were discussed, and their roles in health promotion, bridging gaps between sectors, evoking fear, and making information available for residents or newcomers.	<i>“...media plays a good and bad thing. And, one of the ones, you always hear about, search and rescue in the media down in north shore; if something goes wrong, we shouldn’t do it. No, I don’t know that, I’m not going to do it. You can do it, you can do it safely, and you can have a great time doing it...”</i>	<i>“I got a make-shift blog and videos and I try to do a lot on the Internet in regards to recreation leisure.”</i>
Role of Industry	Industry was perceived to be detrimental (e.g. damaging landscapes, change in demographics) or beneficial (e.g. providing access) to the communities by various participants.	<i>“So it’s on the upside right now, and it’s capitalizing on the upswing economy and oil and gas sector that has funds available to put into it...an active organization that’s taking the time to go out and, and pursue hill improvements.”</i>	<i>“Basically the young kids had to leave town to either go to school or find employment. So the age of the population was steadily climbing. And then with the turnaround in 2008, then everything shut down. The young working families, a lot left.”</i>

5.3.2 Participant Understanding of Key Concepts

Throughout the partner and public meetings in Mackenzie and the Dawson Creek participants discussed and shared ideas that related directly to key concepts relating to the research and literature review. In this section participant experiences and insights are used to identify definitions and concepts in literature, specifically health, parks and outdoor recreation.

Participants spoke often about health at the individual level as exemplified by a quote from the Dawson Creek and Mackenzie meetings. “Health is personal; it involves physical and mental components, can be affected by direct or indirect factors, and is a collective state of being.” Additionally, they did speak about the health of the environment and of the community. The term “healthy community” was used multiple times in the Dawson Creek partners meeting. A definition for this concept was constructed using excerpts from the Dawson Creek and Mackenzie discussion is presented along with other proposed definitions in Table 4.4.

The outdoor recreation definition is supported by the number of activities discussed by participants throughout the meetings, as well as the focus on motorized outdoor recreation by participants in the Dawson Creek partners and public meetings (Table 4.4).

Many participants spoke often about their experiences and their outdoor recreation activities done within BC Parks, more so than other natural settings (Table 4.4). Two participants in the Dawson Creek partners meeting discussed the difference between BC Parks and BC Rec Sites & Trails; often there was overlap or confusion about the definition of the lands that each manage.

Table 5.4 Key Concepts in Relation to Findings From the Mackenzie & Dawson Creek Transcripts.

Key Concept	Examples from Transcripts	Integrated Definition
Health	<p><i>“...you're breathing clean air inherently, that you may not be seeing in an urban setting. But there's also the physical aspects of it. So um, ah, we got out and ride hard and work hard and come home tired. There's a physical aspect to it that we attribute to it, to maintaining personal health.” (DC Partners Meeting)</i></p> <p><i>“You create ill health because of your lifestyle choices.” (DC Partner Meeting)</i></p> <p><i>“For me, being healthy and fit physically and mentally, it's extremely important.”(MK Partners Meeting)</i></p> <p><i>“And enjoyment is health. Mental health is a huge part in quality of life. And if you're not healthy, you can't enjoy it.” [agreement] (DC Partners Meeting)</i></p> <p><i>“Because health to me is like I am taken to a facility or I get a shot or things like that. But health is quite different. All the things we do contribute to our health.” (DC Partners Meeting)</i></p>	<p>“Health is personal; it involves physical and mental components, can be affected by direct or indirect factors, and is a collective state of being.”</p>
Outdoor Recreation	<p><i>“And not necessarily the traditional stuff, rock climbing, caving, kind of where I've done a lot of my activities” (DC Partners Meeting)</i></p> <p><i>“ATV’s. Motorized recreation is healthy here.” (DC Partners Meeting)</i></p> <p><i>“Recreation is not typically rooted in health, it's rooted in enjoyment.” (DC Partners Meeting)</i></p>	<p>“Outdoor recreation includes a broad range of activities, sought for enjoyment, occurs in built and natural settings, and can be classified as motorized or non-motorized.”</p>
Parks	<p><i>“You have to be careful not to mix parks with site and trails BC. Which a lot of people thing site and trails BC, the old forest service sites, are also parks, when they're not parks, right. Very different.” (MK Partners Meeting)</i></p> <p><i>“We never link the infrastructure of a park, of a provincial park, with going to a concert.”(MK Partners Meeting)</i></p>	<p>“Parks are open spaces offer a wide range of activities, often confused with other publicly managed land. The term is mostly used to refer to provincial parks.”</p>

5.3.3 Context-Specific Themes

In this final section of the findings, specific themes, specific to each community are identified to complement the comparisons presented in previous sections.

5.3.3.1 Mackenzie

From the Mackenzie partners meeting, three context-specific themes emerged, relating specifically to this community: Outdoor Goldmine, Community Pride, and Recreation in Your Backyard.

Outdoor Goldmine

Participants spoke often about the community identity of Mackenzie, as it is seemingly shifting from being defined as a resource-industry town to more of a recreation community. One participant spoke about how this recreation identity attracted physicians to the area: “But I see it, um, the outdoor ah goldmine we have here, as a place that has recently attracted my young doctors to town.” (MK Partners Meeting)

Extending on this theme of ‘outdoor goldmine’, another participant made reference to “nuggets”, resonating well with the proposed concept of “outdoor goldmine” community. They reflected on how recreation in the area extends beyond simply the parks; therefore, the resources and opportunities are abundant. “...everything that is outside of parks. So we have little nuggets all over the planet here and trails and lots of trails we aren't even managing but people would like us to manage.” (MK Partners Meeting)

One participant discussed the richness of the recreational opportunities in relation to the location of the recreation centre, or “hub”, in close proximity to other settings for recreation. In a short distance from the centre, a multitude of outdoor recreation opportunities are available.

Within the 20 minute walk of this recreation centre, we've got a skateboard park, we've got a golf course, we've got a lake you can ski, water ski, canoe in. Ski hill, cross-country ski trails, walking trails, and it's all within 20 minutes of right here.

Community Pride

Those participants residing in Mackenzie spoke fondly about their home community throughout the partners meeting. One participant clearly stated their connectedness with the services and assets that the town has to provide. “And ah, I'm quite happy with the job that the town has done providing these assets.” (MK Partners Meeting)

Participants spoke about how they often hear about information through word of mouth in Mackenzie, and their close knit community has provided many benefits in regard to spreading awareness or encouraging recreation.

And that's a huge challenge in a bigger town. We find out about things through word of mouth, and I mean, you might happen to see an ad in the paper, but, y'know when your paper is that much bigger. (MK Partners Meeting)

Recreation in Your Backyard

Participants in the Mackenzie meeting expressed how distance to natural settings acts as either a barrier or facilitator, to increase or reduce the frequency of recreating for this population. While various settings were discussed during the meetings, it was stated by participants that the close proximity was a selling feature of this area, and that people residing in Mackenzie value this closeness.

It's all around here. It's all around you. The ability to access outdoor activities is just a short walk from any house in town. Whether it be cross-country skiing, golfing, swimming, fishing, you can walk to it from your front door. I think that's a big part of it. Just like we were saying in Prince George, where you live, out through your backyard are the trails and wilderness. Pretty much everyone in town has that option here. I think that's a big plus for the community. (MK Partners Meeting)

One participant noted the closeness of the local ski hill and how it benefits their children, as it is fifteen minutes away from town and children can engage with this environment daily after school. The Mackenzie residents value the abundance of outdoor recreation opportunity to satisfy their interests, and having it nearby helps to further promote use of the natural settings for recreating.

5.3.3.2 Dawson Creek

Within the Dawson Creek partners meeting, two themes emerged that related to the context of this community: Motorized Community and Transient Population.

Motorized Community

In the Dawson Creek meetings, it was identified by participants that motorized outdoor recreation, including ATVing or snowmobiling are very popular outdoor recreation activities. One participant described how this recreation has been integral to the population, and is healthier than presumed by many outsiders.

And people go, "Ok, what's riding a snowmobile like?" Who here has ridden a snowmobile on the mountains for a day, eight hours. It's not sitting there riding, it's the same thing, you're throwing 800 lbs around, 600 lbs machine, you're working, you're stopping. But, traditionally, when we think about motorized recreation, we think of it strictly as, it's a means of travel...and the industry itself, and communities don't say well, it's healthy to do that. (DC Partners Meeting)

Motorized recreation was seen as a healthy alternative for one participant, whose ability to engage in the outdoors has been hindered by their health status. Using motorized vehicles has provided them with the opportunity to continue to engage with nature.

In the last few years, I've moved a bit more motorized 'cause chronic injuries. Things just don't work out the way they used to. Age, yes, yes. I'm not convincing myself that. (DC Partners Meeting)

Motorized vehicles were also said to provide additional opportunity for individuals to recreate in new ways or for a longer duration. Participants explained how they could drive into the forest a fair distance, and continue further on foot, hiking an area they had never visited before.

Cause a lot of people in a lot of our parks where we do have it, they go to a certain spot, get off, and hike to do the healthy thing, but it's 70 k by snowmobile or ATV to this location. I'm not going to get there unless I travel that way versus 2 days, or I can get in 6 hours, or I can get in, set up camp, and then go hiking for two days. (DC Partners Meeting)

One participant spoke about the work that the Northern Health Authority is taking to reduce motorized recreation, through the “Use your Muscles, Not your Motors” campaign. Additionally, one participant spoke about how they felt to afford to engage in motorized recreation can lead to illness, as individuals must work longer and harder to pay for their interests.

So, you have to work your ass off to pay all this stuff. You work so hard, when do you play? So you get the cycle, then you have to pay taxes. It's between you, the tax man, and the toys. So you get in the cycle of working harder and taking more shifts and things like that, that you don't really have a healthy life. (DC Partners Meeting)

In addition to motorized recreation, participants noted that vehicles were required by many families in order to visit natural settings, as many of these areas are distant from town. Participants noted the number of motorized vehicles in the backs of trucks and in driveways. Overall, the community identity of Dawson Creek is greatly associated with motorized sport.

Transient Population

Participants discussed the effects that the transient population in Dawson Creek has on health and use of facilities. A fair number of workers are settled in camps in the area, and visitors from other adjacent communities and tourists from afar also travel to or through Dawson Creek

to recreate. One participant expressed concern about the dangers of transient populations recreating in the area and the need for ways to educate and engage these groups.

...a lot of the camp workers, snowmobilers, hunters, skiers, hikers, that are so transient. Those are the ones that have the biggest toll on, a.) health, and b.) they use a lot of our facilities...those are the ones, that I feel from my end, I want to try and get them involved in a club or get them involved in some of this other stuff, because those are the guys, they're in, they're out, they're in, they're out. And that's their life, and when they recreate, or leisure or whatever, they do it hard. They don't kinda weekend warrior, it's three or four days, you'll see them out at some of our trail heads, they're blitzing into the back country for four days, packing a cast iron frying pan, you go ok. Then you find it 3 weeks later, stuck in a bush, hanging in a tree. But, those are the ones I think that are the hardest to reach because if you live in the town you can maybe make those contacts or get the leisure guide, or at least have a starting point. (DC Partners Meeting)

One participant did voice their concerns about the generalizations made about those working in industry, noting that not all industry workers are transient, as families are often coming to settle in these areas.

So, I wouldn't argue that that's not accurate. But I would also argue, and ___ might weigh in from the resource extraction perspective though, there's also those, that are part of that industry, that do live here. We now have 100 employees in our Fort St. John office. That are all, well 80% are living in the area, raising their families in the area, and are non-transient. And as we look at the business years ahead, there are aspects to our business that are definitely transient, and y'know the camp atmosphere. Um, but there's an even larger component that's permanent occupancy, raise you family here, be part of the community, recreate. (DC Partners Meeting)

The “Rubber Tire Traffic” was also discussed by participants, which includes truckers traveling the various highways.

How do we go with those other people, the transients, like, again, we talked about *Rubber Tire Traffic*. I got Charlie Lake campground; depending on the day of the week, it's either all locals, or all people travelling the Alaska Highway. (DC Partners Meeting)

Truckers are deemed transients as well, and participants noted that they utilize services, but do not integrate into the population, and do not come to Dawson Creek to recreate.

5.4 Conclusion

This chapter presented the results that emerged from the data, contextualizing the settings and types of outdoor recreation, specific to Mackenzie and Dawson Creek. Additionally, the results have highlighted benefits and barriers to engaging with nature for these populations, and the additional factors affecting the organization of these communities. These findings provide the basis to discuss the experiences from Mackenzie and Dawson Creek in relation to the literature introduced in Chapters 2 and 3. The following chapter will explore the current and impending connections between the health and environment sectors, and the driving forces, such as industry, in these northern BC towns.

6 Chapter 6: Discussion

6.1 Introduction

Informed by the results from the qualitative analysis of the transcripts in Chapter 4, this chapter will discuss the findings in relation to the existing literature, touched on in Chapter 2. The discussion will revisit the Research Questions presented in Chapter 1. Research Question I seeks to explore the natural settings and outdoor recreation opportunities that are identified in Mackenzie and Dawson Creek; Research Question II seeks to compare the natural settings and outdoor recreation opportunities between Mackenzie and Dawson Creek, and with literature; Research Question III explores the similarities and differences between Mackenzie and Dawson Creek and how they contribute to our understanding of the relationships between health, environment and community in relation to nature-based recreation, both in northern BC and in general. This final research question seeks to further the understanding of the relationships between health, environment, and community as experienced through nature-based outdoor recreation in the north.

Informed by the analysis of the partners and public meetings presented in the previous chapter, a range of benefits, barriers, and types of participation, specific to northern BC were identified. This chapter will commence with a discussion of these findings in relation to each Research Question. The discussions in Mackenzie and Dawson Creek resulted in an exchange of knowledge and generated contextual insight into the organization of these communities that has provided a range of insights, relating to research question I. Information on settings and types of outdoor recreation in Mackenzie and Dawson Creek was presented in Chapter 3 and will be discussed here in relation to the contextual findings from the transcripts of the partners and public meetings, and helped to address research question II. A variety of themes relating to the

context and specific experiences of the relationships with health, environment and community were identified from the partners meetings, enabling comparison between these two communities, and a range of new insights in relation to research question III. The following section will review the main findings for each research question, with discussion of the findings as they relate to the literature. Limitations to this research will be explored, followed by suggestions for future research, including implications for, and future steps to be taken by the CHILL research team.

6.2 Discussion in Relation to the Research Questions

6.2.1 Understanding Experiences in Living Landscapes

The literature and participant's insights indicated an abundance of settings for outdoor recreation in these communities, including both cultivated and uncultivated natural environments. The results provided insight on well-known areas of use, such as parks. In addition, the participants described areas that are deemed local knowledge, such as the gravel pits for sledding (Figure B.3) and seismic lines that double as a trail system for ATVing or snowmobiling (Table 5.1; Table 5.2). It was found that snowshoeing and ATVing were discussed in only minor detail during the Mackenzie partners meeting, whereas these were important considerations in Dawson Creek. Participants spoke often about the types of activities they engage in, more so than the natural settings they engage in; however, the public meeting provided extra insight into distinct locations. Both active and passive modes of engagement with the natural environment were highlighted, relating to the multifarious opportunities that exist in this region and reinforcing what Korpela & Ylén (2007) describe as benefits from and affinity to "favourite places" with the vicinity.

Of the fourteen types of activities discussed during the Mackenzie meetings, four were specific to the winter seasons, including snowmobiling and skating on frozen lakes (Table 5.1). During the Dawson Creek meetings, three of the fifteen activities emphasized were specific to winter seasons; skating was not discussed in Dawson Creek (Table 5.2). With winter seasons come new barriers to participation in outdoor recreation, and the winter season is often harsh and extensive in this region (NRG Research Group, 2013). The Outdoor Recreation 2009/10 Survey of British Columbians found many of the favourite recreation activities of those in the north are summer-based, which may indicate why a majority of activities discussed were fostered in the summer months (NRG Research Group, 2013). Johnson, Bowker & Cordell (2001) found that participants in their study who favoured a winter recreation activity faced barriers such as lack of funds and inadequate transportation. This highlights the diversity of barriers to engagement in natural settings, as discussed in many other sources (Ashbulby et al., 2013; Gatersleben, 2013; Hansen-Ketchum et al., 2011).

Prospecting was an activity that was only noted by a single participant in the Mackenzie partners meeting, and provides an example of an outdoor recreation activity that was absent from the literature reviewed (Table 2.1; Table 5.1). The biking trail that extends from the town of Mackenzie to the local mills is an example of a recreational opportunity identified in the focus group but not otherwise documented or well identified, and therefore providing local context to the opportunities in this community (Table 5.1). Although these two communities share many types of activities, the environments in which these activities are conducted may vary or have overlap. For example, skiing or snowboarding at Powder King is common for residents of both towns, and both have cross-country ski trails (Table 5.1; Table 5.2). Studies have concluded that participants applied less importance to the types of settings than the quantity or abundance of

natural environments in close proximity (Astell-Burt, Feng, & Kolt, 2013; de Vries et al., 2003). While there are differences in the settings for engagement, the results indicate that, despite these dissimilarities both communities still engage in some similar types of outdoor activities.

Participants spoke often about provincial parks and the opportunities provided by these natural landscapes. The literature indicated an abundance of provincial parks in close proximity to Mackenzie (Table 5.1); however, Dawson Creek has fewer provincial parks nearby, although there is a substantial number of community parks (Table 5.2). Dawson Creek participants also spoke often about hunting and their local gun club. Provincial parks, while some may allow hunting, often restrict gun use (BC Parks, n.d.). It could be postulated that discussion about hunting may be more prevalent in Dawson Creek and surrounding areas, as there may be fewer gun use restrictions due to the scarcity of provincial parks. Trail systems and lakes were discussed by participants in both communities, supporting an abundance of different outdoor leisure activities, while catering to specific groups or individuals (Table 5.1; Table 5.2). Previous studies have determined that open spaces, trails, and wooded areas greatly encourage active use by users, factors which are all present in BC parks and discussed by participants (Giles-Corti et al., 2005; Kaczynski, Potwarka, & Saelens, 2008). Consequently, further exploration into the types of amenities and features of these parks, along with adjacent public lands, could highlight strengths and areas requiring improvement to promote recreation by all types of users.

6.2.2 Insights into Health, Community & the Environment

The major themes presented in section 5.3 highlight the similarities concerning communities within northern BC and the Peace River Region, and also suggest dissimilarities when these regions are compared with the rest of the province (Table 5.3). Although the communities of interest were located in a similar geographic context and shared many issues in

common, themes emerged that suggest differences among the environmental and community organization that may potentially influencing nature contact and participation in outdoor recreation for residents.

The theme *Barriers to Recreation* emerged from both Mackenzie and Dawson Creek partners meetings, shedding light on the types of perceived barriers experienced by individuals in both communities. The barriers discussed by participants were generally analogous to those faced by individuals in other areas across the globe, including proximity to natural settings, lack of time, and weather (Ashbulby et al., 2013; Hansen-Ketchum et al., 2011; O'Brien et al., 2010; Whitelaw et al., 2010). Perceived barriers were found to be context-specific; nature exposure is influenced by a variety of features (Whitelaw et al., 2010). The findings suggested that perceived safety was not weighted as a major barrier to recreating for some residents. This supports the findings of Hansen-Ketchum et al. (2011), who stated that fears involving nature or crimes are generally not as significant for residents in rural communities versus more urban areas. Thus, while barriers may be similar to those present in other regions, some may have more relevancy than others. It is known that winters in this area range from mild to harsh, often advertised as providing winter recreation opportunities, but this also acts as a deterrent for many (NRG Research Group, 2013). One participant stated that residents deal with the winter weather accordingly, as another respondent indicated how early darkness in this segment of the province makes it difficult for many to recreate after work or school, or for longer durations. The abundance and variability of barriers identified in Mackenzie and Dawson Creek supports the need for further exploration into the unique barriers and motivators faced by individuals in northern BC.

Whitelaw et al. (2010) determined that access to natural settings was necessary for physical activity; however, more than just access was required for recreation to occur. The theme *Outdoor Goldmine* (Section 5.3.3) relates to the idea of community identity of Mackenzie, as depicted by participants. The participants spoke of the abundance of natural settings and opportunities, as well as the lack of or decline of users at these sites. Thus, the findings support the notion that access does not equal increased usage. Dawson Creek also has an abundance of natural settings for outdoor recreation within the town and in the surrounding areas, as identified through literature and the meetings (Table 2.2.; Table 5.2). However, the perceived community identity had greater reflection on the dependence on industry, automobiles, and motorized sports. The theme of *Motorized Community* (Section 5.3.3) was associated with participant's perception of the identity of Dawson Creek, which is also discussed and advertised by various sources (City of Dawson Creek, 2013). The participants made it known that a significant number of people in this community have vehicles, along with the funds to purchase motorized sports equipment, such as snowmobiles. Access to these resources may make this less of a barrier in this community versus in Mackenzie; however, in Mackenzie, the cost of using the recreation facilities is often subsidized by the town to encourage access by reducing expenses. The interplay of promoters and barriers should be thoroughly assessed to provide a more complete representation of the experiences for northern BC residents, and those of the respective communities.

The *Role of Industry*, which was addressed in both Mackenzie and Dawson Creek meetings, focused on industry being important in generating employment and sustaining the economy, as it is commonly associated with. The growing transient population of Dawson Creek was discussed, along with the reduced availability of jobs for young people in Mackenzie, as the

mills became unionized. The transient workers are flown into camps in Dawson Creek, and often do not associate with the town itself, indicating the *fly-over effect* in this community (Northern Health, 2013). In both communities, industry was said to play a direct role in shaping outdoor recreation for residents. Environmental hazards or impacts due to industry may discourage the frequency of participation in outdoor recreation, as found by Burger et al. (2012). However, this was not discussed often by participants; instead, industry was seen as an investor in outdoor recreation, providing funds for site management and the creation of roads and trails that can be used for explorative purposes by residents.

The themes *Passion for Recreation* and *Self-Identity Influence Exposure* provided the possible motivators for outdoor exposure and recreation participation for people in this region and in general. The respondents who said they were raised on or near natural environments and were raised by families that recreated together often, self-identified as being “outdoorsy”; this label acted as a promoter for nature-based outdoor recreation, while those who felt they were “indoorsy” or “urbanites” accepted their lack of participation. This is consistent with recognition that people go to natural settings for feelings of enjoyment (Armstrong, 2000). Those who felt they were “outdoorsy” or “recreators” spoke of the ways they incorporated the natural environment into their livelihoods.

The passion for the outdoors and recreation influenced the job choices, hobbies, and frequency of participation. The respondents acknowledged their gains from involvement with nature, including the fostering of an innate responsibility towards the environment that contributed to their passion for recreation. Various initiatives and organizations established place importance on the generation of an innate responsibility for the health of the environment to increase the frequency of participation in nature (Grande Yellowhead Public School Division,

2014; NEAT, 2014; Young Naturalist Club of BC, n.d.). These findings echo those of Brook (2010) and Mitchell (2012) who have noted that increasing frequency and building environmental stewardship has magnified benefits for individual, community, and environmental health.

Participants spoke of self-selection, and how those who identify as “outdoorsy” or have a passion for recreation tend to relocate to areas that foster their interests. Residents of small communities acknowledge recreation and settings as vital to their home and lifestyles, as they are dependent on these leisure activities to fill a ‘basic [human] need’ (Johnson, Bowker, & Cordell, 2001). de Vries et al. (2003) argued that selection, when healthy people choose to live in greener environments, has the same outcome. Those who identify as healthy, or have an interest in healthier lifestyles, choose greener areas to reside (de Vries et al., 2003). However, this study argued causation, when those who move to greener areas have a change in health status, as an explanation to this benefit (de Vries et al., 2003). Based on the negative health outcomes for the population of northern BC, selection of greener areas to live solely based on perceived health may not be the best measure (Northern Health, 2012; Northern Health, 2013; Statistics Canada, 2010); exploring selection in relation to recreation may be a more accurate comparison.

Many individuals in northern BC express their concern with the amenities and services provided by small, northern communities and often these are deemed insufficient to meet the lifestyle requirements of the workers and their families (Northern Health, 2013). Respondents in the Dawson Creek meetings discussed the lack of integration of transient workers into communities. However, they do note how some workers, while they may not come into town during their breaks, actually utilize the outdoor recreation opportunities nearby. It was noted if newcomers were more familiar with the opportunities and clubs available, it is possible that they

may generate a sense of community with these individuals. Participants in Mackenzie also noted the difficulties in retaining current residents, especially youth who are forced to seek education and high-paying jobs elsewhere. *Community Pride*, as noted often in the Mackenzie meetings, could also be seen as a method for attaining families and workers. Those who were happy with the services in the area and the sense of community fabricated by the closeness of the town physically and socially, may help to establish a sense of meaningfulness (Cervinka, Röderer, & Hefler, 2011). Understanding the needs and selection process, or mode of causation, can help determine how individuals can come to this region, and ways to sustain or integrate this population (Northern Health, 2013). The findings of this project exemplify the complexities of outdoor recreation, health, environment and community, and need for understanding of the modes use to attract individuals to live, work and recreate in this region. They also express the need to recognize the potential benefits of fostering an “outdoorsy” self-identity to nurture personal interests in nature-based activities.

One finding stood out as a notable finding from this study: *Importance of Physicians* (Table 5.3). Aside from discussion about their attainment and retention, the roles of physicians were discussed by participants. Whether this importance is due to their ranking in society, or possibly due to the lack of health care servicing in this area, is unknown (Northern Health, 2013). The emphasis placed on these individuals, as health educators, volunteers, and catalysts of change was substantial. While their role of health educators is acknowledged, McCally & Cassel (1990) express the social responsibility of physicians and other health professionals to stay up to date with the environmental hazards and provide information to their patients. Initiatives in New Zealand and Australia have given examples of the integration of physicians and the environment, encouraging physical activity in nature via prescriptions (Healthy Parks

Healthy People, 2012; Townsend, 2006). The findings, however, reflect a larger perceived role of physicians as community builders, with the example of Dr. Helm in Tumbler Ridge given. However, the question remains: why physicians? Understanding why physicians are perceived as people who will initiate change or find solutions, versus individuals from the environmental management sector, or other health professionals, could provide additional insight as to why there is an apparent dependency on physicians in Mackenzie and Dawson Creek.

This finding relates well to the theme *Champions*, where leadership by individuals who have the personal interest or passion for nature and recreation is valued in these communities (Table 5.3). It is plausible that physicians, who chose to live in this region, are viewed by residents as passionate for health and the outdoors based on their selectivity. The multiple hats worn by residents in Mackenzie provided insight on the importance of people and volunteerism for establishing solutions. It was said that 25% of the people do 75% of the work, especially in small communities with limited numbers. In Dawson Creek, there was discussion about the need to encourage further participation of residents. This supports Reed & Selbee's (2001) discussion of the "civic core" of Canada, where a majority of Canadians are found to very rarely practice giving, volunteering, or civic participation. It was also found that those who are older, with higher education, have greater religious association, and are more socially active, have higher participation in these activities (Reed & Selbee, 2001). Many participants who indicated they volunteered for many organizations were long-term residents, of older age, and were quite well-known by their peers.

The participants discussed various terms throughout the meetings, providing insight into their conceptualizations of health, outdoor recreation, and parks (Table 5.4). The WHO definition of health is broad, including environmental health and sustainability alongside

individual health (1986). The respondents often discussed the health of the individual, occasionally mentioning the interplay of health, community, and environment. The key concept, outdoor recreation, was broadly defined by respondents as well (Table 5.4). This definition included the motorized recreation opportunities in this region, indicating the locally-relevant insight that was provided during these meetings. When discussing parks, the participants spoke of the provincial parks when the term “parks” was used. Parks were noted as an important living landscape for recreating, and understanding the conceptualization of these areas may shed light on the features or amenities that draw locals to these areas (Table 5.4).

Understanding how participants conceptualize their health, living landscapes, and recreation provides useful information that cannot be found in the literature. The integrated definitions of these key concepts in the literature are not always relevant to the population of interest. Integrating definitions from the literature with local perspectives may allow for greater understanding of the experiences for those living in the north.

6.2.3 Opportunities for Integration

The theme *Need for Collaboration* supports the global need for increased collaboration to solve complex issues (Northern Health, 2012; Parkes & Panelli, 2001; Pretty & Ward, 2001). Various programs identified in the meetings, such as *Walk with your Doc* initiative in Mackenzie and the Pat O’Reilly Outdoor/Environmental Studies Centre in Dawson Creek, relate to the existing collaboration of residents, local governments, and/or local health authorities.

Participants in the Mackenzie partners meeting spoke fondly of the *Walk with your Docs* initiative, and its ability to engage the public and local physicians. During the winter months, the program is scheduled indoors, for safety reasons, which was also noted by the participants (British Columbia Medical Association, 2012). As community members have reflected on the

success of the *Walk with your Doc* program, they have still indicated there is room for improvement. Further exploration into creating programs that engage individuals from both the health and environment sectors may compensate for the perceived lack of collaboration.

The collaboration within the meetings themselves, including the exchange of business cards, was representative of the horizontal exchange between organizations. This action also exemplified the *Roles of Technology and Media*. Representatives from various sectors offered information or maps to be used on a collaborative website to promote outdoor recreation. The Squamish, proclaimed as the outdoor recreation capital of Canada, provides a great example of how the district has a centralized focus on recreation on their website, acting as a hub of information based mostly on recreation and related local programming (District of Squamish, 2012). Participants saw technology and media as good and bad, providing a hub for information, but often eliciting fear in individuals to recreate. Acknowledging the pros and cons associated with using media and technology in promotional efforts should be maintained.

Working with Youth was found in Mackenzie and Dawson Creek, through programs such as the Pat O'Reilly Outdoor/Environmental Studies Centre; however, it was also noted that youth are restricted in their opportunities for recreation, in part due to the lack of collaboration to create new, sustainable solutions. Physical activity programs, or other established programming, can incorporate the community capacity building component, providing new measurable outcomes (Labonte et al., 2002). Including this component provides momentum for individuals working in these areas to be cognitively aware of how programs work to build community capacity and increase social capital (Labonte et al., 2002). Pairing physical activity programs with natural elements, by conducting the programs in living landscapes, and including measurable outcomes regarding capacity building, incorporates the role of the environment. This was discussed earlier

in chapter 2, as the integrated settings approach expresses the importance of initiatives that stray from strictly traditional approaches, integrating theoretical and practical assessments of health of the individual, community and environment (Northern Health, 2012; Parkes, Panelli, & Weinstein, 2003).

As it was noted by participants that horizontal exchange between sectors doesn't often occur, encouraging horizontal and vertical exchange between all sectors to find solutions is should be promoted (Parkes & Panelli, 2001). Persons working in environment management may not always establish relationships with health professionals; their roles were said to be detached. This finding supports the importance of integration and making individuals aware of their multifaceted roles, to foster social capital and community building (Northern Health, 2012). It facilitates cooperation, reduces the costs of working together, and can encourage a change in attitude alongside a change in behaviour (Pretty & Ward, 2001). Parks are one example of living landscapes that encourage the exchange of knowledge between health, community, and environmental sponsors (Northern Health, 2012). It is important to acknowledge the driving forces, such as industry, within northern communities, to consider their impacts on health, community, and the environment, whether it be through their direct and indirect effects on outdoor recreation (Parkes & Panelli, 2001; Parkes, Panelli, & Weinstein, 2003; Macinko & Starfield, 2001).

As seen with Northern Health's Integrated Settings Approach, integration between health and the environment has important implications for health and wellbeing (2012). Parkes, Panelli, & Weinstein (2003) presented the *Prism Framework of Health and Sustainability*, depicting six interacting axes linking the driving forces (e.g. industry), ecosystems, and social systems, with health. From the respondents, the effects of industry, the importance of social networking to

collaborate or spark change within the community, and the stress on ensuring conservation of the natural environments remains, indicates a need for collaboration that recognizes these interrelationships. Overlap in mandates and jurisdiction among various sectors creates difficulty when assessing complex contemporary issues and determining solutions (Parkes, Panelli, & Weinstein, 2003; Pretty & Ward, 2001). Environmental health research that is community-oriented and ecosystem-based is one example of a way in which roles of driving forces within communities can be assessed, to understand the local contexts of people and place (Parkes, Panelli, & Weinstein, 2003). The adapted focus groups brought together individuals from all types of sectors to discuss issues and propose solutions, a simple example of horizontal integration across similar stakeholder groups (Parkes & Panelli, 2001). Ensuring vertical integration between groups, including discussion between locals and external organizations, with mutual reciprocity is key. Working with the community, researchers, and agencies is vital to create sustainable solutions and build capacity (Parkes & Panelli, 2001; Pretty & Ward, 2001), and is also an important feature of the emerging field of *EcoHealth* or ecosystem approaches to health (Charron, 2012; Webb et al., 2010).

A study evaluating a Type 2 diabetes prevention program in the Cree community of Moose Factory discovered that perceived safety was main concern for those engaging in walking through the program (Kirby, Lévesque, Wabano, & Robertson-Wilson, 2007). The researchers stated that the unique settings within rural or remote communities need to be assessed during intervention plans. This project is the first step to understand what types of living landscapes are utilized within northern BC by residents of the two communities. Taking into account the core values and beliefs of subjects leads to more efficient programming in regards to upholding adherence (Kirby et al., 2007). The respondents highlighted their interests, passions, various

issues, and proposed solutions. Creating environments for recreation in itself is not enough to motivate individuals to recreate; research must also consider the other individual, social environmental, and ecological variables (Kirby et al., 2007). Implementing programs or trying to find solutions without understanding the driving forces, ecosystems, or social systems from the local perspective, may not provide long-term solutions to increasing nature exposure and outdoor recreation participation (Labonte et al., 2001; Parkes, Panelli, & Weinstein, 2003).

6.2.4 Limitations

As previously stated, this project was aimed towards providing relevant insight into the context of Mackenzie and Dawson Creek, in relation to health, environment, and community. The qualitative analysis of the transcripts was conducted under some time constraints reflecting the timeline of an Honours thesis. Codes that emerged from the data were determined by a single researcher; it is arguable that these codes are not an accurate representation of the data, or that bias plays a large role in coding procedure. However, there are multiple ways in which codes could be assessed or agreed upon, which reduce the likelihood of bias. Coding could be conducted or agreed upon through the consensus of other researchers, or codes could be passed by the participants to ensure accurate representation (Onwuegbuzie et al., 2009).

While there was heterogeneity in the meetings, some participants did note a lack of First Nations and Industry representatives, insisting their presence is important in these types of discussions. While this may be seen as a limitation, this research was conducted not to gain equal representation across all relevant stakeholder groups, but to bring together individuals from a range of backgrounds to share knowledge and generate ideas. Representatives from these groups were invited to join the conversations; however, due to prioritization or other circumstances, they were unable to.

6.2.5 Implications for Future Research

Many local initiatives were discussed by participants, and a major theme indicated a consensus regarding a need for collaboration to spark change and find sustainable solutions complex issues involving health, community and the environment. Thus, further assessment of existing local initiatives promoting nature exposure through recreation would be valuable in order to find measurable ways to evaluate community capacity building and incorporate environment strategies to enhance health and community objectives . Understanding the multifaceted roles of these programs in solving complex issues stretching across all sectors will lead to increased efficiency and magnified benefits.

Northern Health recognizes the challenges of providing services to this region, and the importance of recognizing the role of government policies, service delivery models, and private sector practices (2013). The health authority also recognizes the need for creating connections between health and environmental initiatives in order to generate benefits at the individual and collective level (Northern Health, 2012). Further exploration into the synergistic and long-term effects by industry on the environment, health and on community could be enabled by considering the kinds of connections proposed by the prism framework be applied to future research in this area (Parkes, Panelli, & Weinstein, 2003).

The public workshop meetings were useful as they provided contextual insights verbally and visually on the maps provided. The partners meetings were especially useful, as they encouraged more in-depth discussion about issues and potential solutions, in addition to the contextual insights. This step in the research also helped to facilitate the creation of partnerships between researchers and the health, community, and recreation/conservation sectors at the local level. Future research may find benefits in using the adapted focus group and workshops as

methods for gathering initial insight to topics within this region or in general, as it also helps to create new bridges between sectors.

Findings from this study may be useful in the creation and/or interpretation of results from the CHILL survey that is proposed to be designed and administered to residents of these communities. In addition, the findings may be helpful in designing Healthy by Nature workshop materials and methods, to be potentially structured and implemented by future agencies.

6.3 Conclusion

Participation in nature-based outdoor recreation is influenced by a multitude of factors within communities, and has the potential to be greatly beneficial to the health of individuals and resource communities. This Honours thesis has provided new insights into the types of settings, experiences in these settings, and various factors that influence nature exposure and outdoor recreation for residents in northern BC, specific to the northeast communities of Mackenzie and Dawson Creek. The results made evident the variety and importance of living landscapes for outdoor recreation in this region for residents, and gave clarity to the context-specific barriers to accessing and participating in leisure activities of all kinds. The need for collaboration among community members, industry, organizations, and government in this region, indicated by participants, is analogous to the push for further integration within communities in most areas of the world. However, contextual insights from this research also highlight the ways in which this is already done or could be done in Mackenzie and Dawson Creek.

This project is a merely a component of the larger CHILL project, and attests the need for further exploration into the specific dynamics of northern communities, with regards to living landscapes, fostering recreation, and health. The CHILL project paves the way for additional projects in the future, helping to further understand the relationships between nature-based

outdoor recreation and individual and community health benefits that arise from place-making, well-being, and stewardship, in a range of settings with various driving forces, diverse populations, and so forth. The findings from this project highlighted the importance of gathering locally-relevant material through participatory research, as you cannot necessarily find this kind of information among literature or documents, especially about small communities. Should agencies recognize the value of nature-based outdoor recreation resources, they can better assist in facilitating opportunities for the diverse population of northern BC, as to one contribution toward creating sustainable, healthy communities.

7 References

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8 Appendix A

Tables of Partner and Public Meeting Agendas in Mackenzie and Dawson Creek.

Table A.1 Partners Meeting Format for Mackenzie and Dawson Creek from 2 to 5pm.

Timing (2 – 5pm)	Element
5 minutes	A. Welcome and Consent
5 min.	B. Introduction of the Research Project
20 min.	C. Enrolment activity <ul style="list-style-type: none"> a. Do you, personally, see a connection between outdoor recreation and health. Can you give us an example of your connections to identity, place, health, outdoor recreation? b. Is there a particularly important place for you in this regard?
	Discussion
30 min.	1. What’s working well? How are outdoor recreation and health connected here in the lives of community members? <ul style="list-style-type: none"> 1.1 Where is this going on? 1.2 What is facilitating this success?
30 min.	2. What’s your role? Tell us about how your institution—perhaps working with others—is making connections between health, identity, wellbeing and outdoor recreation. <ul style="list-style-type: none"> 2.1 If an “OR” organization, how do you see a connection with health? If a “health” organization, how do you see a connection with OR?
30 min.	3. Specific to this place, what challenges does this community face in connecting outdoor recreation and health? <ul style="list-style-type: none"> 3.1 What are the main barriers; top ten? 3.2 Where are these barriers most prevalent? 3.3 Do (and how do) larger contexts and changes in the community play into this?
20 min.	4. What could be done here? What potential do you see for the provision of health and outdoor recreation in this community, and for your organization?

	<p>4.1 Where are these opportunities most prevalent?</p> <p>4.2 Do (and how do) larger contexts and changes in the community play into this?</p> <p>4.3 Why have these not yet been developed?</p>
15 min.	5. Are there information needs or pragmatic changes that would help overcome barriers and seize the opportunities?
5 min.	6. Are there ongoing initiatives to address some of the issues you've raised here, or to engage outdoor rec, health, retention in the area?
15 min.	<p style="text-align: center;">Next Steps</p> <p>7. What Next: What can we do?</p> <p>7.1 Are there other people we should reach out to for this project?</p> <p>7.2 What would your priorities be for us to include in a survey about health and outdoor recreation in northern BC?</p> <p>7.3 Broader question: what would <u>you</u> like to do next?</p>
5 min.	<p style="text-align: center;">Wrap up</p> <p>D. Info on public session</p> <p>E. Choose/assign stations to pair up with researchers for public session:</p> <ul style="list-style-type: none"> a. Mapping b. Benefits c. Barriers <p>F. THANK YOU for participating.</p>
	Dinner was provided for partner meeting participants prior to the public meeting at 6:30pm

Table A.2 Public Meeting Format for Mackenzie and Dawson Creek from 7 – 9pm.

Timing (7 – 9pm)	Element
5 min	A. Welcome and Consent
10 in	B. Introduction of the Research Project
C, D 10 min	<p style="text-align: center;">Framing</p> <p>C. Summaries of content on healthy-by-nature connection, living landscape, place. (4-5 slide overview)</p>
E 5 min	<p>D. Trends in outdoor rec participation in the north (4-5 slide overview)</p> <p>E. Key trends, connections of health dimension (4-5 slide</p>

	overview)
	Activity
(15 min.) + transitions	Community Mapping Identifying your places for outdoor recreation, which you and the community use most, why they are important, what they offer.
(15 min.) + transitions	Facilitated discussion on benefits – based on your experience, what do you see as possible connections between outdoor recreation, community, and health and benefits.
(15 min.) + transitions	Facilitated discussion on barriers- In your experience, what are the lived realities that influence or limit the connection between health, community, place, and outdoor rec participation?
	Discussion
30 Min.	Questions: 1. Where is this community at in relation to the potential you see for connecting health, outdoor recreation, community and place? 2. Based on what we've done and discussed here today, what will <u>you</u> do differently in the immediate future? What's something tangible you will do?
5 min.	Wrap Up F. Value of information and experiences participants shared. G. Future steps in the research project. H. THANK YOU for participating.

9 Appendix B

Images of maps that were used during the public meetings in Mackenzie and Dawson Creek, drawn on to assist in contextualizing the local landscapes and recreation experiences.



Figure B.1 Greater Mackenzie area map.



Figure B.2 Southern Williston Lake area.



Figure B.3 Mackenzie town site and surrounding areas.

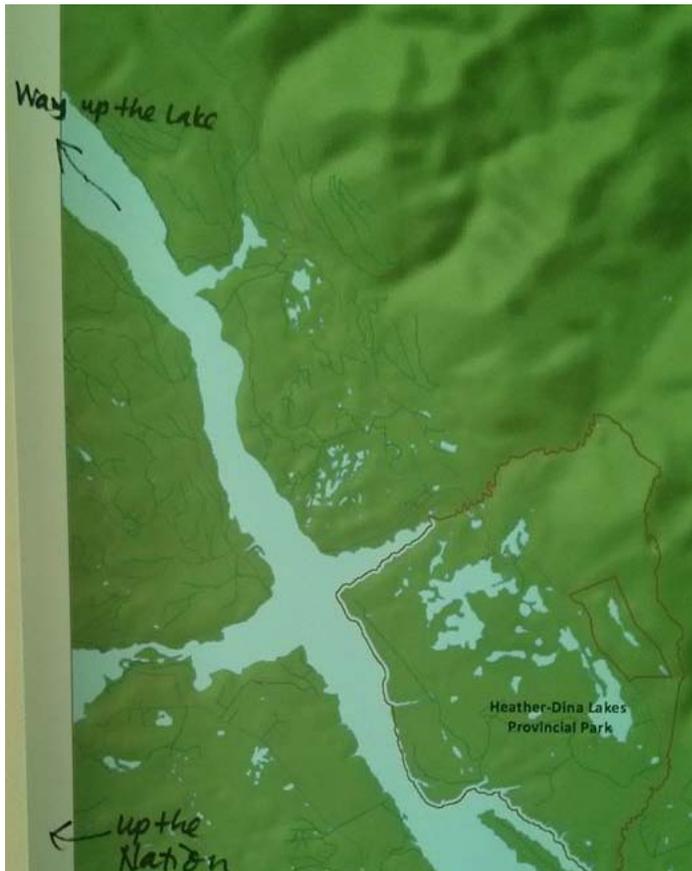


Figure B.4 Northern Williston Lake area.



Figure B.5 Dawson Creek region map.



Figure B.6 Southern area surrounding Dawson Creek.

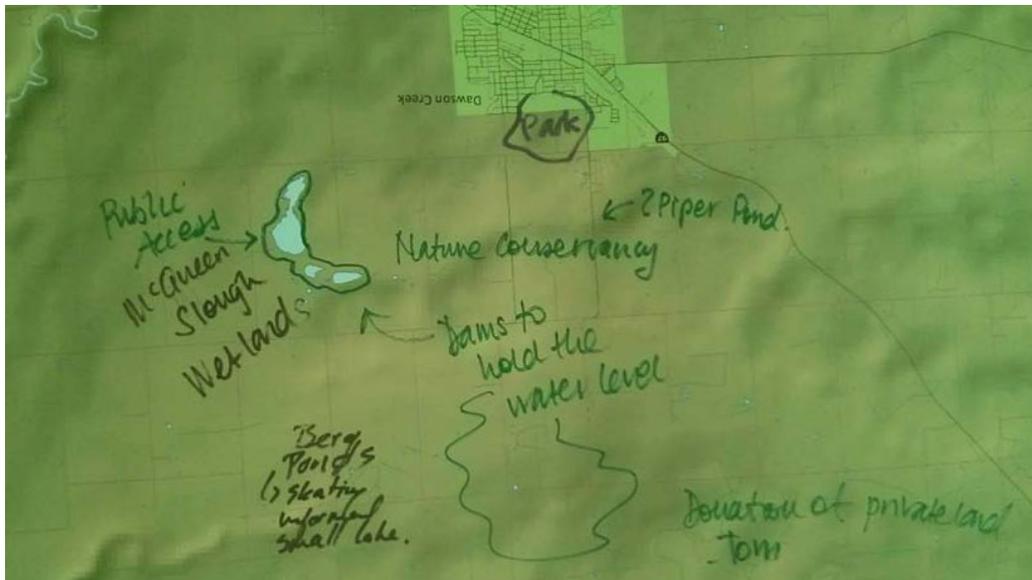


Figure B.7 Area north of Dawson Creek.

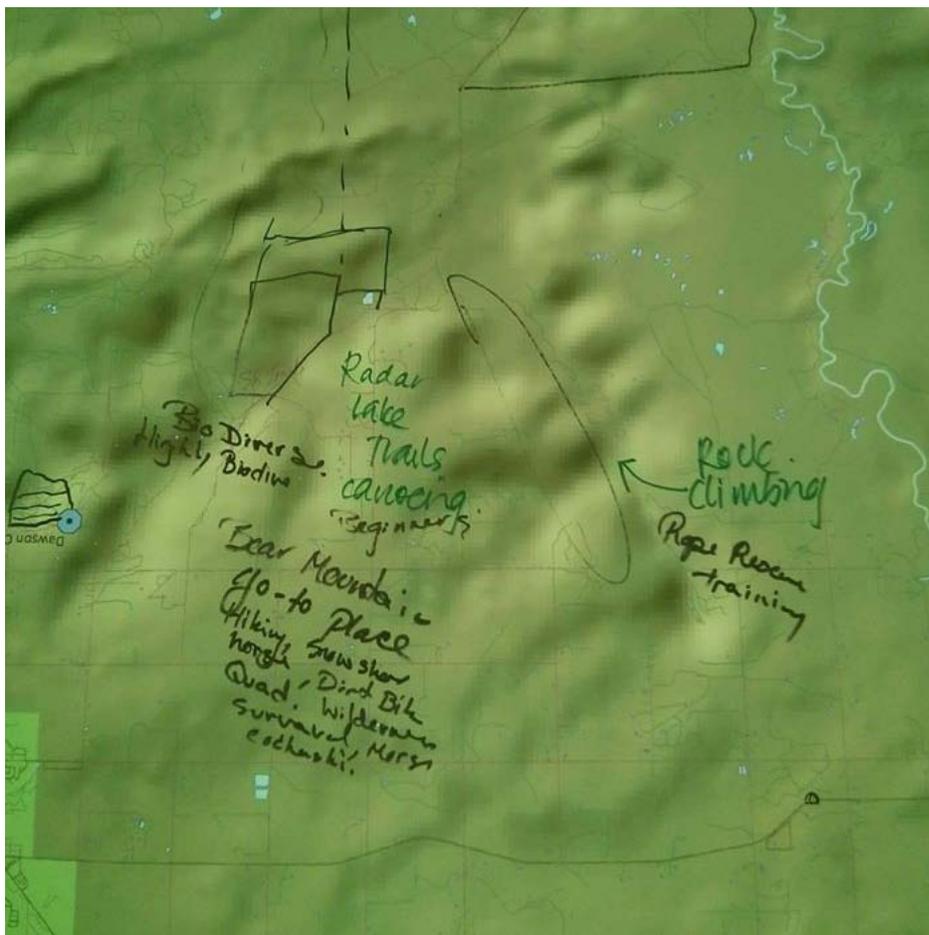


Figure B.8 Area south of Dawson Creek.

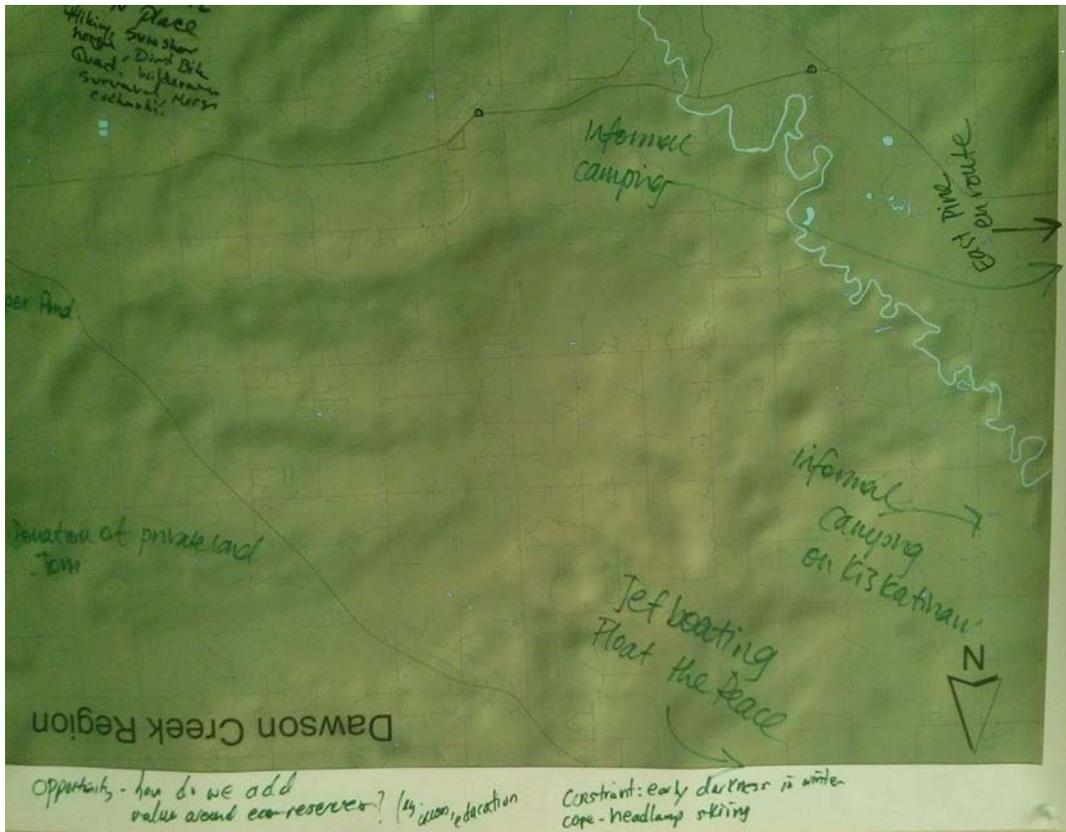


Figure B.9 Areas Surrounding Dawson Creek.