Everyday Wild: How do preserved natural areas in the City of Edmonton contribute to adult perceptions of health and well-being?

by

Alison Elizabeth Cheesbrough

A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Arts

Department of Earth and Atmospheric Sciences
University of Alberta

Abstract

Cities are increasingly home to the majority of the world's population. Creating healthy and vibrant cities is an ongoing goal of urban planners, and others interested in the overall health of populations. Parks and green spaces in cities contribute health benefits to populations as they provide air cleaning and cooling services, as well as aesthetic benefits. Research shows that contact with nature promotes better mental health, increased physical activity, and encourages social ties. Wilderness experiences can be transcendent, inspirational or restorative, while woodlands promote feelings of peace and are valued for qualities of grandeur, timelessness, and as a space apart.

Urban natural area parks are minimally tended natural environments with many qualities of wilder areas, but have wider availability to the general population of cities. This study used participant photography and semi-structured interviews with 33 participants (18 in summer; 15 in winter) to explore the perceived health and well-being effects of natural area parks in the City of Edmonton, Alberta. Findings include that the proximity of the natural areas to residences was essential as it allowed visits to be frequent and spontaneous. Participants appreciated the areas for their wild and natural character and that they existed for the benefit of other species. While in these areas, participants felt away from the city and valued having this feeling while in the middle of the city. The sense of being away gave people space to think, connect with themselves, and return refreshed to their lives. The natural areas facilitated connections to self, companions (including dog companions), and other visitors. Many participants felt a deep intimacy with the natural areas over time and connections to birds, animals, and trees that live in them.

Preface

This thesis is an original work by Alison Cheesbrough. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board 1.

Title: *Everyday Wild: How do preserved natural areas in the City of Edmonton contribute to health and well-being?*

ID Number: Pro00038613

Date: June 22, 2013; Renewed June 19, 2014; Renewed May 28, 2015

Acknowledgements

First, I would like to thank my participants for so generously sharing with me their time and their passion for natural spaces in the city. I learned so much from each and every one of you.

Next, I would like to thank, my supervisors, Dr. Theresa Garvin and Dr. Candace Nykiforuk, for their combination of guidance and willingness to let me find my own path; as well as their encouragement and excellent advice at the many roadblocks along it. Thanks also to Dr. Tara McGee for helping out at a critical juncture and providing helpful feedback.

I am grateful for the financial support provided by the University of Alberta and the Queen Elizabeth II Graduate Scholarship from the Province of Alberta.

The PLACE Research Lab provided me space to work and congenial companions with which to spend time. Special thanks to Laura Nieuwendyk for her help and advice during recruitment and data collection and Dr. Ana Belon for all the conversations about research methods and for reading and giving feedback on thesis drafts.

My friends provided everything from a listening ear to feedback and editing on scholarship applications, proposals, and thesis drafts. In this latter category, Dr. Natalia Krawetz deserves a special mention for her excellent advice and willingness to drop everything to help me at some points. Your perspective and encouragement were essential to my success at many, many stages. I truly could not have done it without you. Other friends I wish to thank include Mari Hemery, Anita Buick, Joanne Graham, Nora Ansah, Dr. Veronica Horn, and my writing group partners, Katrina Chaves and Meghann Eagle; also, my colleagues at Edmonton Public Schools Student Transportation Department, not only for the part-time work that helped financially, but more importantly for the laughs, camaraderie, and the welcome break from thesis work.

Lastly, many thanks to my family for their love and support during the long road university has been, with particular thanks to my niece, Megan Cheesbrough, for designing my beautiful and easy to use recruitment website.

I truly could not have done this without all of you. Thank you.

Table of Contents

List of Tables

List of Maps

List of Figures

List of Pictures

1. Chapter ONE: Introduction

1.1. Purpose and Significance of the Study

Contact with nature shows promise as a way to increase population health and well-being (Maller, Townsend, Pryor, Brown, & St Leger, 2005). The world is becoming increasingly urbanized (United Nations, 2014), but for people living in cities there is often less opportunity for contact with nature, and even less with nature that is wild. This thesis explores the perceived health and well-being effects of direct contact with natural area parks—minimally tended natural environments—situated within residential neighbourhoods in the City of Edmonton, Alberta. Edmonton has many of these areas and two-thirds of the city's population is within a ten-minute walk of a natural area park (City of Edmonton, Edmonton's Natural Area Parks, n.d.).

Green spaces within cities such as parks, gardens, or street trees can provide health benefits ranging from contributing to urban cooling and cleaning the air of pollution to providing aesthetic pleasure. Natural area parks have the added advantage of contributing to a healthy regional ecology by providing ecosystem services such as habitat for native flora and fauna or safe migration corridors (Douglas & Sadler, 2011). The purpose of this study was to better understand the human health and well-being benefits of these natural areas.

The research focused on the experiences of adults who access these natural area parks on a regular basis and used photo interviewing as a means of data collection to understand the perceived health benefits of these spaces through the eyes of the people who visit them. Research sites were five natural area parks that are representative of the dominant nature in the Edmonton region—aspen forest, wetlands, and river or creek areas. Different seasons were included to understand how these spaces contribute to health and well-being during winter as well as summer. Finally, the study used perspectives from urban planning and health promotion as background to consider the topic.

1.2. Research Question

The research question for this project was *what are the perceived health and well-being effects for adults of visiting natural area parks in the City of Edmonton?* There were five research objectives to help guide the formation of the interview guide and the direction of the interviews to answer the research question.

Research Objectives:

1. Identify the aspects of neighbourhood natural area parks that people value the most and describe why they are valued.
2. Describe the aspects of neighbourhood natural area parks and the experiences people have in them that they feel contribute to their health and well-being.
3. Describe the aspects that detract from health-promoting experiences while visiting.
4. Determine aspects of neighbourhood natural area parks that people identify as actual or potential inhibiting factors to visiting them.
5. Explore the ways in which people perceive winter experiences in natural area parks as contributing to health and well-being.

I addressed these research objectives using a modified photovoice methodology (Wang & Burris, 1997), which combined participant photography with semi-structured interviews. The theoretical framework of therapeutic landscapes guided the study. This framework is a geographical construct, which analyses place from multiple perspectives (Gesler, 1992).

1.3. Statement of the Problem

Natural areas in cities are neither landscaped park, nor wilderness, but something between the two. They are spaces fully bounded by city structures and processes, but within those boundaries, nature takes its own course. While some might consider these spaces messy, unproductive, potentially dangerous, and ultimately out of place in a city, others value them tremendously and the health benefits for both people and the environment may be powerful. Evidence that contact with nature provides health benefits is mounting (see for e.g., Bowler, Buyung-Ali, Knight, & Pullin, 2010; Hartig, Mitchell, de Vries, & Frumkin, 2014; Ward Thompson & Aspinall, 2011). The experience of being

within these more wild areas may provide similar or different health benefits to spending time in a more typical manicured city park. This study explores how the people who use urban natural area parks perceive them to influence health and well-being.

1.4. Background and Context of the Study

Cities are increasingly home to the majority of the world's population. By 2050, 66% of the world's population will be urban (United Nations, 2014). In Canada, urban areas are already home to over 80% of the population (World Bank, 2013), and designing livable cities that promote health becomes imperative because of the potentially wide impacts for so many people. At the same time, growing cities have negative effects on the surrounding environment by consuming land that provides habitat for native species, decreasing open spaces, and increasing pollution. Designing cities that work more effectively with the natural environment can produce benefits in terms of more sustainable processes and healthier ecosystems.

As more people live in cities it is important to plan and build cities in ways that increase quality of life and promote health. One component of such cities is the provision of abundant parks and green spaces. Health benefits of nature contact include stress reduction (e.g., Grahn & Stigsdotter, 2003), restorative experiences (Kaplan & Kaplan, 1989) and promoting positive mental health (e.g., Annerstedt et al., 2012; Mitchell, 2013). Much of the research, however, does not specify the type of green space that is being studied and there is a need for greater specificity in defining the types of green spaces that are researched rather than just considering nature as an undifferentiated whole (Keniger, Gaston, Irvine, & Fuller, 2013). This specificity will help us better understand the health and well-being effects of different types of nature.

Within this thesis, 'natural area park' refers to a specific type of environment where nature is left to itself with minimal human intervention. The City of Edmonton defines natural area parks as "managed in a way that puts nature first, by protecting native wildlife habitat and natural processes" (City of Edmonton, Edmonton's Natural Area Parks, n.d.). In the Edmonton context, natural area parks refer to different types of spaces—wetlands, meadows, forests, and riparian areas. Throughout this thesis these areas are referred to as 'natural area parks', 'natural areas', and simply 'parks' when it is

clear from the context that natural areas are the spaces being referenced. City parks composed of mown lawns, playgrounds, playing fields, and landscaped and manicured plantings are referred to as 'typical parks' or 'manicured parks'. Edmonton has many small and large natural area parks throughout the city, and these parks, while managed to put nature first, also contain features such as trails, bridges, and stairs to facilitate human interaction with the space. These natural areas receive basic maintenance; for instance, main paths are cleared of fallen trees, or snow in the winter, but deadfall is left alone when it has not fallen across a trail.

Experiences in wilderness areas and forests appear to provide similar health benefits as contact with more ordinary green spaces, but with a different and deeper dimension (Knecht, 2004) such as inspirational (Fredrickson & Anderson, 1999) or transcendent (Williams & Harvey, 2001) experiences. Wilderness is defined as "an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain" (US Wilderness Act, 1964, Sec 2c, para 3) or "a large area of unmodified or slightly modified land and/or sea, retaining its natural character and influence, without permanent or significant human habitation, which is protected and managed so as to preserve its natural condition" (International Union for Conservation of Nature, 1994, p. 14). Natural area parks within cities, while not wilderness, have a degree of wildness that is not found in a typical city park with mown sports fields, garden plantings, or playgrounds. The health and well-being benefits of contact with this wild aspect are what this study explored.

Providing natural area parks within cities gives access to a particular type of nature that for many people is far away, potentially expensive to get to, and able to be visited for only brief periods of time. In addition, the types of experiences promoted in wilderness areas are not available or enticing to everyone: some people may have physical limitations that would preclude them from activities such as hiking, climbing or backcountry skiing, while others might simply be uninterested in rugged, outdoor adventures. It is possible that natural area parks as more wild spaces may provide similar deeper experiences to city residents as do wilderness experiences noted in the research.

1.5. Chapter Conclusion

This research is set at the intersection of health promotion, urban planning, and urban ecology. This is an important intersection because of our increasing knowledge of the interplay between factors in all these disciplines. How we build cities influences the health and well-being of large numbers of people. When we build and expand cities, we destroy the habitat and life of other species that share this planet with us. Building cities that integrate and connect natural environments has the potential to provide habitat for native species, increase ecosystem health, and enhance the lives of the people who live there by giving city-dwellers a sense of connection to nature and to the wider ecological world that sustains us.

In Chapter 2, I consider the background and context of this study more thoroughly. I have situated the work within literature about health promotion, urban ecology, and the benefits of nature contact. Health promotion is concerned with the social and environmental determinants of health. Urban ecology studies the health of ecosystems in urban areas, and, studies of the benefits of nature contact come from a variety of academic fields. This chapter also expands on the theoretical basis for the study by exploring the therapeutic landscapes construct and how I use it to understand how natural area parks in cities may contribute to health and well-being.

The study design and methods are outlined in Chapter 3. I describe the aspen parkland landscape of the Edmonton region and natural area study parks in detail. The chapter delineates data collection strategies and analysis. I explain the use of photovoice for data collection and how participant photography added depth to the study.

Chapter 4 presents the results of the study. This chapter is in five sections that correlate to the five research objectives. First, it explores the value that participants placed on the natural area parks. Second, it describes the experiences people have in the parks that they feel influence their health and well-being. It also describes the aspects of the natural areas that contribute to the positive experiences people have there. The third section considers the aspects that people identified as negative or concerning while visiting the parks. The fourth section describes aspects that participants felt prevented

them from visiting. Lastly, it explores the health and well-being benefits of winter visits to natural area parks.

The discussion of the results is contained in Chapter 5. This chapter discusses the value people found in having contact with the wild aspects of nature and the health-promoting experiences people reported in the natural area parks. It also highlights how important it is that these natural areas are located in close proximity to people's homes. That proximity sets the context for many of the benefits that people report. I discuss winter experiences as a positive force for health and well-being, and lastly consider the potential of urban natural area parks to be therapeutic landscapes.

Chapter 6 concludes the thesis by summarizing the contributions of the research study and providing recommendations for urban planners, health promoters, and others who are interested in the health and well-being impacts of including natural area parks in cities. The chapter includes suggestions for further research and discusses the changes this research produced in both the participants and myself.

2. Chapter TWO: Background to the Study

2.1. Chapter Introduction

This chapter sets the context for my study by reviewing the prior research and ideas that informed the work. The first half of the chapter (Sections 2.2 – 2.5) considers the background to the study. It covers the theoretical framework I used; how the natural landscape is the foundation for both the study and a sense of place; cities as settings for health promotion; and ecological perspectives of including nature in cities. In the second half of the chapter (Section 2.6), I explore the literature on the benefits of nature contact on physical, social, mental, and spiritual health. This chapter answers the question of why it is important to study the health and well-being effects of small, local natural areas in cities.

2.2. Therapeutic Landscapes

This study employed the geographical construct of therapeutic landscapes to examine the natural area parks from multiple perspectives to understand how the physical environment intersects with social or cultural factors to promote health and well-being (Gesler, 1992). The therapeutic landscapes framework encourages a holistic analysis of place by asking how and why a particular place might be health promoting or enhancing. The construct works well with other theoretical frameworks (Gesler, 2005); for instance, the salutogenic view of health promotion that considers the whole person and factors that are health-supporting such as social connections and empowerment rather than just ways to limit factors that cause disease, such as providing vaccinations (Antonovsky, 1996). Therapeutic landscapes and the salutogenic view of health promotion provided the theoretical framework for my study.

Any particular landscape is not intrinsically health promoting, but rather the experience of the place produces effects that may be healing (Conradson, 2005); the vital piece is the interaction between person and landscape. Thus, there is a difference between a therapeutic landscape and a therapeutic landscape experience. A therapeutic landscapes experience is one where the person involved derives benefits from being within that particular setting (Conradson, 2005). Whether or not a landscape is therapeutic will

depend on the perception and experiences of the people experiencing it (Gesler, 2005). The same landscape will not necessarily be therapeutic to all who experience it.

The concept of therapeutic landscapes originally provided a way to analyze places that had reputations for healing, such as mountain retreats or healing springs, but the concept has moved from special 'away' sites to those of the everyday and local such as gardens (Milligan, Gatrell, & Bingley, 2004) and urban places (Wakefield & McMullan, 2005). While this framework has been used to examine natural spaces such as remote pristine wilderness (Palka, 1999), a National Forest in England (Bell, 1999), and the 'blue space' of the Rhine River in two German cities (Volker & Kistemann, 2013) it has not been used to consider natural area parks in cities. The present study contributes to the existing body of research by considering the ways in which wild, natural spaces within an everyday urban context may be therapeutic landscapes to those who visit them.

Winter landscapes and the influences of seasonality have received little attention in either the literature on therapeutic landscapes or the literature on health and green spaces more generally. In fact, many might not consider winter landscapes therapeutic at all. However, since seasonality and winter landscapes are an unavoidable part of everyday life in many regions, it is important to consider the effects of all the seasons on people's health and well-being. A few studies on nature and health have included a winter sample (Pasanen, Tyrväinen & Korpela, 2014; Song et al., 2013) and will be considered more fully in section 2.6.1. A study from Finland found that while people preferred summer by a wide margin, a majority of people also enjoyed the change of the seasons and those who liked to spend time in natural environments were more likely to be appreciative of the change of the seasons (Jauhiainen & Mönkkönen, 2005). The authors suggest there is a relationship between outdoor activities in nature and people's personal attachment to these places.

My study about the everyday spaces of urban natural area parks included a sample from both summer and winter to include the everyday aspect of seasonality. By including not only a winter sample, but a winter sample from a cold northern climate, this research project expands the range of inquiry by asking: can a winter landscape be therapeutic?

And if it can be, is it considered therapeutic in similar ways to a summer landscape or differently?

2.3. The Natural Landscape and Sense of Place

While some prior therapeutic landscape studies have considered places without a tangible physical reality such as places on the internet or mental landscapes (Gastaldo, Andrews, & Khanlou, 2004; Williams, 2013), most have as their starting point a physical landscape that in some way is considered to be a healthy or healing place. This study also takes a specific landscape as its starting point and regards the physical setting as the essential basis for understanding how healthful processes unfold in this place.

The physical environment is an inescapable basis for creating a sense of place since we do not construct symbolic meanings of place in a vacuum, but from the physical reality of place (Stedman, 2003). Different places will invoke different meanings and they are not interchangeable: we will not give the same meaning to a suburban street that we do to a forest (Stedman, 2003). A sense of place refers to the emotional ties and attachment that people feel towards specific geographical locations (Wylie, 2009) and includes the physical setting, and the social and cultural meanings that people give to it. Little research explores how attachment to places connects to qualities of the natural landscape (Beckley, Stedman, Wallace, & Ambard, 2007).

The role seasonality plays in sense of place has also been less considered in the literature, possibly because the role it plays would seem self-evident to many: for instance, the feeling of autumn will be different in the southern United States than in northern Canada. In the same way that the physical landscape underpins a sense of place, so too would the cycle of the seasons and the particular sensory markers of those seasons contribute to the sense of that specific place.

It would seem that the qualities of the natural world around us would be a foundation of our sense of place. Even in cities, the physical topography of a region, the seasons and climactic conditions, and the type of nature present in the built environment infuse our experiences. We know we are in a specific place because of the particular attributes of that place and because the creatures—birds, animals, insects—that share this space with us are the creatures of here, not there. Including natural areas in cities gives

enhanced opportunities to experience native plants, animals and birds and may connect people to the ecological context of their lives in a particular place.

This study focused on different types of natural landscapes that are typical of this region. Edmonton is located in the aspen parkland ecozone which is a transitional zone that contains elements of both boreal forest and prairie grassland. Previous research on the health benefits of nature has focused on woodlands and forests (e.g. Jorgensen & Anthopoulou, 2007; Milligan & Bingley, 2007; Ward Thompson, Aspinall, Bell, & Findlay, 2005). A few other studies have considered the benefits of blue space—lakes, rivers, creeks—on human health (e.g. White, Smith, Humphryes, Pahl, Snelling, & DePledge, 2010) or remote wilderness areas (e.g. Fredrickson & Anderson, 1999; Heintzman, 2011). Fewer studies consider other types of natural landscapes such as prairie grasslands or wetlands, although Miller (2006) and Manuel, (2003a, 2003b) respectively are exceptions in this regard. Indeed, wetland and prairie landscapes are perceived to be less attractive and less worthy of protection (Buss, 1994 in Nassauer, 1995), and possibly less worthy of being studied. This research considers landscapes from northern Canada that have received little attention in previous research.

2.4. The City as a Setting for Health Promotion

In its definition of health, the World Health Organization (WHO) emphasizes that health is a positive concept that is "a resource for everyday life, not the objective of living" (WHO, 1986, para 3) and encompasses "social and personal resources, as well as physical capabilities" (WHO, 1986, para 3). Thus, health is a positive state that everyone has a right to as a resource for living everyday life. Health promotion is the branch of public health that is concerned with how to increase health and well-being through creating environments that are supportive of health (Green & Tones, 2010).

Health promotion looks beyond individual behaviours to work with larger social and economic factors that influence health (WHO, n.d.). One of these is the settings-based approaches to health promotion. These approaches have as their foundation the Ottawa Charter for Health Promotion (WHO, 1986) which declares that "health is created and lived by people within the settings of their everyday life; where they learn, work, play, and love" (para 22). The environments in which we live our everyday lives

contribute to our health and well-being: creating healthier settings should contribute to healthier people.

Cities are one setting where large numbers of people live their lives and the built environment of the city can contribute to health and well-being in positive or negative ways. Parks and green spaces provide opportunities for nature contact, which gives health-promoting benefits. Nature is an under-recognized health promotion resource that could be better leveraged to increase population health (Maller, Townsend, Pryor, Brown, & St Leger, 2005). Building cities to encompass more or different types of nature may increase the health of city populations. In addition, equity of access to nature may be a social justice issue (Maller et al., 2005). Increases in urbanization and attendant policies of densification may mean that in the future more people will be living with less access to green environments than ever before and this may be a greater problem for those of lower socio-economic status who have fewer choices about where to live (Maas, Verheij, Groenewegen, de Vries, & Spreeuwenberg, 2006).

Long term human health needs healthy and thriving ecosystems to be sustainable. Healthy ecosystems provide us with the most basic essentials of life: clean air, water, and food. Beyond these essentials, nature delivers cultural ecosystem services, those things that provide us with non-tangible benefits such as aesthetic pleasure, spiritual fulfillment, and psychological well-being (Butler & Oluoch-Kosura, 2006). These things are intangible, but vital components of human health. Originally, public health was largely based on providing people with clean water and better living conditions that are essential to health (Jackson, Dannenberg, & Frumkin, 2013), but the more intangible aspects of health—rather than just the absence of disease—are important in promoting overall health and well-being. Nature contact provides these intangible salutogenic benefits.

2.5. Urban Nature – Ecological Perspectives

Including nature in cities is not new. During the 19th century, urban parks became known as the ‘lungs of the city’ for their value in cleaning the air in the industrial cities of that time (Ward Thompson, 2011). Greater attention to preserving and integrating functional ecosystems in cities is a more recent approach.

Cities tend to locate in areas with rich and productive ecosystems (Imhoff et al., 2004) and city development obliterates the existing habitats of many species and fragments habitat and migration corridors at regional levels (Murphy, 2006). At the same time, the people living in cities are often cut off from the natural world that nurtures and sustains them (e.g., Louv, 2011). Thus, building cities that include and integrate natural spaces and processes creates a win-win situation where people live with thriving and healthy ecosystems around them in the city environment.

Two fields interested in integrating more nature into human lives, particularly in cities are those of biophilic cities and reconciliation ecology. The idea of biophilic cities comes from the field of urban planning and sustainable communities, and is based on the premise that humans need contact with nature to lead healthy and fulfilled lives and so seeks to increase and insert nature into cities at every opportunity (Beatley, 2011). While biophilic cities considers the human health standpoint of including nature in cities, reconciliation ecology suggests that to preserve and protect species' biodiversity we need to create and promote new habitats where we welcome other species into our spaces—to reconcile our use with their use as it were (Rosenwzeig, 2003). These two fields have slightly different perspectives, but are complementary: making space for nature where we live is good for both humans and nature.

Cities are not usually biodiverse environments or particularly welcoming to other species. In fact, even a typical city park composed of large playing fields and a few trees is, on a macro level, about as biodiverse as an asphalt parking lot (St. Clair, Tremblay, Gainer, Clark, Murray & Cembrowski, 2010). Biodiversity refers to the variety of life forms in a place and all the biological processes that might take place in it such as birth, decay, and death (St. Clair et al., 2010). These ecological processes provide clean air and water and produce nutrient-rich soils. Urban natural areas can support native biodiversity as they provide habitat for various flora and fauna, help connect regional ecological networks and link habitats to allow birds and animals to move through a territory more safely (City of Edmonton, 2007; Douglas & Sadler, 2011). Building cities in ways that take the existing landscape and natural processes into account rather than simply eradicating what was there before can lead to greater sustainability, both for people and

for other species (Millward, 2006). For instance, working with existing wetlands for storm water management more efficiently disperses water, and preserves habitat for the creatures that need those environments to thrive (Ehrenfeld, Palta, & Stander, 2011), and may offer intra-urban nature access.

Research into the influence of exposure to biodiversity on individual health and well-being is inconclusive. Urban environments containing a greater diversity of bird songs—suggestive of greater biodiversity—rate more highly with young adults than environments with less (Hedblom, Heyman, Antonsson, & Gunnarsson, 2014). Fuller, Irvine, Devine-Wright, Warren, and Gaston (2007) found greater psychological benefits come with increased biodiversity, but further study found participants' well-being was positivity related to *perceived* species richness rather than *actual* species richness (Dallimer, et al., 2012). People also report appreciating species richness, while not actually noticing manipulations that increase biodiversity in urban park settings (Shwartz, Turbé, Simon, & Julliard, 2014). People in these studies may be responding to signals from the environment that is not necessarily about species richness (Dallimer et al., 2012). However, since species richness is not necessarily the best marker of a healthy ecosystem because it varies considerably in different regions and can be increased by the introduction of non-native species (St. Clair et al., 2010) it may not be the best test of people's responses to biodiversity. Whether or not it directly benefits the individual health of the humans that interact with it, protecting and promoting the natural biodiversity of a region through city natural areas contributes to healthier ecosystems overall.

In the present study there was no attempt to assess the local biodiversity of the natural area parks by any objective means (e.g. species counts), but it was assumed that the surroundings represented greater biodiversity of ecological processes than cultivated public gardens or park environments with mown grass (St. Clair et al., 2010). Of more importance to this study was the idea of 'wild' in relation to the natural areas. These areas are not wilderness, but instead something akin to wilderness, or are the antithesis to urban context: places that contain a quality of wildness. Wilderness, however, is more an idea that produces feelings we give to places, rather than strictly definable places (Nash,

1982). It may be that the quality of wildness and the perception of being somewhere wild is an important element of experiences in natural area parks. This thesis is interested in that perceived untamed and wild aspect of natural area parks and explores how that aspect may provide different experiences that contribute to health and well-being. It is possible that these more wild spaces provide an opportunity for vital experiences and feelings that are missing from the lives of many city-dwellers.

At the same time that more wild areas may provide health and well-being benefits, they contain aspects that may be problematic. For instance, depending on the region, wild animals that frequent them may be dangerous. Natural areas and dense wooded areas in particular have elements that may discourage people from venturing into them. People may feel isolated and vulnerable to attack by other humans, or wild animals (Burgess, 1998; Kaplan & Kaplan, 1989). Young people may fear supernatural forces (Milligan & Bingley, 2007). Elderly people may fear tripping and falling, becoming lost, as well as increased vulnerability because of fragility and decreased mobility in the event of any type of trouble (Jorgensen & Anthopoulou, 2007; Ward Thompson, Aspinall, Bell, & Findlay, 2005). At the same time many people have positive responses not just to nature, but to nature's more wild and dangerous side (Kaplan & Kaplan, 1989); interestingly, these positive and negative responses may be present in people at one and the same time (Jorgensen, Hitchmough, & Dunnett, 2007; van den Berg & Heijne, 2005; Ward Thompson, 2002).

For people who spend most of their lives in cities, there is greater chance for them to be disconnected from wild nature since the city spaces they encounter on a regular basis from childhood on do not provide them with examples of how nature left to itself really looks. If all one ever sees is nature that is groomed and manicured as in public gardens and typical parks, then wild natural spaces will indeed look messy, disorganized, and possibly scary in their wildness. The idea of a shifting environmental baseline was first proposed by Pauly in 1995 and suggests that the environmental conditions that were in existence during a person's early life (and possibly early career life) become that person's baseline for how things 'ought to be' even when those conditions that they are referencing as 'normal' are entirely degraded. Or as in the case of nature within cities,

groomed and manicured rather than natural. In this way, each successive generation tolerates a further loss of biodiversity and ecological value and views them as normal conditions.

2.6. Health and Well-Being Benefits of Nature Contact

Nature contact benefits health in numerous ways. Hospital patients viewing trees from their hospital window showed better recovery times and less need for pain medication than those viewing a brick wall (Ulrich, 1984). Housing complexes that have small patches of lawn or trees associated with them result in increased social ties for residents as well as greater feelings of safety (Kuo, Sullivan, Coley, & Brunson, 1998). In general, the amount of nearby green space relates to greater self-perceived health (Maas et al., 2006). Forests or grasslands as well as agricultural areas produce stronger relationships with health than urban green areas (Maas, et al., 2006).

2.6.1. Promoting Physical Activity

Previous research shows links between lack of adequate physical activity and a number of chronic diseases such as type II diabetes, heart disease, colon and breast cancers (Warburton, Charlesworth, Ivey, Nettlefold, & Bredin, 2010). There are also promising findings that suggest a relationship between increasing physical activity and positive mental health outcomes such as decreased depression and anxiety (Bauman, 2004; Dale, Brassington, & King, 2014). Thus, finding ways to encourage greater physical activity can reduce the burden of chronic disease and increase quality of life (Lee, Shiroma, Lobelo, Puska, Blair, & Katzmarzyk, 2012). Participating in physical activity outdoors in natural environments—so-called "green exercise"—is a qualitatively different experience than physical activity indoors or in urban environments and may provide enhanced health benefits. Increased revitalization, engagement, and energy as well as decreased tension, depression and anger are some of the positive benefits reported from exercise done outdoors in nature versus indoors environments (Thompson Coon, Boddy, Stein, Whear, Barton & DePledge, 2011). A recent large epidemiological study from Finland backed up some of these results by finding that repeated physical activity in nature was significantly correlated with measures of emotional well-being whereas

physical activity in other locations (indoors or outdoors in built environments) was not (Pasanen, Tyrväinen & Korpela, 2014). Even indirect, indoors exposure to more natural environments such as viewing nature scenes while running on a treadmill can produce positive effects on blood pressure and mood (Pretty, Peacock, Sellens, & Griffin, 2005), although the differences between indirect exposure and direct exposure have yet to be determined.

There is little difference in well-being outcomes between outdoor physical activity in winter or summer (Pasanen et al., 2014; Song et al., 2013). The biggest difference may be one of quantity since physical activity is decreased in colder seasons (e.g. Belanger, Gray-Donald, O'Loughlin, Paradis, & Hanley, 2009; Merrill, Shields, White Jr., & Druce, 2005). Decreased outdoor physical activity in the winter is likely in response to shorter daylight hours and cold temperatures (Carson, Spence, Cutumisu, Boule, & Edwards, 2010). Conditions that might cause slips and falls also curtail outdoors activity for some groups such as seniors (Garvin, Nykiforuk, & Johnson, 2012).

Besides seasons and weather, other elements of the outdoors physical environment can promote or discourage going out to do physical activity. Feeling unsafe due to issues such as traffic or concerns with personal safety may keep people from venturing out. For women, enjoyable scenery in their neighbourhoods and the presence of hills have been found to be associated with increased physical activity possibly due to increasing the interest of the surroundings in which physical activity is taking place (King et al, 2000; Krenichyn, 2006).

2.6.2. Social and Community Connections

Social connections are an important component of health and well-being, but the social dimension of green spaces has been relatively unexplored (Dinnie, Brown, & Morris, 2013). Social engagement is a key dimension of visitor experiences in peri-urban woodlands (O'Brien, Morris, & Stewart, 2014) and green spaces can contribute to increased social connections within neighbourhoods (Kaźmierczak, 2013; Kuo, Sullivan, Coley, & Brunson, 1998). Neighbourhood parks contribute to social relationships both through contacts made in them, but also through meeting neighbours (Kaźmierczak, 2013). However, simply having more green space near homes does not mean that people

have greater contact with neighbours or with friends in the neighbourhood, but health effects may relate to place attachment and a stronger sense of community (Maas, van Dillen, Verheij, & Groenewegan, 2009). Peters, Elands, and Buijs (2010) also found that social interactions in parks resulted in feelings of attachment to place. For people who visit parks, the length of visits rather than frequency was related to increased social ties: people who spent longer times in the park participating in social activities had greater social ties and longer visits were at least partially related to better quality park spaces (Kaźmierczak, 2013).

2.6.3. Restorative Environments

Restorative environments are those that provide us with the ability to recover from various demands of daily life such as stress (Parsons, Tassinary, Ulrich, Hebl, & Grossman-Alexander, 1998; van den Berg, Jorgensen, & Wilson, 2014) or cognitive fatigue (Kaplan & Kaplan, 1989; Ratcliffe, Gatersleben, & Sowden, 2013). Restorative environments contain four essential elements: the quality of fascination which is an involuntary form of focus, a sense of being away; extent and a feeling of being part of a larger whole; and compatibility with the individual's wishes (Kaplan & Kaplan, 1989). Although a range of environments may provide these qualities, natural environments in particular seem to fulfil the four requirements extremely well.

One of the elements of a restorative environment most relevant to the current study is the construct of 'being away' which can be broken down into the component parts of 'being away *from*' and 'being away *to*'. One might be getting away from stressful life situations, work or family demands, or simply the humdrum of everyday life. One might be getting away to an environment that stimulates or relaxes. People enjoy being in environments that feel away from the city (Krenichyn, 2006; Peckham, Duinker, and Ordóñez, 2013). The environment that one is being away *to* is of more importance than what one is being away *from* (Hammitt, 2000; Kaplan & Kaplan, 1989).

A similar thread of research to restorative environments is that of favorite places (Korpela & Ylén, 2007). Research into favorite places is based on the idea that people regulate their emotions and psychological states deliberately through different strategies, one of which is visits to their favorite places, which are often natural environments

(Korpela, Hartig, Kaiser, & Fuhrer, 2001). Restorative experiences have been found to be strongest in favorite outdoor activity areas, waterside environments and managed urban woodlands; further, the greater the frequency of visits the greater the restorative effects (Korpela, Ylén, Tyrvainen, & Silvennoinen, 2010). Research on restorative environments often uses researcher chosen sites and less is known about restorative environments that individuals choose themselves (Korpela et al., 2010). My study uses researcher-chosen sites combined with participants who also chose to visit those places.

There are different degrees of restoration. Kaplan and Kaplan (1989) postulate four levels of restoration that they feel constitute "a sequence of deepening levels of restorative-ness [where] each level calls for both increasing amounts of time and progressively higher-quality restorative settings in order to be achieved" (p. 196). This sequence begins with sorting through and clearing the mind of various thoughts, which then leads to the recovery of directed attention—the ability to focus on a task and inhibit distractions. The final two stages are deeper levels and reached if uninterrupted. These two stages involve being able to examine aspects of our lives that require deeper and more thoughtful consideration, and finally, a chance to be profoundly introspective about one's own life in whatever way is needed—this might include things like consideration of goals or dreams, actions taken or not taken, or meditation upon life's circumstances (Kaplan & Kaplan, 1989). The last stage of restorative-ness seems to be linked to spiritual experiences and feelings of connection that may accompany experiences in nature (Kaplan & Kaplan, 1989; Williams & Harvey, 2001).

2.6.4. Spirituality and Nature

Spiritual health and well-being is a dimension of health that is often ignored within the public health and health promotion field (Vader, 2006). The influences of nature contact on spiritual health has been much less studied than mental or emotional well-being—a simple database search returns a fraction of articles about "spiritual health" and nature versus "mental health" and nature. Spiritual health is a hard to define concept, often entwined with perceptions of religion or God, and difficult to measure (Wood, Wood, & Keen, 2010). While difficult to define or measure, spiritual health is nonetheless an important dimension of human well-being and may be a unifying force or

foundational structure for the other dimensions of health (Fisher, 2011) and so is an important factor in promoting health and well-being. Wood, Wood, and Keen (2010) define spiritual health as:

> Characterized as an ongoing process of struggle, growth, and transcendence. The experience of spiritual health is unique to each individual, yet requires the development of relationships with nature, other human beings, a higher power, and yourself. While an innate characteristic, spiritual health requires nurturing and active participation in living to reach its full potential. The ultimate goal of spiritual health is the discovery of meaning and purpose in life. (p. 14)

A strong element of connectedness runs through definitions of spirituality (see Bensley, 1991; Fisher, 2011; Wood et al., 2010): connectedness to self, to others, to nature, and to transcendent concepts beyond the human realm. Further, each individual creates their own definition of spirituality that may shift and change throughout the lifespan (McSherry & Cash, 2003). This is an important point: that spirituality and thus spiritual health are not static concepts, but capable of growth and change as an individual grows and changes. Providing environments that facilitate the type of experiences that may lead to spiritual growth and change are worthwhile from the perspective of fostering spiritual health and thus overall health and well-being because of the interconnectedness of the spiritual aspect with other dimensions of health. Being in a natural environment may facilitate spiritual experiences or growth (Snell & Simmonds, 2012).

One area of research that has explored the relationship of nature and spirituality in greater depth is that of spiritual experiences in the wilderness (Heintzman, 2011). Research into the benefits of wilderness experiences can provide a window into the possible benefits to spiritual health of accessing smaller urban natural area parks since there is similarity between these types of spaces in the quality of wildness. Previous research suggests that time spent in wilderness can provide spiritual inspiration (Frederickson & Anderson, 1999). The spiritual and psychological benefits of wilderness experiences appear to be deeper and longer lasting (Knecht, 2004) than those reported from contact with more commonplace nature.

There are vital differences between wilderness and urban natural area parks. We designate wilderness reserves in areas of stunning natural beauty or areas of great

ecological significance, but urban natural areas may be of ecological importance only in a local context. In addition, wilderness experiences may involve physically challenging adventures such as backcountry hiking or canoeing and the type of physical challenge may influence the spiritual experiences people report (Heintzman, 2011). These types of adventures would be hard to duplicate in urban natural area parks. However, research into transcendent experiences in forests found physical characteristics of the place are more important than the activity people are involved in while there (Williams & Harvey, 2001) and this suggests urban natural area parks may also provide these experiences. Urban natural area parks also differ from wilderness in the length of time people stay—hours versus days—and the numbers of other users of the space. While not about spiritual benefits *per se*, people on wilderness hiking trips do not report less restoration when on congested trails than on poorly traveled ones, but reported restoration increased slightly the longer the trip (Cole & Hall, 2010).

Time to be alone and feeling away from everyday life are important components of spiritual experiences in wilderness (Heintzman, 2011) and these two experiences would be readily available in some urban natural area parks. While not necessarily wilderness, forest environments can provoke transcendent experiences (Williams & Harvey, 2001) and provide feelings of peace and being at home (Ward Thompson, Aspinall, Bell, & Findlay, 2005). Woods are valued for qualities of grandeur, timelessness, and as a space apart (Coles & Bussey, 2000).

Finally, encountering wildlife can be a component of wilderness trips that contributes to feelings of awe and wonder. In an ethnographic study about the human dimensions of wildlife encounters during wildlife tourism excursions, Curtin (2009) said one of her more surprising findings was the importance and value her participants placed on wildlife encounters close to home. They spoke of being in a relationship with the birds that came to backyard feeders and the enjoyment they received from seeing wildlife in urban settings.

2.7. Chapter Conclusion

There is some compelling evidence for the health benefits that can accrue from contact with nature, but much is still unknown. More specific attention needs to be paid

to the types of natural spaces being studied to determine the characteristics that people find most beneficial (Keniger, Gaston, Irvine, & Fuller, 2013). Are more or different benefits accrued from time spent in different types of nature? Many of the studies in this area are experimental and use indirect interactions with nature in laboratory settings via pictures, videos, or simulated sound. In addition, the role of seasonality and most especially winter, in regards to nature and green spaces has been neglected in the literature. Only a few studies include samples from different seasons or consider how seasonality may influence frequency of visits, the perceived health benefits, or the qualities of visitor experiences. My study addresses some of these concerns by concentrating on a particular type of space—small, easily accessible natural area parks at the neighbourhood level—and using qualitative methods to assess the perspectives of people who use these spaces, and by including both a summer and a winter sample.

3. Chapter THREE: Methods

3.1. Chapter Introduction

This research project sought to answer the research question: *What are the perceived health and well-being effects for adults of visiting natural area parks in the City of Edmonton?* Five objectives guided the formation of the interview questions to obtain answers to the research question.

1. Identify the aspects of neighbourhood natural area parks that are valued the most by park users and describe why they are valued.
2. Describe the aspects of neighbourhood natural area parks and the experiences people have in them that they feel contribute to their health and well-being.
3. Describe the aspects that detract from health-promoting experiences while visiting.
4. Determine aspects of neighbourhood natural area parks that people identify as actual or potential inhibiting factors to visiting them.
5. Explore the ways in which people perceive winter experiences in natural area parks as contributing to health and well-being.

The research question and objectives focused on exploring the perspectives of participants, so I employed qualitative methods, specifically a modified photovoice methodology (Wang & Burris, 1997) that combined participant photographs with individual semi-structured interviews to complete the project. Five natural park areas in Edmonton were selected as study sites and participant recruitment of adults who visit these parks at least once a month was done in nine neighbourhoods either adjacent to or surrounding the parks. I conducted thirty-three (33) interviews in total, 18 in the summer and 15 in the winter with different participants in the summer and winter. This chapter describes the methodological background to the study, criteria for study site selection, recruitment of participants, data collection and analysis.

3.2. Methodology: Qualitative Methods and Photovoice

Qualitative methodologies explore, engage with, and examine the complexity inherent in the everyday social world (Limb & Dwyer, 2001). Research using qualitative

methods tends to look at two broad subject areas: first, the content and context of social structures, and, second, how individuals experience places or events (Winchester, 2002). As this study was interested in the latter—the experiences individuals have in urban natural area parks that they feel help to promote their health and well-being—it used qualitative methodology to understand those experiences. Qualitative research encompasses a wide variety of methods, but they all seek one thing: to generate deep, rich data about their subject.

I employed a modified photovoice methodology (Wang & Burris, 1997) to produce the rich, qualitative data required. Photovoice is a type of photo-interviewing that is designed to be participatory as it asks participants to first take and then discuss photographs that represent their feelings or thoughts about their environments, and so is oriented towards seeing through the participant's eyes, hearing, and understanding their perspective (Wang & Burris, 1997). The participants are in control of what they take pictures of and what they talk about within the parameters of the study, so their perspectives set the primary direction of the data gathered (Wang, 1999). The methodology was developed by Wang and Burris (1994, 1997) as a way of documenting positive and negative aspects of communities, empowering the people living within them, and contributing to positive policy changes (Sanon, Evans-Agnew, & Boutain, 2014). While the original methodology of photovoice was oriented towards social justice and community participation, it has expanded into other areas less concerned with these aspects and has been used more generally to help see and experience particular environments through the participants' eyes (e.g., Power, Norman, & Dupre, 2014). It is in this spirit that this study used a modified photovoice methodology combined with semi-structured interviews to access the participants' viewpoints of their experiences in natural area parks.

Photovoice was well suited to this research because being outdoors in nature provides a heightened sensory experience for many people and it is necessary to employ methods that will help access this aspect of the experience. The inclusion of photographs enriches the information gained from the interview. Harper (2002) suggests that because of how human brains process words and images differently using photographs within

interviews "seems like not simply an interview process that elicits more information, but rather one that evokes a different kind of information" (p. 13). While using visual data gives an expanded method of communicating sensory data rather than just words from an interview, it still privileges what people see over their other senses. The semi-structured interview deliberately asked questions around participants' sensory experiences in these spaces as to understand their entire experience. Harris and Guillemin (2012) note that including these types of questions within interviews ". . . provides a portal to what might otherwise remain unsaid, and thus unexamined" (p. 690).

Prior studies into people's preferences for nature have often used researcher-supplied material, for example, showing pictures of different terrain or spaces, often in contrast, to elicit reactions and preferences (e.g. Gatersleben & Andrews, 2013) or taking participants on field trips to different areas (e.g. Peckham, Duinker, & Ordóñez, 2013). This study assumes the participants frequent this particular space because they want to—whether that is because it is close and easily accessible, or because this particular area draws them in some other way. Photovoice, with its participatory focus, builds on these types of studies by contributing a different perspective by asking participants to take photographs and talk about the aspects of natural spaces that are most meaningful to them.

3.3. Ethics and Rigour

Ethical approval for this project was obtained from the Human Research Ethics Board 1 (REB 1) of the University of Alberta in June of 2013.

3.3.1. Ethics

I arranged a first meeting either in person or by telephone with all participants. The purpose of this meeting was to explain the study, answer any questions the participants had, and obtain informed consent. This meeting covered general ethical and safety aspects of the study. First, I emphasized safety of participants. This study contained the potential for participants to sustain minor physical injuries from falls such as scrapes or strains during the picture taking process since they possibly were walking in areas that were muddy, icy, or with treacherous footing. There was also the potential that

they might experience fear or uneasiness during visits to natural areas. I provided a handout of safety suggestions (see Appendix E) that included an outline of the City of Edmonton bylaw regarding appropriate use of natural area parks. I emphasized to participants that their safety and the safety of others was paramount at all times and asked them to take pictures during the normal course of their visits to natural areas and to take along a companion if they felt at all uneasy. Second, I assured participants of confidentiality. Participants chose a pseudonym at the beginning of the interview and this name was then used on all interview transcripts and photographs. Only one document containing contact information ever linked the pseudonym with the participant's real name and I kept this in my password-protected Google Drive. Lastly, I asked participants to protect the privacy of others by avoiding taking recognizable pictures of other people who had not consented to be part of the study.

3.3.2. Ethics and Photovoice

Photovoice creates unique situations in regards to ownership of creative output. Although the photographs have been taken for the research project, the researcher does not own the rights to the pictures, because they are the creative property of the participant. The pictures exist in a state of joint ownership (Guillemin & Drew, 2010) and it needs to be clear to participants that they retain ownership of their pictures and are free to give or withhold permission for their use as they see fit. However, since the pictures were taken to complete my own creative project (a Master's thesis) there needed to be some limits on when permission to withdraw pictures (and interview contents) could be made. In this project, I emphasized at the initial meeting during the process of obtaining informed consent and again at the beginning of the interviews that the last date to withdraw material from the study was February 28, 2014. I chose this date as giving people sufficient time to mull over their participation, but still leave enough time to complete the project in a timely fashion. Participants that took pictures on loaned digital cameras had copies returned to them via individual shared folders on Google Drive. From there they could download and keep the pictures if they wished. Consent materials and the ethics application emphasized that photographs generated by the participants would

be analyzed in conjunction with the narrative provided during the interview(s) where the photographs were discussed, and not separately.

3.3.3. Rigour

Rigour refers to a collection of practices built into a research project that enable others to assess its methods and results and decide if the results have been obtained in a way that make them worthy of being considered seriously (Bradshaw & Stratford, 2000; Mayan, 2009). Rigour is an important element in conducting an ethical study. It is a way of creating and demonstrating a coherent and transparent study that can be readily evaluated by others (Bradshaw & Stratford, 2000); it shows respect and careful attention towards the information that research participants share (Dowling, 2000); and it demonstrates to the wider research community that a study's results are valid and important (Mayan, 2009).

Strategies that I employed to increase rigour in my research project included paying attention to methodological fit or coherence (Mayan, 2009; Richards, 2009)—making sure the study had congruency between its research question, data collection strategies, analysis, and final representation of findings. I returned transcripts to participants to review and included any edits in the data analysed. I participated in peer de-briefing during analysis to ensure that themes I was seeing were similar to what others saw; I produced thick, rich descriptions from the data to describe those themes, and I was explicit about potential biases (Creswell, 2009).

Participant quotations are often an important element of the final reports of qualitative research. Knowing how a researcher has chosen quotations for inclusion creates a window into how the researcher is transforming the raw data into findings and concepts (Baxter & Eyles, 1997). I chose quotations for inclusion that seemed to best sum up a particular theme or ones that I found most powerful or evocative. When there were many such quotes to choose from, I included ones from participants that I had referenced less often. Within my study, I included quotations from the majority of participants. I also deliberately included alternative viewpoints to the main theme, even when only one or two people had voiced a different perspective, because those differing views add a depth and richness to the data (Creswell, 2009).

I practiced critical reflexivity throughout the project by attempting to be aware of how my own perspectives, beliefs, or biases might be influencing research decisions (Mayan, 2009). Creswell (2013) suggests that the actual "heart" (p. 216) of being a reflexive researcher is being aware of how one's background influences the interpretation of whatever the phenomenon is under consideration. It is not enough to be superficially aware of how ones background may influence us, but we have to take the next step of considering how it may be influencing what we find and conclude in the research (Creswell, 2013).

With this last point in mind, I paid attention to my own positive orientation to the subject of natural areas in cities: I strongly believe that surrounding ourselves with nature can enrich our lives. That foundational belief in the benefits of nature contact had the potential to influence the research at every stage from the initial planning through the findings. I instituted a number of practices during the project in an attempt to be clear about my own perspectives and to bracket them out of the research as much as possible. First, I kept a research journal throughout the project and wrote extensively about different aspects of the research. I wrote about what I expected participants to say based on my own experiences, as well as things that surprised me during the interviews and analysis. I noted when my perspective was expanded, changed, or challenged by my readings or what participants said. Second, I listened closely to participants' viewpoints and noted points of similarity or difference between my views and theirs. I paid attention to how I interacted with participants, the types of statements I might be more likely to follow up on during interviews and practiced asking follow-up questions in areas that were less familiar or comfortable to me. I made sure I was concentrating on the things that were most important to them and I reminded myself all the time to keep the orientation on their perspective, not on my own. In this way, although my own interest in natural areas helped inform the research, it did not direct the research or the conclusions.

3.4. Study Design

3.4.1. Edmonton's Natural Areas

Edmonton, Alberta is one of Canada's largest and most northerly cities. In 2014, the City of Edmonton had a population of 877 926 (City of Edmonton, Municipal Census Results, 2014, n.d.) with a census metropolitan area population of well over one million (Statistics Canada, n.d.). Edmonton is a city of temperature extremes, with short hot summers (highs above plus 30 degrees Celsius) and long cold winters (lows below minus 30 degrees Celsius). As a winter city, Edmonton's parks and green spaces are anything but green for half the year: snow cover can start as early as late October or the beginning of November and last through April.

The North Saskatchewan River runs through the City of Edmonton from the southwest to the northeast, dividing it roughly in half. The river valley and some of the creeks that feed into it have been preserved from most development from the early 1900s. Edmonton now contains the largest area of urban parkland in North America—around 7400 hectares with over 150 kilometres of trails (City of Edmonton, River Valley, n.d.) and the river valley with its many creeks and ravines is well-known in Edmonton as a place where one can access nature.

The sections of the river valley within the city boundaries are used in various ways: some areas are golf courses or more traditional types of parks with manicured grass, gardens and various amenities, but much of the valley has been protected as a natural area. While some of the creek ravines have development such as roads, others have been repatriated from past industrial or commercial development such as mines or railway lines and are now as wild as the spaces in the river valley that were preserved that way from the beginning.

The wild areas of the river valley and creek ravines are densely wooded with aspen and spruce and contain many fruit bearing and some nut-bearing shrubs such as Saskatoon berry, high-bush cranberries, beaked hazelnuts, pincherries and chokecherries. There tends to be thick underbrush in most places that makes walking off trails difficult.

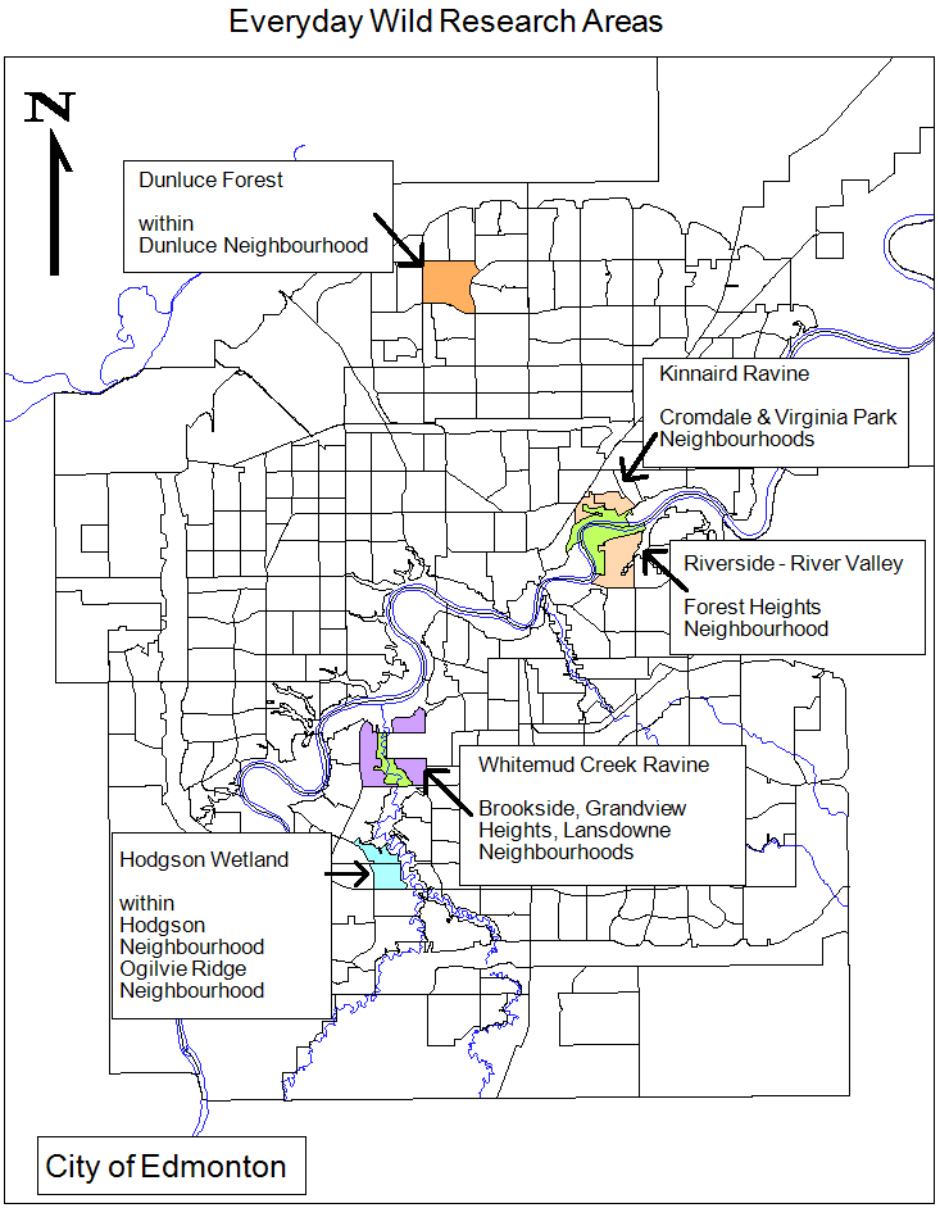
Wildlife that inhabits these areas includes deer, coyotes, beaver, muskrats, porcupines, and many varieties of birds.

While the river valley is well known in Edmonton, there are also less-well-known preserved natural areas on the tablelands—the flatlands surrounding the river valley where the majority of the City of Edmonton is situated. Tableland preserved natural areas are scattered around the city, are smaller and may include landscape types such as remnant areas of upland forest with meadows or wetland areas. In general, the designated natural areas in Edmonton whether in the river valley or on the tablelands are minimally managed: there are different types of trails and some bridges provided to aid in accessibility, and some of these are maintained with debris clearing in summer and snow removal in winter. The City of Edmonton estimates that two-thirds of the city's population is within a ten-minute walk of a natural area park (City of Edmonton, Edmonton's Natural Area Parks, n.d.).

3.4.2. Determining Study Natural Area Parks and Neighbourhoods

As noted above, the City of Edmonton has many natural area parks throughout the city that were potential study sites, both in the river valley and on the tablelands. My sampling frame included any natural area parks in the City of Edmonton. Study sites were included based on the following criteria, which are expanded on and discussed in this section. First, the sites chosen represented different aspects of the natural landscape in the Edmonton region as well as prior research regarding people's preferences for natural areas (Coles & Bussey, 2000). Next, I assessed the natural area parks as accessible via easily found entrances, and clear paths or trails and found out whether or not the park was a dog off-leash area. Lastly, the areas had to be close to one or more residential neighbourhoods, and include different areas of the city. I originally chose three natural area parks as study sites, but due to recruitment challenges (discussed below), I later expanded this number to include two additional natural areas for a total of five. The five natural area parks chosen for this research were Dunluce Forest, Hodgson Wetland, Kinnaird Ravine, Riverside, and Whitemud Creek Ravine. Map 3.1 shows the chosen neighbourhoods and natural area parks and a description of each of the areas follows the discussion of inclusion criteria.

Map 3.1: Neighbourhoods and Natural Area Parks in Study



Source: ESRI neighbourhood shape files courtesy of the City of Edmonton

Edmonton is situated in an area of aspen parkland—a transitional zone between boreal forest and grassland. Aspen parkland is characterized by prairie grasslands with many groves of aspen or spruce, as well as creeks, rivers, and sloughs that contain denser areas of shrubs (Ecological Framework of Canada, n.d.). I chose areas that represent different features of this landscape, such as aspen forest, wetlands, and riverine or creek areas for inclusion in the study. This was done in part to fulfill a sense of place and

authenticity and in part because though I could find much research on woodland environments (e.g. Dandy & Van Der Wal, 2011; Jorgensen & Anthopoulou, 2007; Ward-Thompson, Aspinall, Bell, & Findlay, 2005), I found much less research on other landscape types such as wetlands (e.g. Manuel, 2003a; 2003b). In addition, much of the research on woodlands originates from the United Kingdom and a scrubby aspen forest in Northern Canada may provide a qualitatively different experience for users.

From this basis, I took criteria as to people's preferences for natural areas into account. Coles and Bussey (2000) found that people preferred woodlands that were greater than two hectares in size and if the woodlands were small, they preferred those that were in a block rather than a belt so they had opportunities to wander. Natural area parks close to residential neighbourhoods that were greater than two hectares in size and with a block configuration were included for consideration.

Next, I visited natural area parks that were larger than two hectares and represented different landscape types. I observed how accessible the natural area park was through paths or trails. For example, one park that included wetland and upland forest was not chosen partly because the community was new and was not yet fully built-out, and so may have posed recruitment difficulties, but also because I had trouble finding the entrances to the park which in some instances appeared to be on private property behind houses.

I avoided choosing natural area parks designated as dog off-leash areas to ensure that all participants were not natural park users only because of being able to allow their dog off-leash. However, some areas of the river valley in this study are off-leash areas and approximately half (n=17) of the participants were dog owners, and three of those talked about the area mainly in relationship to walking their pets. Table 3.1: Natural Area Study Park Characteristics summarizes the parks chosen against the above criteria and a more detailed description of each of the study natural area parks follows the table.

Table 3.1: Natural Area Study Park Characteristics

Park	Criteria	Park Characteristics
Dunluce Forest	> 2 ha Shape Type Dogs Entrances Trails	• Yes • Block configuration • Tableland aspen forest • No dogs off-leash • 2 main entrances • One main shale path, lighted, that bisects the forest and creates a thoroughfare; several smaller mulched paths
Hodgson Wetland	> 2 ha Shape Type Dogs Entrances Trails	• Yes • Block configuration • Wetland • No dogs off-leash • Viewing platform built out into pond, seating/viewing area at one corner • Path around perimeter
Kinnaird Ravine	> 2 ha Shape Type Dogs Entrances Trails	• Yes • Belt configuration, offset by large size • Mixed aspen/spruce forest and small creek area • Some areas are off-leash • Formal and informal entrances from adjoining neighbourhoods • Several maintained and unmaintained paths
Riverside - River Valley	> 2 ha Shape Type Dogs Entrances Trails	• Yes • Belt configuration, offset by large size • Mixed aspen/spruce forest and river area • Some areas are off-leash • Formal and informal entrances from adjoining neighbourhoods • Many maintained and unmaintained paths
Whitemud Creek Ravine	> 2 ha Shape Type Dogs Entrances Trails	• Yes • Belt configuration, offset by large size • Mixed aspen/spruce forest and creek area • No dogs off-leash • Several formal and informal entrances from neighbourhoods; main entrances from parking lots at either end • Many maintained and unmaintained paths

Lastly, I wanted to represent different areas of the city, so participants could potentially be of varying socio-economic status. City of Edmonton neighbourhoods adjacent to natural features such as the river, or ravines and creeks tend to be more affluent, but there is some range of average incomes and I attempted to represent that range. I did not formally collect participant socio-economic data, but informally it was clear, through the houses they owned and the careers they spoke of, that most were of higher socio-economic status. Table 3.2 shows the parks and neighbourhoods with selected socio-economic data compared with the Edmonton median.

Table 3.2: Selected Socio-Economic Neighbourhood Data

Natural Area Park	Neighbourhood Name	Median Household Income, 2010*
Dunluce Forest	Dunluce	$76,493
Hodgson Wetland	Hodgson	$116,177
	Ogilvie Ridge	$156,349
Kinnaird Ravine & River Valley	Virginia Park	$45,688
	Cromdale	$38,764
Riverside – River Valley	Forest Heights	$75,093
Whitemud Creek Ravine	Grandview Heights	$138,336
	Lansdowne	$101,191
	Brookside	$119,656
	City of Edmonton	$72,248

*2011 Census of Canada – latest data available at neighbourhood level (http://www.edmonton.ca/residential_neighbourhoods/your-neighbourhood.aspx)

3.4.3. Descriptions of Study Natural Area Parks

Dunluce Forest, protected in 1976, is 5.7 hectares of upland forest located in the middle of Dunluce neighbourhood in north Edmonton (City of Edmonton, Edmonton's Natural Area Parks, n.d.). The forest is mostly composed of aspen trees and shrubs such as Mountain Ash and Saskatoon Berry. There is a meadow in the centre that was a small slough before neighbourhood drainage systems were put in place (Pepper, Mubula, study

participants, personal communication, 2013). The forest has a lighted red shale path bisecting the forest and smaller mulched trails wind their way through the rest of the forest. Schoolchildren from one of two nearby elementary schools designed and mulched paths through the forest as a school project (Pepper, Hobbes, study participants, personal communication, 2013). In addition, the schools frequently use the forest as part of their curriculum, not only for science or nature studies, but also for English and art (Pepper, study participant, personal communication, 2013). In the past, the forest has had a somewhat unsavory reputation as a place for parties and drug deals. A group called Friends of Dunluce Forest and the community have worked to clean up the physical space of litter, etc. and promote it through community events such as having naturalists come and do talks and walks through it (Pepper, Mubula, Aurora, study participants, personal communication, 2013). The forest is now a valued part of the community.

Picture 3.1: Dunluce Forest, author photo

Hodgson Wetland is a 2.2-hectare natural wetland preserved in 2002, set in the middle of Hodgson neighbourhood in southwest Edmonton (City of Edmonton,

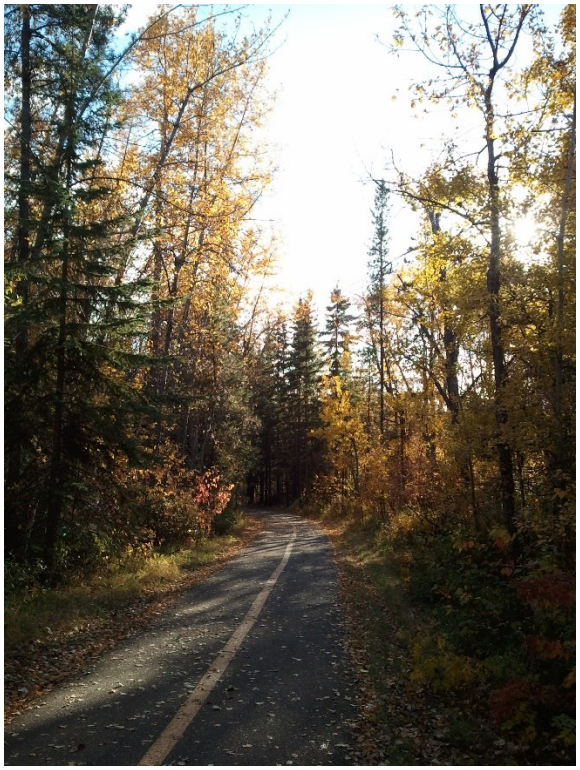
Edmonton's Natural Area Parks, n.d.). It is close to the Whitemud Creek Ravine to the east and a naturalized storm water management facility to the west and helps provide opportunities for wildlife and birds to move through the area (City of Edmonton, Edmonton's Natural Area Parks, n.d.). The wetland is bordered by cattails and the water levels fluctuate by season and year. It supports an array of birds—as many as eighteen different species—and has some resident muskrats (Liz, study participant, personal communication, 2013). The perimeter of the wetland has willow, aspen, and various shrubs, but is generally open. A trail circles most of the marsh and a seating area in one corner overlooks the wetland. There is a viewing platform built out into the marsh that allows visitors a chance to get closer to the water and bird life.

Picture 3.2: Hodgson Wetland, author photo

Kinnaird Ravine runs into the North Saskatchewan River on the north side, just to the east of downtown Edmonton. It is densely wooded with aspen and spruce and has a small creek at the bottom. In the early decades of the twentieth century, it was used as a garbage dump, though much of the debris was removed later on (http://www.lastlinkontheleft.com/h2832_100506.html). Wildlife reported in the ravine ranges from porcupines to moose and numerous birds (Jane, Levin, study participants, personal communication, 2013).

Picture 3.3: Kinnaird Ravine, author photo

Riverside is an area of the river valley on the south side of the river directly across from Kinnaird Ravine on the north bank. There are fairly steep banks down to flat bottomlands in the valley. The banks are wooded with aspen and spruce and there are numerous trails of different types throughout the area.



Picture 3.4: Riverside, author photo

Whitemud Creek Ravine is a nature preserve in the southwest of Edmonton. Whitemud Creek begins outside Edmonton's city limits, and joins with Blackmud Creek, before emptying into the North Saskatchewan River. The nature preserve is only that portion of the ravine that runs from the river to the Whitemud Freeway overpass. Because of the nature preserve this ravine park is perhaps better known than many of the other ravine parks in Edmonton. It has parking and amenities at the river end and a ski hill, a campground, and more parking at the other. As such, it can be a destination for people outside the surrounding neighbourhoods. There are trails of various types and/or stairs leading into the ravine from all of the surrounding neighbourhoods. The Ravine is thickly wooded with spruce and aspen and contains many old trees of a large size not seen in much of Edmonton. Coyotes, deer, beaver, and the occasional moose call the ravine home (Buck, Hilary, Donna, Martin, study participants, personal communication, 2013).

Picture 3.5: Whitemud Creek Ravine, author photo

3.4.4. Participant Sample Selection

The purpose in sampling in qualitative research is to find information-rich cases from which the researcher will gain a great deal of useful information (Patton, 1990). I used purposive, non-probability sampling (Silverman, 2010) and identified adults over the age of eighteen as the most potentially knowledgeable group about health and well-being effects of visiting natural area parks. Participants needed to visit one of the five natural areas included in the study at least once a month and be willing to make the time commitment required of a photovoice project. I also used snowball sampling and found three participants through referrals from others.

3.5. Recruitment

The aim for recruitment was thirty participants, evenly distributed across the study natural areas, with half participating in the summer and half in the winter. This

sample size is consistent with sample sizes in other human geography photovoice studies which have had between 11 (Garvin, Nykiforuk, & Johnson, 2012) and 41 (Fusco, Moola, Faulkner, Buliung, & Richichi, 2012) participants. In total 33 photo-interviews were conducted, 18 in the summer and 15 in the winter.

Recruitment took place between July 16, 2013 and October 4, 2013. The main method of recruitment was flyers (see Appendix A) hand-delivered to all residences within 800 metres of formal and informal park entrances in the neighbourhoods of Brookside, Cromdale, Dunluce, Forest Heights, Grandview Heights, Hodgson, Lansdowne, Ogilvie Ridge, and Virginia Park. In total, throughout the recruitment period approximately 4800 flyers were delivered to homes in these neighbourhoods. People prefer natural areas within a 5 – 10 minute walk of their home (Coles & Bussey, 2000) and eight hundred metres is approximately a ten-minute walk. I was unable to access locked apartment or condominium buildings and this likely resulted in a greater number of participants from single-family dwellings; however, locked buildings were not numerous in these neighbourhoods and multi-family dwellings that were accessible had flyers delivered. Two participants did come from multi-family buildings.

The flyer contained basic information about the study, my university email address, and directed people to a website (www.naturalparksedmontonstudy.com, see Appendix B for screen captures from website). The website contained expanded information, explained photovoice, and what participants could expect in terms of time commitment. Most people seemed to have accessed the website before emailing me to express interest in joining the study. At first contact people were emailed a brief synopsis of the study to ensure they knew what was involved and then arrangements were made, either by phone or email, for a first meeting.

Initial recruitment methods did not produce the desired number of participants, except for Whitemud Creek Ravine. Recruitment had taken place in three neighbourhoods that border Whitemud Creek, whereas for Dunluce and Hodgson recruitment was confined to the neighbourhood in which the park was situated, so fewer flyers were distributed (800 for Dunluce and 420 for Hodgson versus 1,250 for Whitemud Creek). In addition, fewer people may use those natural area parks.

I met this challenge in two ways. First, a second round of flyer deliveries (September 17 – 24, 2013) took place in the neighbourhoods of Dunluce and Hodgson, and the adjacent neighbourhood of Ogilvie Ridge, which is within walking distance of Hodgson Wetland. This second flyer was identical to the first and produced two more participants for Dunluce Forest, but only one for Hodgson Wetland. Two participants did come from the Ogilvie Ridge neighbourhood, but they were found through another participant. Second, I chose additional study areas. The Edmonton river valley is a further example of the type of landscape common in the aspen parkland ecozone and so Kinnaird Ravine on the north side of the river and the area of Riverside opposite it on the south side were included. Flyer delivery took place from September 26, 2013 to October 4, 2013 in the neighbourhoods of Virginia Park and Cromdale for Kinnaird Ravine and Forest Heights for Riverside. These two measures together produced sufficient numbers of participants.

A supplementary method of recruitment for Dunluce and Hodgson neighbourhoods was through Community League newsletters and emails to Community League presidents who then forwarded the information to people they thought might be interested in the study. Two participants were found this way and a further three by snowball sampling. However, the majority, 28 out of 33 participants, were recruited by flyer. Three of the participants recruited by alternative means lived in different neighbourhoods than the ones where flyer delivery occurred, but they still accessed the study park on a regular basis. There were no differences in their responses.

Recruitment for both summer and winter samples took place at the same time. I wanted equal numbers of summer and winter participants, so at initial contact every second potential participant that contacted me was asked if they also visited the natural area park in the wintertime and if so, asked if they would be interested in participating during the winter instead of the summer. This method produced roughly half (n=7) of the winter sample while the remainder (n=8) came from the later recruitment in the neighbourhoods of Cromdale, Virginia Park, and Forest Heights.

While I initially intended to have two distinct data collection periods, one during summer (July and August) and one during winter (November and December), the time

involved in recruitment and interviewing shifted the last half of the interviews for summer into late September and October, so it became a summer/autumn sample (n=18). For simplicity's sake, throughout this thesis it is referred to as a summer sample.

3.6. Data Collection

Data collection took place from Aug 2, 2013 to January 16, 2014. Eighteen (18) summer/autumn interviews and fifteen (15) winter interviews were completed with different participants in each season. Interviews for the summer sample began on Aug 2, 2013 and continued through until November 14, 2103 with photographs that had been taken earlier in October, before the first snow fell at the beginning of November. Winter interviews commenced on November 20, 2013 and continued through until January 16, 2014. Before data collection took place, I conducted two pilot photovoice interviews with volunteers who accessed a natural area park not included in this study (Patricia Heights Ravine). The interview guide did not change in response to these pilot interviews and data from them was not included in the final data set.

3.6.1. Initial Meetings

Initial meetings took place to introduce myself and the study, loan cameras to those who needed them, go over study instructions, and sign the informed consent forms. Ten participants who wanted to use their own camera were either so eager to get started or were too busy, waived this first meeting and instead all of the material was sent via e-mail and discussed over the phone. These participants signed consent forms at the beginning of the photo-interview. First meetings were conducted in playgrounds, coffee shops, libraries, or participants' homes. The following documents were provided to participants: *Information Letter and Informed Consent Form, Camera Possession Form* (when needed), *Participant Instructions,* and *Pedestrian Safety Training Outline* (see Appendix C - F for copies of forms).

I asked participants to take photographs that reflected their experiences in their neighbourhood natural area park that they considered influenced their health and well-being in some way. The photographs could be of either positive or negative influences and might represent any or all of the dimensions of health: physical, mental, emotional,

social, or spiritual. Participants were encouraged to take photographs during regular outings to their neighbourhood natural area park, but many made a special trip instead. Other photovoice studies have found a similar tendency amongst their participants and this may introduce a selection bias into the study where participants ignore certain aspects of 'everyday life' in favour of others (Oldrup & Carstensen, 2012). However, this was not deemed an issue in the present study where respondents were asked to record/represent what is most meaningful to them about their experiences within a framework of health and well-being.

Participants had the option of borrowing a digital camera from the project or using their own camera and providing the pictures via USB drive or email. I asked participants to take pictures specifically for the study during their visits to their neighbourhood natural area park since I thought this would focus attention differently on their experience of the space rather than photographs taken for other reasons. Some participants asked if they could bring photographs they had taken prior to participating in the study and when people felt strongly about pictures they already had, I asked them to include only two or three of the most important ones and some took advantage of this. For instance, some summer participants brought winter pictures or vice versa. Participants were asked to bring between 10 and 12 pictures to the interview to keep the interviews to a manageable length and to focus attention on what the participants' considered to be the most important aspects of the park. The actual number of photographs people brought ranged between a low of four and a high of seventy, though thirty-nine pictures was the most any participant talked about.

3.6.2. Interviews and Participants

Photo-interviews were conducted in participants' homes, in interview rooms on the university campus and one in a room at a community library. During the interviews, I uploaded participants' photographs onto my computer and digitally recorded the interviews directly onto the same computer. Interviews ranged in length from 23 minutes to 1 hour and 14 minutes, with the average being 45 minutes. Interviews ended when people had talked about all the photographs they wanted to talk about and finished with some general questions about participants' perceptions of the health and well-being

potential of the natural area parks. In addition to the information contained in the interviews, two participants provided me with their written notes by email beforehand. These notes were little different from what participants said in interviews and were considered as background material rather than being analysed in addition to the interviews.

Participants ranged in age from 29 to 87 years old with eighteen (18) female participants and fifteen (15) male participants. In summer, there were 10 females and 8 males and in winter 8 females and 7 males. Three married couples participated two at the same time and one with participation split between summer and winter. I conducted interviews separately rather than jointly for couples. Table 3.3 details the distribution of participants by season and park. A table of relevant participant demographics is available in Appendix H.

Table 3.3: Interviews by Season and Park

Park	Total Interviews	Season	Participants	
			Female	Male
Dunluce Forest	6	Summer	2	3
		Winter		1
Hodgson Wetland	4	Summer	1	1
		Winter	1	1
Kinnaird Ravine – River Valley	5	Summer	1	1
		Winter	2	1
Riverside – River Valley	8	Summer	3	
		Winter	4	1
Whitemud Creek Ravine	10	Summer	3	3
		Winter	1	3
	33		18	15

3.6.3. Data Collection Challenges

Midway through December 2013, during the winter interviews, nine interviews did not record due to an equipment failure. I contacted these nine participants to explain what had happened and all nine agreed to re-do the interview. For some it was within a few days of the original interview and for others a period of several weeks over the Christmas season elapsed before the re-interview. When I started doing the re-interviews, several participants were nervous that they did not remember exactly what they had said before, so I suggested that they not try to re-create the interview, but to simply 'go with the flow' of a new interview. The photographs assisted in this approach because participants had a visual reminder of what they had wanted and intended to talk about, as did the notes that some participants had previously made.

The re-interviews generally tended to be a few minutes longer than the original, and several interviewees mentioned that having had more time to think about the interview questions allowed them to target more precisely what they wanted to say. One changed her answer significantly to one of the questions and made sure she pointed out to

me that she had changed her mind about that particular point in the intervening weeks. Another felt that he might have been influenced by his wife's answers in the previous interview, so he left the room during her interview. I sent the nine participants that re-did the interview a five-dollar gift card to the coffee shop of their choice as a thank you.

3.6.4. Interview Recording and Transcription

I digitally recorded the interviews and transcribed them verbatim before sending the transcript by email to participants to review when they had indicated during the informed consent process that they wished to see them. Thirty of the thirty-three participants asked to review their transcripts. I asked participants to return any changes within approximately two weeks. Most participants replied that the transcription was satisfactory, several did not reply at all or replied for other reasons (such as to say thank you) without mentioning the transcript, and a few made minor editorial changes that were incorporated into the final version of their transcript. One participant wanted to read the transcript, but could not find the time, so we made an agreement that I would email her with the quotes and the context in which I used them so she could approve them and this was done.

Transcribing the interviews myself allowed me to hear subtleties in the interview that I may have missed during the interview itself, or things that seemed important at the time took on greater or reduced weight when re-played. I highlighted passages that appeared to be particularly relevant either during the interview itself or during transcription to preserve the importance of that section between the transcription and analysis process. Transcripts and participants' photographs were loaded into QSR International's qualitative analysis software NVivo 10 for analysis.

3.7. Analysis

Analysis began in late October 2013, so I was analysing summer interviews while winter interviews were ongoing (Mayan, 2009). I used the theoretical framework of therapeutic landscapes to help guide the data analysis by keeping in mind how the codes, categories and themes I was creating related to the physical, social, and cultural environments of the research.

3.7.1. Codes, Categories and Themes

Applying codes to interview transcripts is a way of working with and making sense of the mass of data that a qualitative study can produce—in this case, approximately 25 hours of interview recordings resulted in around 565 pages of transcribed interviews. Jackson (2001) notes that the initial process of coding interview transcripts is "intended to make the analysis more systematic and to build up an interpretation through a series of stages, avoiding the temptation of jumping to premature conclusions" (p. 202). I developed codes inductively from the data.

A coding framework (see Appendix I for a list of codes) was created that included the code, a description of the code, and sample quotes that illustrated the code. After a third (n=11) of the interviews were coded, the coding framework was peer-reviewed (Baxter & Eyles, 1997) by the post-doctoral fellow working in my co-supervisor's lab. I incorporated the suggestions from the peer-review into the process for coding the rest of the interview transcripts. After I coded all the interviews, the codes and the data they represented were analysed for similarities and differences to determine common themes and categories (Bazeley, 2013). I then revised, collapsed, or expanded the codes as needed. To assist with this process, I created summary sheets for each code with short paraphrases of what each participant said that fell under that code. This allowed me to see when codes were similar enough to collapse together or alternatively to see where they were distinctive. This was an effective way to identify connections and themes in the data as the codes slowly began to fit together as sub-themes pointed to larger concepts. I also considered if codes directly related to one or more of the research objectives of this study: those that did not were retired. At the final stage, I examined those retired codes one last time to make sure I had not missed anything relevant to this study.

Finally, the query function within the NVivo software—which helps the researcher to ask questions of the data—allowed me to follow up hunches to see if things I thought fit together were mentioned together; for instance, whether or not participants identified the calmness and serenity of the natural areas as producing calmness in them. In this way the material was refined until the ideas, concepts, and themes that were most important were separated from those that were of less importance overall. In the final

writing of the results the codes that applied to the greatest number of participants (mentions that had 20 or more out of 33) were concentrated on and smaller, but important sub-themes that related to, expanded on, or contradicted those larger concepts were fit in around them.

3.7.2. Photovoice Analysis

Analysis focused on the participants' narratives in conjunction with the photographs (Nykiforuk, Vallianatos, & Nieuwendyk, 2011). The photographs are a vehicle for the participant to express their thoughts or feelings about a subject rather than a strict representation of a single concept. Although there were subjects that people talked about in similar ways from similar pictures, for instance animal trails through snow, in general, pictures were rarely representative of just one thing, nor could an outside observer know what that picture represented without the narrative. One person might bring a picture of a mossy log and talk about how the fallen tree was returning nutrients to the forest; another might bring a very similar picture but talk about how seeing the fallen tree made him think about his own mortality. Without the narrative context that participants attach to them, the photographs were nothing more than pictures of trees, dogs, or mushrooms. I emphasized to participants during the informed consent process that I would use pictures and narratives together. In the remaining chapters of this thesis, photographs and the accompanying quote from the same participant are used together to illustrate the theme or sub-theme that is being discussed.

3.7.3. Ensuring Rigour in Analysis

I used a number of procedures throughout data analysis to help make sure that it was rigorous, unbiased, and appropriate. Peer de-briefing was the first of these and is one way of increasing the rigour of qualitative analysis. It is a method of checking that codes and categories developed by one researcher make sense to others (Baxter & Eyles, 1997). It is also a method of making sure that the researcher is not overlooking angles or information since each person brings their own background and interests to a study and some people might see one thing while others another. I participated in peer de-briefing at a number of stages during analysis.

First, as mentioned, after a third (n=11) of the interviews had been coded and a coding framework (see Appendix I) constructed, the post-doctoral fellow in my co-supervisor's lab (PLACE Research Lab) read the framework and gave me feedback. This feedback was integrated in the next edition of the coding framework as well as the coding of the rest of the interviews. Second, after all interviews had been coded the data analyst in PLACE Research lab read the complete transcripts from two of the participants and gave me feedback about overarching themes she saw in the material. Third, near the end of the analysis a friend who has a degree in a related area and a keen interest in the subject matter of the study took the time to read the majority of the transcripts and discussed with me the most important themes that she was seeing in them. There was little difference between the themes I had identified in the data and the themes others did, but these conversations helped enrich my understanding.

I completed the final stage of analysis after I had written the first draft of the results chapter. It involved revisiting the research diary, various memos, and copious notes containing thoughts about the material (Richards, 2009). I initiated this re-reading to ensure that I had followed up on all important thoughts and concepts or retired them as not relevant to this study. This re-reading produced a short list of ideas that I considered carefully as to their relevance to the research question and objectives of the project and either added or retired at that point.

3.8. Study Limitations

Any research project will have limitations based on its design or execution. For this study, using flyer distribution as the recruitment method introduced a self-selection bias into it, which contributed both positive and negative aspects. From a positive aspect, it produced participants that were passionate and knowledgeable about the natural area parks and who were very willing to open up and talk about how important these places are to them. At the same time, this passion and positive orientation in participants may have led them to emphasize positive experiences and downplay ones that are more negative. However, several participants expressed that they were happy I had asked them to take photographs of the area from both positive and negative perspectives if they wished. They seemed relieved that they had a chance to talk about the things that they

found disturbing or negative in the space. In addition to this generally positive perspective on the natural area parks, several of the participants were upfront in saying they wanted to participate because they wanted others to know how important the places are: they had a definite agenda in contributing to the research.

Another limitation was the use of only electronic means of initial communication (email and website) which would have excluded people without email access or discouraged those who are more comfortable using the telephone. This was a trade-off between my own safety (not wanting to distribute flyers with my name and personal phone number included), and cost limitations (the expense of setting up a phone number for the duration of the study) with losing potential participants. This approach could possibly have limited the participation of particular demographic groups such as senior citizens who may be less comfortable with electronic means of communication, but does not appear to have done so since five of the thirty-three participants were 70 years of age or older.

3.8.1. Study Changes

Challenges in recruiting enough participants to complete the study prompted the addition of two study sites located in Edmonton's river valley. As this was a study emphasizing the 'everyday' aspect of having natural areas close and accessible, I did not initially choose the river valley in favour of smaller sites that might be only known to their surrounding communities. In Edmonton, the river valley receives more attention, and is well known and possibly better utilized because of its high profile. Overall, because of where they lived, the participants from these neighbourhoods viewed these river valley parks as their neighbourhood park.

In general, adding the river valley did not change the study in significant ways. In regards to landscape types, it was very similar geographically to the Whitemud Creek Ravine, except that the landscape included the river itself. Participants from the additional areas were of a similar socio-economic mix even though these neighbourhoods were of a slightly lower socio-economic status or had a greater range of economic status. The participants in the study were generally of higher socio-economic status and this was true of the participants from these areas as well. Participant narratives from these two

natural area parks were also very similar to those narratives from the other study areas. There were more mentions of safety issues and witnessing of homelessness than by participants in the other study areas. This was likely in part due to the areas being closer to Edmonton's downtown where there is a greater concentration of homeless people.

Adding the two river valley parks did shift the balance of landscape type in the study to mostly wooded areas. The original intention was to have the three parks represent different types of landscape typical in the aspen parkland ecozone—wetland, upland forest, riverine or creek area—but with the addition of the river valley this shifted to four of the five areas being mostly woodland. However, because of climactic conditions, woodland in the aspen parkland ecozone is not necessarily similar to woodlands in other countries such as the United Kingdom, where much of the research into woodlands has taken place.

Next, the length of time recruitment took moved the last half of the summer sample into autumn and this might have influenced the type of responses participants gave and the types of pictures they took. If anything this change added a degree of richness to the study as participants reflected on the turning of the season and their enjoyment of the colours of autumn.

As previously mentioned, a much larger change in the study was the equipment failure that led to nine of the 15 winter interviews being re-done. While these re-interviews did not seem markedly different from the first interviews, it is impossible to say for sure. My interactions with participants or casual conversation after the initial interview was over may have influenced responses given in the re-interview. It is also possible that the re-interviews led to deeper and more thoughtful responses as participants had had time to reflect on the questions I had asked and the answers they had given to them.

3.9. Chapter Conclusion

This chapter provided an overview of the structure of this research project. It discussed selection of study sites, participant recruitment, and data collection. It also

contained a discussion of data analysis that leads into the next chapter that presents the results of the study.

4. Chapter FOUR: Findings

4.1. Chapter Introduction

The purpose of this research was to understand how natural area parks within an urban area contributed to perceived health and well-being among adults. The previous chapter explained how the project was organized and how data collection and analysis proceeded. This chapter presents the results of the study, which asked the question: *What are the perceived health and well-being effects for adults of visiting natural area parks in the City of Edmonton?*

Discussion of the results is organized by the study's five main research objectives:

1. Identify the aspects of neighbourhood natural area parks that are valued the most by park users and describe why they are valued.
2. Describe the aspects of neighbourhood natural area parks and the experiences people have in them that they feel contribute to their health and well-being.
3. Describe the aspects that detract from health-promoting experiences while visiting.
4. Determine aspects of neighbourhood natural area parks that people identify as actual or potential inhibiting factors to visiting them.
5. Explore the ways in which people perceive winter experiences in natural area parks as contributing to health and well-being.

Section 4.2 presents the aspects of the parks that participants value the most (Objective 1). Section 4.3 identifies the experiences that participants said were health promoting and the aspects of the natural areas that promoted those experiences (Objective 2). Section 4.4 discusses those aspects that detract from healthy experiences in the parks (Objective 3). Section 4.5 considers what prevents people from visiting (Objective 4); and finally, Section 4.6 explores the ways in which winter experiences are perceived to be health-promoting (Objective 5).

All names of participants were changed to pseudonyms and the different natural area parks have been given the following two letter codes:

Dunluce Forest – DF

Hodgson Wetland – HW

Kinnaird Ravine – KR

Riverside – River Valley – RS

Whitemud Creek Ravine – WC

In the text, each code is accompanied by an 'S' for summer or a 'W' for winter to indicate the season in which the data was collected. Thus, someone who visited Whitemud Creek Ravine and participated in the winter would be WC-W. In this chapter, the five natural area parks studied are considered as a whole and referred to either as 'natural area parks,' 'natural areas,' or simply 'parks'. The photographs and participant quotations that accompanied them are presented together: the photograph captions are extracts from those quotations. Participants' spoken emphasis is indicated by underlined words or phrases in the quotations. Table 4.1 indicates the numbers behind the qualitative terms used in the text. Table 4.2 presents the main concepts explored in each of the following sections.

Table 4.1: Qualitative Terms and Number of Participants

Term	# / 33 participants
A few / several	1 - 5
Some / a number	6 – 15
Many / often	16 – 25
Most / a majority	>25

Table 4.2: Main Concepts and Themes of Study

Concepts	Themes
Most valued aspects *(Objective 1; Section 4.2)*	▪ In a different world ▪ Sharing space with the wild ▪ Away, but not away ▪ Accessibility & proximity
Experiences that contribute to health and well-being *(Objective 2; Section 4.3)*	▪ Promoting physical activity ▪ Emotional and spiritual health ▪ Connecting with others ▪ Interconnections
Aspects that detract from visits *(Objective 3; Section 4.4)*	▪ Safety concerns ▪ Transgressions
Aspects that may prevent visits *(Objective 4; Section 4.5)*	▪ Winter makes it harder to visit
Winter Experiences *(Objective 5; Section 4.6)*	▪ Winter sensory elements ▪ Snow

4.2. Most Valued Aspects

Participants valued their local natural area park for the opportunity it gave them to feel away from the city and surrounded by nature within just a short distance from their homes. The natural areas felt like a different world where they could admire natural beauty and access peace and quiet while sharing space with wild creatures.

4.2.1. In a different world

Participants spoke of the natural area parks as being a different world, a place where they could experience the absence of human influences and the presence of natural processes. This feeling of being somewhere else often began as they stepped across virtual thresholds into the natural spaces. Once inside, the various sensory qualities of natural beauty, fresh air, quiet and the constantly changing aspects of nature contributed to the feeling of being somewhere new. The natural areas seemed to transport people to a different world both in tangible physical ways (leaving the world of the city and entering

the world of nature) and at the level of imagination or perception. Bethany (WC-S) described the mosses and lichens she photographed as *"a city within a city"*, Adam (WC-W) pondered the lives of beavers, Pepper (DF-S) delved into the world within worlds of a fallen log, and Hilary (WC-S) contemplated the lives of trees. Participants found nature to be endlessly fascinating and absorbing at levels from the intellectual to the profound.

Some participants brought pictures of the entrances to their park and talked about that entrance as an important signal that they were about to access a valued experience. A forceful sigh or other expression of letting go often accompanied these commentaries.

> This is sort of like my gateway to calmness and as I enter through this it is like I am entering the area of calm and peace and quiet. (Adam, WC-W)

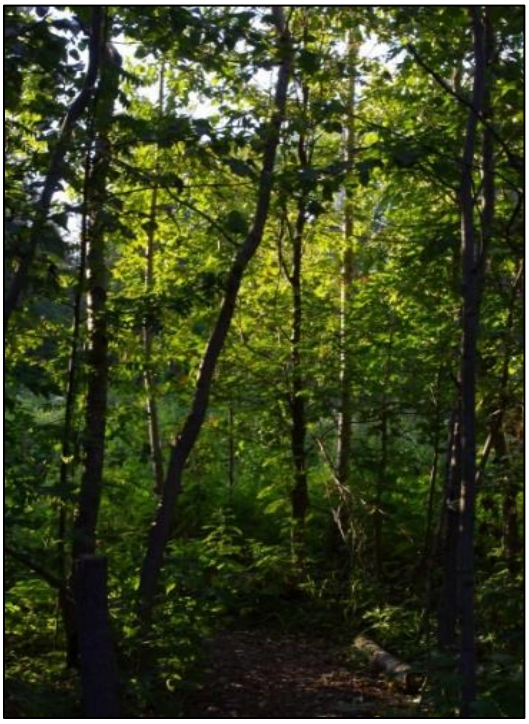
They spoke of the entrance to the natural area park as a transitional point or experience.

> It is a symbol to me of moving from the busy world to the un-busy world. It is symbolic of a transition. So, as we move onto the bridge we see a complete transformation, so this is simply symbolic of an entry into a new world. I call it a new world. It's not a new world, it's the old world, but for so many of us who just keep a busy schedule it is a new world that we don't take enough time to appreciate. (George, WC-S)

It is just so beautiful and it's like this instant – if you take one step back, there are houses all here and cars and people – and you take one step forward and there are these very, very tall walls, retaining walls I guess they are, that just block everything. It's like within one second you are totally secluded in this gorgeous area that feels like you are not anywhere near the city. (Nancy, RS-W)

Picture 4.1: Nancy RS-W "within one second you are totally secluded"

Most participants mentioned the beauty of the natural area parks as one of the most attractive features. Some participants focused on the colours in nature, such as the colours of changing leaves in the autumn or the splash of colour that berries provide during winter, or even just the colour green.



Well, I just like being in the woods and I seem – if I don't go there for a while I just sort of seem to really have the need to see something green. And to be in, like, a natural setting. (Mubula, DF-S)

Picture 4.2: Mubula DF-S "the need to see something green"

Other participants concentrated on the patterns they saw, such as reflections that caught and held their interest or the texture of bark or the micro world of mosses and lichens.

I like this because it shows the life that is in the marsh, and the new life that's in the marsh, but it also shows the interesting patterns on the water, the colours, the interesting little ripples created by the duckling, but just the lighting on the water is kind of interesting, and I think it's just relaxing as you look at it. (Liz, HW-S)

Picture 4.3: Liz HW-S "it's just relaxing as you look at it"

Travis (WC-W), however, appreciated the lack of pattern and the beautiful disorganization of nature.

It's very intricate and disorganized . . . but it has its own symmetry, but it's not something that we are used to. I think that is why I like the forest in general is just the sort of disorganization of it in some ways. Initially you look at and it looks like a jumble, but after you've been there, if you spend a little bit of time there it starts to make sense a little bit. (Travis, WC-W)

Picture 4.4: Travis WC-W "it has its own symmetry"

For many participants the quality of the air as fresh, clean, and full of the smells of nature was also an important part of the whole experience. The different smells throughout the year were important signals to participants of where they were in the yearly cycle.

> The smell of the area definitely brings back memories of when I was a kid and would go on those tramps and smell the rot and decay of fall, right, some people don't like that smell, I love it because it brings back really good memories for me. And then in the spring there is a totally different smell, and summer. Winter is different altogether. (Gavin, DF-S)

Most participants mentioned that because of the quiet in the parks, they could hear small sounds such as the trickle of water or the rustling of leaves.

> The sounds, yeah, the variety of birdsong, insect-songs, the sound of the water, the wind in the leaves. (Bethany, WC-S)

A few participants pointed out that the entire experience was important rather than any particular elements.

This one, I just took it because the natural area is beautiful at any time, but on this occasion the picture was taken Thanksgiving weekend, so it's just a part of the grove that without looking at any one thing, it is sort of representative of the whole grove. (Clyde, DF-S)

Picture 4.5: Clyde DF-S "it is sort of representative of the whole grove"

Travis talked about how he practices seeing the forest as a whole rather than as its separate parts.

> In the summertime especially I get that feeling – not all the time, but sometimes I get that feeling: you can feel the whole living thing of it, you know, like the whole environment, rather than just one thing. (Travis, WC-W)

Natural areas are constantly changing through seasons and over time while remaining essentially the same places. Many participants noted that they found these small everyday transitions fascinating when returning time after time to the same park. A trail might always lead to the same place, but the experience of walking on that trail would be different depending on the season, the weather, or the time of day.

> There are a variety of trails and even though the trails all go to the same, they are always the same trails, but you are still going to see something different at the end of the trail. You might see a different plant growing; you might see a different animal. It is always going to be something slightly different. (Bethany, WC-S)

For people who visited the parks often or over many years, long-term changes in the physical landscape were also evident.

> But I do love to see how the creek changes and the landscape – and it has. And the sand bars shift and change and I always think that is kind of neat to see. . . . It's not only how the creek changes. It's the way the trees change too. It's interesting; like, I always find it really interesting to go down there and see after a

> storm or after the snow goes or, you know, things like that. What's changing; what's blooming—those types of things. (Hilary, WC-S)

Being able to observe the passage of time and seasons by the changing world of nature was important.

> Oh, yeah, because there is always something that is changing, the seasons, the landscape changes, so all of those things become a much more noticeable and enjoyable thing. You can just see the passage of time; see each year through how the season changes, from the winter with the dormant look to it and then the rejuvenation in the spring through the fullness of summer and back into the fall. A wonderful thing about living in the north is that we get the distinctly four seasons. (Preston, HW-S)

4.2.2. Sharing space with the wild

Participants appreciated that the natural areas provided spaces for other species to live and noted the importance of the parks as habitat providing homes and food for birds and animals. They enjoyed seeing wildlife and felt connections to other species. Some talked about how these natural areas are not urban spaces and that humans need to respect that we are walking on different territory that has different rules and belongs to different beings.

> So there's beautiful wilderness, right in our backyard – downtown is right here. The beavers are out there; the birds are still out there and it's incredible. And that's why I took that picture, because we are guests in this environment. This is their home and we are guests there and it is a matter of respect, respect for oneself and with that comes respect for others. . . . I'm a guest here. The beaver lives here; the birds live here. I don't live here, but I enjoy it. (Drea, RS-W)

Picture 4.6: Drea RS-W "The beaver live here."

The differences from urban spaces contribute to the ways in which the natural areas provide habitat for other species. Participants brought pictures of dead tree snags

and fallen trees covered with moss or fungi and talked about the processes of life, the recycling of nutrients, and all the small creatures, birds, and other life forms that call those places home. George (WC-S) talked about how certain birds just need old forests that are full of dead and dying trees to live and how in suburbia the first thing we do is get rid of the types of spaces they need because *"we don't want dead things in our yards"*.

> There are some creatures that can only nest in old forests or can only survive in old forests and we have to provide opportunity for those creatures at every turn. . . . we just need these old forests. Some of the trees are leafless right to the top. They've exposed their skeletal remains, but those are really important too; they are roosting places for all sorts of birds and nesting places for others. And they are really important places. (George, WC-S)

Picture 4.7: George WC-S "we just need these old forests"

Participants felt satisfaction that the parks were spaces that promoted the life of other creatures.

> It's nice to know that there is a place for them, that it is not all for us, that they have a place and . . . it's nice too, you know, to kinda remind yourself that there is a bigger world out there. That there's a lot of things bigger out in the world than just our own little life, so that's why . . . it's kind of a nice treat to be able to have a place where stuff can be seen if you look. (Mubula, DF-S)

Some noted that they enjoyed the beauty of bright red berries, but additionally were glad that the berries provided food for birds during the winter. Participants liked seeing

evidence that the parks were healthy and some noted that the natural area parks do not need help from humans to live and thrive: they are places that have their own innate intelligence.

> I really like the forest as an example of an ecosystem. I really see a lot of that and that ties into my love of nature, but I just sort of see the whole, I like to think of the whole system in that everything all fitting together. (Pepper, DF-S)

Although participants did not necessarily see wildlife on every visit, they valued the wildlife encounters they did have. They talked about the different species they had seen, from moose and deer to coyotes and beaver. Participants appreciated their everyday encounters even with wildlife as common as jackrabbits, chickadees, or squirrels. The more rare sightings of coyotes, moose, deer, or uncommon birds stood out in their memories and were spoken of as special events—a moose in Dunluce Forest twenty years ago (Clyde, DF-S) or the winter Liz (HW-S) saw a covey of Hungarian partridges on Hodgson Wetland.

A few participants who lived especially close to natural areas spoke of wildlife encounters on their own property or street—ducks that spent the summer on their front lawn playing in the sprinkler or coyotes or moose sauntering down the road. These participants enjoyed this blurring of boundaries between city and wild nature.

I've got several pictures of coyotes, but this is a real one that is recent during the course of the study that I snapped. Just how connected we are to the ravine. There's the ravine. This is looking out my door and I can never – we are part of it. My fence is there, but I think my family does feel that our home extends right into the ravine. (Del, KR-W)

Picture 4.8: Del KR-W "just how connected we are to the ravine"

Others stressed that while they appreciated seeing birds on the feeders in their yards or had raspberries growing in their garden, there was a further element of enjoyment when they encountered those things living their own wild life in a natural area.

> This is their habitat, so I would not want this destroyed and as humans we have to be careful too not to take them out of their habitat. That's their primary habitat, right; we are just there to enjoy it, yeah. (Zoe, RS-S)

A few participants talked about certain birds, animals, or trees as individuals that they knew – a certain old coyote, a pair of nesting woodpeckers, or a particular tree. They were aware of these beings as individuals who made their homes in these spaces.

> There is an eagle that lives in Gold Bar Park [an area of the river valley down from Riverside], actually there are two eagles, a pair, and so we saw him . . . out on the ice, unfortunately I think he'd killed a duck. (Nancy, RS-W)

It's a big old tree and that's why I wanted to capture it. That is one thing that I do like about the whole Whitemud Ravine, there is a lot of old growth down there, and I always go by that tree and it takes about four of us to put our arms around that tree. So, you know when I go down there with the kids we love to give the tree a hug. We give it a hug and we circle it. (Hilary, WC-S)

Picture 4.9: Hilary WC-S: "I always go by that tree"

4.2.3. Away, but not away

Being in the natural area parks created a feeling of being away that was highly valued by a majority of the participants. This feeling was composed of a sense of being away from their own life—work or stress, for instance—and also a feeling of being away from the traffic and busyness of the city. Many participants noted the reduction in city noises within the natural areas as an essential element in activating the feeling of being away. Several participants noted that the ravine parks and river valley are so wild that it reminds them of hiking in the mountain parks of Jasper or Banff in Alberta.

> You can get lost down here. It is that untouched and that rugged and if you get off those trails . . . if you try to follow the creek and it wanders, meanders all over the place, it is quite difficult to do so and you can get really twisted around and turned around. You go in there on a day that is overcast where you can't really sort of see where the sun is and all that and how easy it is to get turned around. You know you are never going to get lost because you can wander out of there in any direction, but it has a degree of wilderness to it that is really quite amazing in the middle of the city. (Martin, WC-W).

For a few of the participants, there was a sense of being surrounded and enveloped in nature that enhanced the feeling of being away.

> So that's kind of like this path I take down to the river valley and it's just a bit of an offshoot, it's not paved or anything and I quite like taking it because you are just encompassed by trees, which I really like, so it really does feel like you are not in the city at all. Everything is just green and nature. (Ziggy, KR-S)

However, the sense of being away from the city was not the entire story. The contrast of having that experience so close to home was also important. People brought pictures that clearly oriented their particular park as situated in the midst of a busy city or suburb and described the major roadways or freeways it is close to or used phrases such as *"in the heart of the city"* (Donna, WC-S) or *"the middle of the city"* (Martin, WC-W). Others brought pictures that illustrated the juxtaposition of city and nature or noted how much they enjoyed having wild nature as part of their city life.

> I like being in the river valley because I like the contrast with you take a few steps down and you look a certain way and you wouldn't know you are in the city, you look another way and there's downtown. (Frances, RS-S)

It's got the wilderness in the foreground and the river and the city. [musing] Why did I want to include the city? I guess it's because, because of the contrast that's there and to show that this is here. It makes me feel good that this is here even though we are in a city. I don't know why – this picture I really like it. (Levin, KR-S)

Picture 4.10: Levin KR-S "it makes me feel good that this is here even though we are in a city"

Almost half of the participants referenced feeling lucky, privileged, or blessed to have such beautiful natural areas so close. A few of these connected this sense of gratitude directly to the City of Edmonton itself and to the people who had originally preserved the natural areas.

> I just get this wave of thankfulness that somebody saved this space. . . . I am just very thankful and I think whenever you feel thankful for something, it changes your entire state of being, so that's what it gives me. (Jane, KR-W)

4.2.4. Accessibility and proximity

Having the natural parks situated within their neighbourhoods and in most cases within an easy walk of their residences set the context for all the valued experiences that participants had. The closeness of the areas allowed them to visit frequently and gain a deep familiarity with the natural areas. In addition, various features of the built environment such as trails and stairs within the parks facilitated accessibility.

Most participants noted specifically how close the park was to their residence and that it was an important factor in how often they visited the area. This is not surprising given the selection criteria for the study. Several participants noted that if they had to drive to the area they probably would not go as often, if at all, while some mentioned that they had bought their home deliberately because of how close it was to the natural area. Aurora's comment is illustrative: *"I think it's one of the things that sold me about this house was that we could walk to a natural area so close."* (Aurora, DF-S)

The proximity of the parks means that visits can be spontaneous and unplanned. Proximity also means that the parks are available for people without the financial means or inclination to visit nature that is more distant.

> I've always been the kind of person in that I need that time in nature to kind of recharge and I'm not sort of an outdoor recreation enthusiast, so it's not like I am going to go cross-country skiing in the mountains or something like that, but also to go away somewhere farther it's more expensive and so this is kind of an easy, accessible, not just time-wise, but financially to get to. (Frances, RS-S)

The value of the proximity in encouraging repeated visits to natural areas became evident as participants talked about their experiences and emphasized how long they had been visiting. This intentional type of interaction built up layers of experience, familiarity, and memories that influenced the feeling people had towards their particular natural area. This group of participants visited their local natural areas frequently: some reported visiting once or even twice daily (often in response to a dog needing walks), many visited several times a week and only a few reported visiting less than weekly. In

addition, many participants had been visiting their local natural area park for over ten years, with some mentioning associations longer than 20 years. Some remembered visiting the area when it was still beyond the city edge or before trails or bridges had been built.

> It's fortunate how it's been able to really retain what I think is a pretty tangled wilderness in the middle of the city. It's all the deadfall. . . Mind you, it's changed appreciably. When we first came we didn't have the nice trails and the fancy little bridges across there. It is really polished now. . . . they've done a remarkable job, I think, in retaining [its natural character], because as soon as you get ten feet off the trail it is really like it was thirty-five or forty years ago. (Martin, WC-W)

Accessibility was not only about proximity, but also about being able to get around within the parks. People appreciated the variety of trails available and the maintenance done through snow or debris clearing. Some participants remarked on how the parks are highly accessible for people of a variety of abilities, and were not only for those who are very physically fit. Over and above simply being able to get around, some participants also mentioned the various built environment enhancements of the parks, such as bridges or seating areas, and noted their appreciation of good design that allowed these things to be present but unobtrusive. For example in commenting on one of the bridges, Thomas (RS-W) noted that even though it is a manmade structure it looks as if it was *"meant to be there"*.

Accessibility can also be about feelings of belonging and being comfortable in certain places. The childhood experiences of the participants in this study may have influenced how easily they felt like they belonged in the natural areas. Most participants spoke of the positive interactions they had with nature as children, so they felt comfortable with nature and competent to negotiate being in a wild space. As David states, *"I very much like the woods and this comes from practically living in the woods when I was a child."* Others talked about the people who had introduced them to nature as children, such as parents, Cub Scout leaders, and teachers.

And this one is a photo of my dad. He has always taken us to the ravine. It was usually every Sunday the whole family would go for a picnic down there. I had to throw this photo in specifically because he's the reason why I would say I am always in the ravine. (Sarah, RS-W)

Picture 4.11: Sarah RS-W "he's the reason . . . I am always in the ravine"

4.3. Experiences that Contribute to Health and Well-Being

This section describes the experiences participants have in natural area parks that they feel positively influence health and well-being, as well as the physical features of the space that promote those experiences (Objective 2). Participants noted that topographic features lent interest to physical activity, which in turn helped promote stress reduction and feelings of peace and relaxation that contributed to their mental health. The natural areas facilitated experiences of both solitude and connection. Having time alone in nature helped many participants connect with themselves and, often, to spiritual forces. At the same time, participants valued that these were shared spaces. Participants connected with neighbours, walked with family and friends, and gave their dogs freedom to run.

4.3.1. Promoting physical activity

Physical activity is an important component of good health and features of the physical space in natural area parks encouraged participants to engage in physical activity and added interest and value to their activities. Participants were physically active both

getting to the parks and then once in the parks. Not all participants deliberately used the natural areas for formal exercise, but physical activity in the form of walking was a usual part of visiting the areas. Participants were lured out of their homes by their enjoyment of being in the natural area and then features of the space made their activity more interesting or challenging once there.

In addition to other results reported above, the proximity and attractiveness of the natural areas provided incentives to go out and be active. Participants identified physical proximity of the parks, as well as attractiveness of the space, as a strong motivation to engage in physical activity. As Levin remarked:

> It compels me to go and work out. There is nowhere that I go in my travels that, you know, pull me to actually get out and do my, you know, my normal running or cross-country skiing or whatever, like there is in Edmonton. And I feel the whole activity thing is one of the most healing things we can do to enhance our health. (Levin, KR-S)

For some participants a sense of fun and adventure drew them into the natural areas. Some spoke of the allure of a winding path, while a number talked about feeling a sense of achievement after exercising outdoors.

> Outside gives me fresh air. At the very basic level it gives you fresh air and it gives you a sense that you have actually accomplished something. . . . There is an element of making progression that you don't get on a treadmill going round and round, I mean, the literal connotation of being stuck in a treadmill and the fact that you are <u>physically</u> on a treadmill, it is just too much for me, right. (Adam, WC-W)

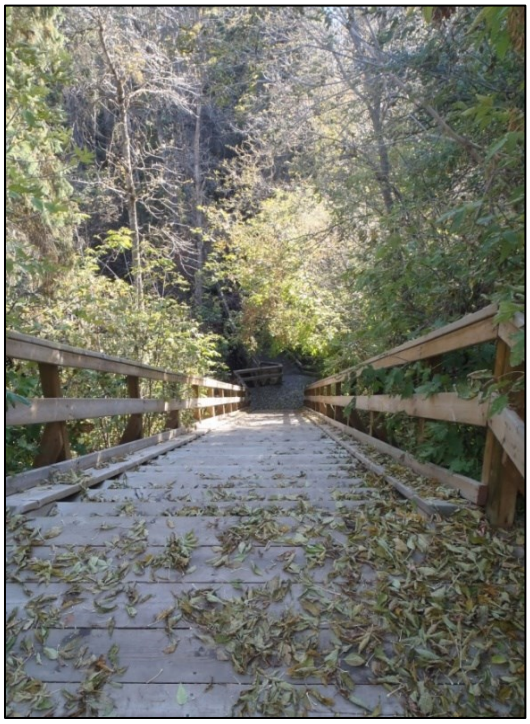
Particular features in the parks, such as physically challenging topography, added value for participants in regards to physical activity. In the ravine and river valley parks participants commented on how the steep and rugged terrain enhanced their physical activity.

Every time I get to the top of the hill, I go: "okay, I did it." And for me that's my, I'm going to do this hill as long as I can, so it's my Okay, I Did It Hill and I'll keep challenging myself for as long as I can, until I can't do that hill anymore. So, that is kind of what that one [picture] was all about—more I can do it or I will continue to do it. Because when you get old you wonder how long you will be able to hike these hills. (Hilary, WC-S)

Picture 4.12: Hilary WC-S "it's my 'Okay, I did it' hill"

For others, the stairs built in many places to ease access on steep terrain become tools for enhancing activity.

I look forward to my stairs . . . you just get these lungfuls of clean air, it smells like aspen or Kinnaird Ravine. Physically I feel different after I've run stairs here than if I was to run stairs in the gym. I just do and I infinitely prefer this. (Jane, KR-W)



Picture 4.13: Jane KR-W "I look forward to my stairs"

Some participants noted how the presence of obstacles such as protruding tree roots or fallen branches added an element of interest to physical activity because they needed to pay attention and be present in the moment to navigate the terrain.

So, this is a trail going down into the natural area and you sort of can tell, but not really, that it's a bit of an incline with the tree roots and it's pretty – picturesque – but the thing for me was it's a little bit more than walking on a sidewalk; it's not manicured, there's a little bit of you've got to watch your footing, so there's a bit of a challenge in that sense of not [being] in a manicured, built-up area. (Frances, RS-S)

Picture 4.14: Frances RS-S "a bit of a challenge"

4.3.2. Reducing stress and inducing relaxation

Participants reported that physical activity in the natural areas was a vital conduit for releasing stress and promoting positive benefits such as relaxation, which influenced both their physical and mental well-being. Both Pepper (DF-S) and Sarah (RS-W) make this connection plain:

> I was thinking about the physical aspect of it and typically we think of . . . physical benefits from . . . exercising or . . . playing a sport or doing exercises, whatever. But when you go into the forest, for me, that's when your mind, for me my mind, especially when you are in there just doing a walk through the forest and your mind calms down, well the body tags along with the mind, so that is that mind-body interconnection . . . I'm sure if I had a blood pressure monitor, I'm sure my blood pressure would be down, my heart rate is probably going down, you know, that kind of stuff. (Pepper, DF-S)

> It's very relaxing too, I find. Sometimes I am plowing through the ravine, going really hardcore, running, jogging, doing my thing just because I've had such a frustrating day at work, and by the time I get out I am absolutely physically exhausted, but feel so calm and relaxed because that is what I needed. (Sarah, RS-W)

For a few participants, the stress reduction and sense of relaxation began as soon as they entered the natural area and the space closed in around them.

> They [natural areas] definitely sort of reduce stress, you know, they reduce my stress. If I am feeling at all stressed or if I just kind of want a place to think then my first instinct would be to go sit in the woods. Go for a walk in the woods. . . I love the smell of it, just being and breathing the nice air. Um, yes, I know anytime I walk in Dunluce . . . it's just like once I am in an area like, it's like [huge sigh]. (Mubula, DF-S)

Others talked about how activity in the fresh air refreshed and invigorated them, giving them more energy as it does for Zoe:

> Well, I feel rejuvenated, 'cause sometimes I'm so tired, like, oh, I don't want to get up, I just want to sleep and I'm, no, you know what? I always feel better after a walk, so I'll go and I'll either run or walk, whatever, bike, and afterwards I just feel so much more energized and I could do so much more. So, I guess it's a natural way for me to re-energize my body and my mind. (Zoe, RS-S)

4.3.3. Emotional and spiritual health

Connecting to self and spirit were some of the most vital and meaningful experiences that participants had in natural areas. These experiences helped people connect with what was most important in their lives and align themselves with their values. As participants' physical health was aided by elements of the natural area such as topography, their emotional and spiritual well-being was enhanced by qualities such as calm, peace, and serenity in the area and the ability to access solitude. Participants saw the natural area parks as a place to think or not think, to solve problems or not solve problems, to reflect on life or to get away from it. The peace and quiet of the parks helped induce peace and calm in the participants, which for some prompted reflection.

> It's my peaceful time. It's my reflective time. And I find it much easier to be reflective in nature. It just seems to bring out a sense of tranquility and peacefulness that I don't think walking around the neighbourhood does. That doesn't do the same thing for me. I just enjoy being in nature and that kind of helps me connect with myself as much as anything else. (Patricia, WC-W)

Often within one sentence, they would link the visual beauty and the quiet in the parks with the feelings of tranquility engendered by it. As George (WC-S) says, *"it looks wild, and yet very tranquil. It is just a very, very peaceful setting for me."* The sensory

elements such as the reflections on the water, the pattern of leaves, the chirping of birds or the sound of running water contributed to the sense of peace and serenity.

But again it has so many of the elements of nature and serenity, calm and . . . in this particular picture you can see the clouds are reflected a little bit in the water. It's a pretty sight and it captures a lot of umm, nature. (Buck, WC-S)

Picture 4.15: Buck WC-S "it's a pretty sight"

Around half of the participants talked about the ability to access solitude as a significant aspect of their experiences in natural areas. For some participants, the solitude had a way of creating space to sort through their thoughts.

> Well, as I kind of look back at them [the pictures] and even on that day there was a certain solitude to it, there really wasn't anybody else around for the day and I suspect that's partly why I enjoy that. I grew up in a small town and on the farm, and so you don't get to capture those moments every day in the city life, so that was part of it. It was just a moment to be by yourself and be quiet. (Preston, HW-S)

> It nevertheless feels that you are quite separate from the rest of the neighbourhood and a certain isolation in a positive sense it can have if you are alone, it can have solitude, good for contemplating, and you just think this is really neat to have this in the middle of a suburb. (Clyde, DF-S)

Many participants used their visits to nearby natural areas as opportunities to connect with themselves. Once inside the natural area, their focus shifted from the outside world to the often-neglected inner self. This was evident in narratives from both younger and older participants.

> It gives me a chance to do some breathing and slow down and collect my thoughts, clear my head. I think the everyday world is in a lot of ways too busy and that's what a natural area is good for, it gives you a chance to just collect your

> thoughts and just slow down a little bit and find out who we are. We are always so busy; we never take the time to find out who we actually are in life. Gotta do this, gotta do that. (Travis, WC-W)

Participants especially said that they use the natural area parks as places to work out life situations and reflect—either consciously or unconsciously—on their life. Some went to the park deliberately to think about and work out problems, while for others it was a place to put thoughts about issues on hold and return to them later from new perspectives. People spoke of being able to clear their thoughts or minds, connect to themselves, and give them a chance to focus on important matters. Ziggy's (KR-S) comment is representative:

> I think I become connected to a different part of myself or to something that is more organic or real. . . . I appreciate how after a walk I can think through things more clearly, that I am more calmer, how I can, yeah – it is a bit spiritual and I guess in some ways that is what makes it so difficult to explain, like, I guess you do feel part of something larger than yourself when you are out in nature and that's always a comforting feeling, for me at least. (Ziggy, KR-S)

Thomas's (RS-W) comment reinforces and extends this idea, noting that in taking this time to connect to himself, he becomes a better person.

> I feel that I am a better person for being, for just getting back to my roots type of thing. . . . I just feel – I am in a job where I tell people what to do all day and I just feel like it's just nice to relax and kind of focus on me, I guess is the best way to look at it. I am not worried about people; I am worried about me when I am there. (Thomas, RS-W)

Drea (RS-W) expressed herself in similar terms, *"and for me it [being in natural areas] enriches my life. It allows me to be a better mom, better wife, a better friend, a better puppy owner, better employee. It just betters me all around. It's important."*

Some participants found in the natural world a 'hook' or metaphor for stepping back and seeing the bigger picture. For instance, decaying logs might make them think about the cycle of life and their place in that cycle; paths curving into the distance might be a prompt to think about the unexpected twists and turns of their own life or watching the sun breaking through clouds reminded them to hope.

I had decided to walk out anyway and just having the sun trying to shine through the clouds no matter what; it gave me a positive sense that there is always light at the end of the tunnel no matter what. So, even though it was dark and cloudy there was still a sense of if you are willing to look up or look for it you will still see hope and you will still see light. (Elizabeth, RS-S)

Picture 4.16: Elizabeth RS-S "the sun trying to shine through the clouds no matter what"

For many participants there was a spiritual component to these reflective experiences as people pondered their place in the world. Some participants spoke of gaining a different, larger perspective.

> I feel quieter. I feel that I am very much at peace with the world. I feel that I am just a small entity within the world and anything I may have experienced that day or that week that seems bigger than . . . it's really much smaller. It's not that important in the big scheme of things. And it just helps me bring myself into feeling that I am okay with where I am at in this moment and really lucky to be a person who really enjoys living life. And natural areas always bring that to me and how much of a gift life is. Period. (David, WC-S)

> But there are other days where I can just stroll for an hour and just leisurely walk and be alone with my thoughts and just come out with answers or not have any answers at all and just totally be okay with that. I don't know. It's very spiritual, it's very peaceful. It just adds a lot to my life, personally. It's part of my lifestyle. It's part of who I am and I don't think I could live in a city that didn't have a natural park of any sort. (Sarah, RS-W)

For some participants the spiritual connections they felt were to larger forces than themselves whether they expressed that as to the universe, to God, or to nature itself. Qualities of the natural area helped create the conditions that these connections were forged in. Participants variously identified beauty, elegance, intricacy, or the living whole of the natural area to be what felt spiritual for them and helped create those connections.

> Yeah, I don't think of it as being religious. I think of it as spiritual, for me it's because of the beauty involved and the intricacies of nature and the inter-relationships within nature; to me that's very spiritual. (Liz, HW-S)

> And then from a spiritual point of view, my spirituality is highly centred on the awe and mystery I have for nature and all its beauty and elegance and for the universe as a whole, so that's where I said the forest for me is like a walking meditation although not everything I do in the forest is a meditation, but I can go up there and feel very connected to a really big thing. (Pepper, DF-S)

Others saw the purposeful design of a Creator in nature:

> And, you know, if you wanted to consider it spiritually, if you have any religious feelings and want to think about it spiritually: God created [it] and it's something to admire, every little thing in there is beautiful and it is different from what we, what man creates, and so you look at it and say oh, - and when you go there early, early in the spring when things are just starting and it looks dead and there's a little bit of leaf here and we don't go in there and do anything, but it grows, and it develops its beauty. We don't go in there; we don't water it; we don't do anything. It just develops and we can watch that, so from a spirituality point of view you could look at that. So, it's good in all ways. (Hobbes, DF-W)

Within that design they saw their place in the whole:

> I enjoy dance and I see a connection between human dance and the movement of the trees and the bushes and the leaves in a natural park setting. So, for me it's nature's dance is what I am seeing and in a spiritual sense there is purpose to what's going on and it's happening and it's part of a design, um, and I am just one little tiny speck in that broader design of what is being choreographed. But I'm there and I am a part of it and that makes me feel good, so that basically, I think affects my mental health in a positive way. (David, WC-S)

> Well, I would call it creation. So, it's a prayerful place for me, just to be reminded that for me I believe there is a Creator and we were created with a plan and a purpose, so that's what puts things in perspective and that we're not, we're not alone in this world. (Frances, RS-S)

Some participants felt a deep connection to a higher power while in the natural area and some would go deliberately to commune with God.

> That's my alone time. . . it's kind of my spiritual time as well. I have a, there's a bridge, not too far from where you go down the hill there and I call it my Church of the Whispering Pines, because that's where I go to commune with God and I

> think that's as important to me as just the walking through and having that peaceful calm. That's my connection. (Patricia, WC-W)

> For me, it's both a physical and a spiritual – as I mentioned a couple of times before – be still and know God. You can sit in a natural spot and embody that. That's when he speaks the loudest to me, is when you are in that moment, you are in his creation, so for me it's spiritual as much as anything. (Preston, HW-S)

Other participants felt spiritually connected to the wider world or universe through their time in nature.

> So, okay . . . nature is made by God and I appreciate that and I feel that makes me feel the best and it helps me connect spiritually to the rest of the world. Like, we can't separate ourselves from nature; we are part of it, right. (Zoe, RS-S)

> But when you get out [of the ravine], whether it's an hour leisure walk or you are working out or training for something or in there taking photos, you walk out of there really balanced and grounded and just kind of really spiritually connected with the universe as a whole. (Sarah, RS-W)

It is also important to note that a few participants said they would not consider their particular park as a place they would go for spiritual refreshment. Gavin hesitated about attributing his feelings of spiritual connection to experiences in Dunluce Forest in particular.

> Um, I don't know that I feel so much this way about Dunluce Forest, but, ah, maybe I do: it's a spiritual place as well, where you can really connect with, for me it's a place where I feel connected to God. I feel recharged, emotionally, physically, and spiritually after time in a natural area. (Gavin, DF-S)

Pamela made sure to mention that, though in general she might find natural places spiritual, Hodgson Wetland would not be a place she would go to *"talk to her Maker"*. This seemed related to feelings she had of being exposed there and a lack of privacy. Clyde also stated that, although active in his faith, he did not find natural areas particularly spiritual but that in places where the trees are larger he might feel more of that aspect.

4.3.4. Connecting with others

While access to solitude was a valued aspect of the natural areas, many people also shared their visits with various companions. These shared experiences enriched their time there and contributed to stronger connections. A number of participants discussed how being together in the natural area enhanced connections to whomever they were with—whether that was children, grandchildren, partners, friends, or parents. They valued it as a place away from distractions where the surroundings facilitated social interactions.

> Yeah, it's just a really good way to spend time together because I think we [Thomas and his wife] are both at our best and we just both kind of relax and not let the stress of everyday life kind of compound or hide what we are thinking, it's just much more free-flowing. (Thomas, RS-W)

> My husband and I go out oftentimes and walk so we yammer away. So there's none of this going on [indicating cellphone]. You don't have your cellphone, your computer or any of those other distractions, so it's a real social time. (Emmy, KR-W)

For some participants, the surroundings themselves became the focus of sharing and conversation.

> My husband and I will connect while we are outdoors and I took my mom on this walk and it was kind of nice really sharing with her the space and beauty and what we saw or what we appreciated. You get a different picture into someone, what they appreciate too, so that was kind of cool. (Ziggy, KR-S)

Some participants emphasized the importance of the natural area parks as a place for children to connect to nature and to explore and experience it in an unstructured way.

I really wanted to capture the importance of introducing children to nature. . . I get to see his excitement as he discovers something new. It's a form of learning that you can't necessarily teach. So, it's an important kind of learning, getting experience with wildlife and nature. And I think it is often lacking. . . . I think that when my kids go out in nature and they observe things that are very, very different from us, it teaches them to be more compassionate. (Bethany, WC-S)

Picture 4.17: Bethany WC-S "it teaches them to be more compassionate"

Picture 4.18: Liz HW-S "healthy for them to be in touch with the environment"

But it's the kids by themselves that are in that eight to ten range that are the most interesting, because they are there because they want to come there. . . . They are looking at things and, say, catching the frogs or they've got their hands in the water and looking at things and I think that is good, that is healthy for them to be in touch with the environment and see what's there and it's in their backyard. (Liz, HW-S)

A few participants found walking in the area activated many memories of time spent with other people in the same space, especially memories of children when they were younger.

> It is the paths and going down there I see my family even if they are not with me, you have the memories. Like, I can remember or I see my . . . little granddaughter running down there with her little hair flying and things like that. (Hilary, WC-S)

> Twenty-five years walking through the grove, it does remind me of lots of walks through the grove with the children, with the small dog we had when they were young and now with our current dog. Now I remember one of the few times, I think only once, I walked with my dad down that path and now walking with my granddaughter down that path, so it's got lots of memories. (Clyde, DF-S)

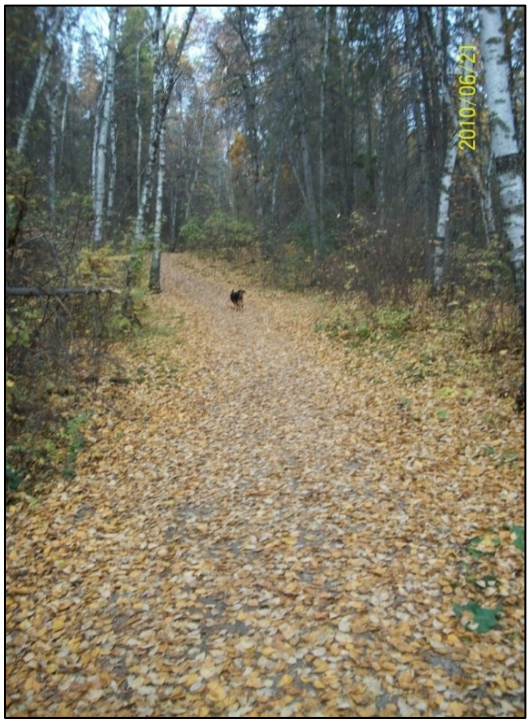
Those participants who were dog owners talked about the natural parks as places where their pets could be themselves and have experiences sniffing and playing that would be unavailable to them on ordinary walks through a neighbourhood. They appreciated that their pets could be in an environment that was more natural for them and provided them with opportunities to express their essential nature.

> And yes we're on the trail and that's my dog Charlie that I love to take on these trips with us, because I feel like it's very important for him and his health and if I feel like Charlie is healthy then I feel good about it. Um, yeah, he gets to be off leash and there's lots of exciting smells and sounds and little things for him to chase sometimes or dig in. (Meredith, RS-W)

Picture 4.19: Meredith RS-W "there's lots of exciting smells and sounds"

Participants emphasized the joy and pleasure they received from being in a space where their dogs were able to explore and run as much as they wanted. This contributed to their health and well-being because it increased their happiness and they felt good for bringing joy to a beloved companion.

He's just so happy. He is just a maniac when we take him to the river valley. He's just like running towards me happily and then – he seems pretty chill now, but when he's in the river valley with all the wide open spaces, he just goes insane. Like in this one he is just running and he'll go in and out of the trees all the time. I actually really like this shot. I really love this shot actually. He's like – yeah. [laughter] . . . He does get a lot out of it. And I also get a lot of joy out of watching him interact with his environment. It's really quite fun. (Ziggy, KR-S)



Picture 4.20: Ziggy KR-S "I get a lot of joy out of watching him"

Many participants characterized community connections as an important dimension of health and felt strongly that interactions in their local natural area enhanced their relationships to their community. Some participants appreciated that the parks were shared spaces where one could have small friendly exchanges with other people.

> And other times you meet people and people are, I think, more apt to be friendly and speak to you because you are in the forest, because there is something to do with – it's nature, and you are part of nature, and they are part of nature, and they will make comments about 'what a beautiful day it is today' and someone will say 'it smells so different when you are in here', the aroma, and you know comments like that show that they appreciate it. (Hobbes, DF-W)

Sarah noted the ease and naturalness of these exchanges with strangers.

> And that's where you actually meet people especially when one dog meets another dog because they are always stopping to sniff each other, it's like "hi" and it sets off a conversation that feels so natural; it's not forced or awkward in any way and it's just a, you know, "have a nice day" "take it easy" and then you'll see them a couple of days down the road and it's like "oh, hey, how's it going?" You just get to talking, and it is so, so effortless. (Sarah, RS-W)

Participants felt connected to their community through these small chance meetings with others who were often neighbours. Such meetings created a connectedness with others and fostered a sense of community.

> I think in the sense where you have those kind of little chats, it's again that connectedness with community, because this park tends to be more local people so there is that sense then of the community around. (Frances, RS-S)

> I think it creates a community health, because you get to know people more and when you get to know people more there's more connections, more concern about people around you and about your neighbourhood in general. (Gavin, DF-S)

Some of the built features in the natural areas help create connections to others using the space. David comments on how the gentle upward slope of a bridge in Whitemud Creek Ravine creates a natural meeting point at the top:

> I have no idea how many chats I've had on this bridge, but it's been a lot of them, because people stop and then you stop and you're both leaning over the rail in the same way and if you turned to that person you've got a conversation going; nine times out of ten . . .and it is maybe something about the water or it may be something about Whitemud [Creek] or something about the weather. It could be anything. (David, WC-S)

Picture 4.21: David WC-S "I have no idea how many chats I've had on this bridge"

A number of participants also felt connections to others they had never met, through seeing evidence that others were taking care of the space and its inhabitants by doing things like scattering bird seed or putting up and stocking bird feeders. For some participants, other un-met patrons seemed to reach out through space and time to connect. For instance, one of Jane's (KR-W) fellow patrons had put up a helpful notice about the life and habits of chickadees.

> But there's just this one and it's about chickadees . . . this appeared this fall, at the top of the stairwells, there is nothing else there; it's paper, it's not laminated; it's paper. I don't know who would have put that there, but I saw it and I just, like, my heart just went aww. I love that. . . . When I see this it reminds me of the fact that when I do walk in there, there are often other folks walking. A lot of people use that trail, but it's not a busy trail . . . so you are in an urban space, but you feel like you are in this space of people who care about the same thing you do or are getting a benefit from that space like I am, so it feels like a community. And the fact that somebody put that up there – nobody has ripped it down. (Jane, KR-W)

Picture 4.22: Jane KR-W "in this space of people who care"

Adam (WC-W) liked seeing the benches scattered throughout some of the natural areas that are donated in someone's memory.

> Those benches are a visual reminder that people have connections to the natural areas and they are leaving a legacy for others to sit and enjoy and in fact I did sit on that bench and sort of had a rest while I looked through the pictures, so to me that's a connection that people leave. (Adam, WC-W)

4.3.5. Interconnections

Participants often had a holistic view of how the natural areas influenced their health. When asked what dimension of their health (physical, mental, emotional, social, or spiritual) was most influenced by the natural area, most participants either replied 'all of the above' and talked about each aspect of health as part of the whole or talked about a combination such as physical *and* mental including how one would influence others.

> You can't find therapy this cheap because when you walk out you feel physically exhausted, mentally exhausted, but spiritually <u>full</u> of life at the same time and that's such a great balance for myself, personally. Yeah, you come out – you go in

> with the heavy weight of the day on your mind and you come out with a ahhhh [deep sigh] it all doesn't matter. (Sarah, RS-W)

Some talked about how they used the space differently on different days depending on their needs.

> And I think all those aspects of well-being are all tied in together, right, because if your mental is not healthy well that's going to affect your physical, and so I think nature gives me all of that. The social time whether I am walking with a friend, walking with the kids, walking with the dog, or walking with my mom. Just whoever, that gives me that. The mental that just helps me, if I am walking alone it gives me an opportunity to think, right, because it is just so quiet, so I think it gives me all of that. I can't see that it gives me one form of health and wellness more than another. I think it's all in balance and I think sometimes I can use nature sometimes more for my social well-being, sometimes more for my physical, whether I am going to do the stairs a lot or run on the paths and sometimes it will be my mental, so I guess I can use the same space for my needs at that time. (Zoe, RS-S)

Thus, the space is flexible not only in how different people use it—a spectrum from recreation to meditation—but it is also multi-dimensional in its potential to be experienced differently on an individual basis as well.

4.4. Aspects that Detract from Visits

This section presents the results that relate to perceived negative aspects of the space. Factors that detracted from health-promoting experiences while in the natural areas included concerns around safety and transgressions such as litter, graffiti, or homeless camps.

4.4.1. Safety concerns

Study participants talked about safety issues in natural area parks from both positive and negative perspectives. A few participants perceived the natural areas as safe spaces away from traffic or traffic pollution. Several remarked that aspects such as paths curving away into enclosing trees could feel dark and menacing because of not knowing what might be concealed there. Most participants did not greatly worry about dangers in the natural areas. For the people who were worried about personal safety, they were

generally worried about being the victim of an attack from people or animals. A few participants noted nervousness about the resident coyote populations.

> The coyotes are a little bit nerve-wracking just because they are, right. I have a relatively small dog so I have to watch where she's going and stuff so especially at this time of year when it's dark and their howl is just so terrifying. There is something innate in that, I don't know, yeah, but all the other animals are fine, just the coyotes are a little nerve-wracking. (Emmy, KR-W)

But more often, people stated that if they felt unsafe, it was not the animals that worried them, but other people.

> Um, I probably wouldn't walk down there in the early . . . morning or the late evening if I didn't have the big dog. And it's not the animals I would worry about so much as sometimes the people. (Hilary, WC-S)

The reputation of the area also influenced perceptions of safety. Pepper noted how stories about Dunluce Forest tended to circulate in the community.

> So, in the past there were bush parties in the forest which gave a negative perception. There were fires, beer and liquor bottles, syringes, and then this myth of a murder. All this caused the forest to be looked at through a lens of crime and safety and not as a rich community asset. (Pepper, DF-S)

There was often a thread in participant narratives of ways in which they mitigated dangers or allayed their fears. For example, people said they would not walk through isolated paths by themselves, or they take a dog with them because it makes them feel safer. The main trail through Dunluce Forest is lighted and nearly all the participants from that area appreciated the resultant feeling of safety when walking later in the evening. In addition, for some there was a sense of community that likely contributed to a greater feeling of safety. As Emmy talks about below, familiarity with the area, knowing that you are likely to meet people that you know, and understanding which paths are likely to be safe or unsafe because of knowing where the coyotes have their dens, would give people greater confidence and freedom of movement.

> Where I walk now . . . the same people walk at the same time every day, right, so I never feel insecure in that area because I know I could run into [name of person] or run into [name of person] or whoever else is walking their dogs at that time, so then you know we'll stop and have a chat, but the other areas I don't know the

> area and I don't know if the coyotes are going to be at that spot or any of that kind of stuff. (Emmy, KR-W)

One of the participants from Dunluce Forest beautifully summed up the tension between feelings of uneasiness in the space and the reality of most park encounters:

> And everyone's friendly when they walk along that trail. It's also kind of scary, my kids have been nervous going through there. The forest is thick on either side and you don't really know what's up ahead, you can't see anybody, or anything else, no buildings around you in that area; you're away from the main path, so when you meet somebody it is a relief that they're friendly, but everyone is always friendly there. (Gavin, DF-S)

A couple of participants noted specifically that though they might feel unsafe in the park—either through concerns about slips and falls or being attacked—they would not want the park changed in ways that would make it feel safer at the expense of their valued experience of being surrounded by nature.

> N: But for whatever reason I keep feeling like somebody could attack me or something down there. So, it's a bit of a, I don't know, I guess it's a trade-off I am willing to make: to feel a little bit uncomfortable, but at the same time I get so much enjoyment out of it that it makes it worth it.
>
> A: Right, so what it would take to make it feel comfortable would take away from the things that you like.
>
> N: Exactly. Exactly. Yeah, yeah, I wouldn't want some security guard patrolling the dog park, you know, that would just make me feel that I was under surveillance or – and part of what I enjoy so much is you can go out there and hear nothing, like that's really something that you can't do even right here, right, I'm five steps from the river valley and it's amazing the difference . . . so I do, I am willing to do the trade-off. Yeah. (Nancy, RS-W)

4.4.2. Transgressions

Issues of safety aside, there were aspects of human interference in or near the natural areas that people disliked. Some of these were evidence of lack of respect from others sharing the space. Some participants spoke of feeling angry or annoyed when seeing incivilities such as litter, dog messes, or graffiti in natural areas – the opposite of the valued experiences of peace and calm that the space usually engendered for them.

> I also feel very frustrated when I see litter or where people haven't picked up after their dog or these squatter places that look horrible and that's a problem. Litter

> can be bad, although relatively speaking it's not, every time I see litter anywhere I get upset, but particularly in a natural area, it really bothers me. (Gavin, DF-S)

At the same time a few participants pointed out that there was relatively little in the way of garbage.

> You have this wonderful wildlife, so here's the wild strawberries and whatnot and there's a bit of garbage along the way, but realistically there is very little. People are generally pretty good – either that or the City is absolutely wonderful about cleaning up after it. (Donna, WC-S)

For some participants there were also built environment features they felt detracted from the natural feel of the area or made the city an inescapable reality even while surrounded by nature. Features such as retaining walls and amenity buildings that did not fit in with the surroundings, and adjacent electrical towers were all mentioned. Whitemud Creek Ravine has a trestle bridge for an oil pipeline running across it and a few participants from that area identified it as an intrusion. Hodgson Wetland is surrounded by houses and participants from that area noted how the houses should have been set further back and for Pamela (HW-W) their closeness and the lack of tree cover around the marsh contributed to a feeling of being exposed and potentially watched.

> They have planted trees. They've tried to plant trees. But some of these little bushes when the water is high, it kills them. And eventually these will grow up. It's just now that it's – but see how close the houses are and they are all just looking at you, you feel like you're being – well, you're probably not, but you feel little eyes on you. (Pamela, HW-W)

Picture 4.23: Pamela HW-W "see how close the houses are"

Pamela went on to say that because of feeling so exposed, the wetland would never be a place that she would go to connect with herself and her thoughts the way she might in

some of the ravine parks that gave her a sense of solitude and a safe space for contemplation.

Some participants talked about the issue of homeless people living in the natural area parks. Seeing evidence of homeless camps both detracts from the experience of being in nature and makes people feel unsafe. It should be noted that two of the parks studied would be less likely to attract homeless persons: Hodgson Wetland because of its lack of tree cover and little ground space for people to camp; and Whitemud Creek Ravine because it is much further away from the city centre, the area where many homeless residents go for services. A few participants noted that although they felt uneasy about the presence of homeless people, they recognized that their fears were probably groundless.

> It's the thought of people down there and I even think that's a bit irrational because we have encountered people who are living in the bush down there, you know, they've got their tents set up and whatever. They want nothing to do with me and I know that. I know they'll see me and turn the other way. They don't want to be near me. (Nancy, RS-W)

Other participants found themselves musing on the human condition and using the presence of homeless people as an opportunity to be grateful for their own circumstances. One person, Ziggy (KR-S), spoke of the river valley as a *"safe place"* for people who are experiencing strife in their lives and have nowhere to go.

It's probably only about 20 feet in from the manicured area of the walkway and the shopping cart is full of clothes and it reminds me that for too many people in this city this represents their worldly possessions. People are living in this natural area, not necessarily because they want to, but because they have no other option at this time. So, yeah, it's kind of sad. . . it makes you kind of disappointed that there is somebody that is what we would call destitute and so close to our comfortable surroundings here. (Clyde, DF-S)

Picture 4.24: Clyde DF-S "a shopping cart full of clothes"

However, while being sympathetic to the circumstances that might have forced someone into calling a natural area their home, they felt intense annoyance over the amount of garbage and debris that homeless camps contribute to natural areas.

> Homelessness is a problem, but amongst that community there is a bit of a disorder of repeatedly bringing household waste for no reason at all other than to amass a pile in the ravine and it's happened one, or two or three times over the time we've been there when this has happened. And literally it grows into the size of a landfill. . . (Del, KR-W)

> And the amount of garbage that the homeless leave behind is <u>astounding</u>. (Emmy, KR-W)

4.5. Aspects that May Prevent Visits

This group of participants was highly motivated to visit the natural area parks, and adverse climactic conditions, in particular winter weather, were the only aspect (outside personal reasons) that people identified as something that prevented visits. Interestingly, there were no comments on summer conditions, such as mosquitos, as inhibiting factors, although mosquitoes in Edmonton can frequently make outside summer activities unpleasant.

4.5.1. Winter makes it harder to visit

While most participants in this study still visited during winter, uncontrollable factors such as snow, ice, intense cold, and early darkness often curtailed their visits. In Edmonton, winter days are short and darkness arrives early, restricting the ability of many people to use the park during daylight hours, especially if they are at work during the day.

> Then seasonally when it's dark late afternoon that limits the amount I can go down there. In the summer, spring, fall, it's easy to get there, but when it's dark by four o'clock it's hard sometimes to actually get down there. (Frances, RS-S)

For some of the participants, the cold and ice and consequent danger of slips or falls limited where they ventured or if they visited at all.

> I enjoy that natural aspect whether that is covered with snow or it's not and sometimes when it's covered with snow it's treacherous and as I get older I realize I could fall in here and nobody would ever know. If nobody came along for a couple of days that might not be a good thing, so it's a safety concern as I've gotten older. (David, WC-S)

A few participants, however, noted the opposite about the darkness and ice. They perceived the park as less icy than the streets and said that as long as there was snow on the ground, its reflection enhances overall lighting. To them the natural area seemed more lit up during winter nights than during summer ones.

> The one thing I like about the wintertime is even though it is later at night the pathways light up, because you have the moon glaring on the snow and the snow is just shining bright, so I can go out later. (Sarah, RS-W)

This ability of the snow to brighten the area allowed participants like Sarah to extend the time they were able to spend in the parks during the winter.

4.6. Winter Experiences

In many ways, the types of beneficial experiences participants had in natural area parks in the winter were very similar to summer experiences. Winter visits could provide greater access to solitude since fewer people visit in winter. Many of the participants visited year round and appreciated seeing the parks changing through the different

seasons. The aspects of the natural areas the people particularly enjoyed in the summer—the beauty, the fresh air, and the quiet—were present in different ways during the winter. These sensory experiences appeared heightened during winter visits: the silence was deeper, the solitude more pronounced, the air fresher and crisper, and the beauty more subtle and unadorned.

4.6.1. Winter sensory elements

Winter provided a type of natural beauty that participants thought was unexpected and often stark. Participants brought pictures of and commented on the beauty of trees stripped bare of leaves or the vivid colour of red berries against a visual field of white snow.

I enjoyed it just because you get the skeleton trees and then you get the evergreen trees and that's actually the river and I like it because even though it's snow it kind of looks like waves. (Drea, RS-W)

Picture 4.25: Drea RS-W "the skeleton trees"

Picture 4.26: Patricia WR-W "I don't have to have all that colour to make me appreciate the beauty"

And that one just comes back to what I was saying that the whole idea in the winter is the snow kind of muffles everything, but there are some flashes of colour and I choose this one because of the red berries. . . I love the colour, but I don't have to have all that colour to make me appreciate just the beauty of the ravine. (Patricia, WC-W)

Winter beauty frequently embodied a fleeting quality that if not experienced in that moment or small space of time might not come again that season.

> During the winter I will be out taking pictures. If you get a hoarfrost – I run out to take pictures of hoarfrost – that's something special that sort of beautifies the place and if you don't get it at the right time, you've lost it. (Hobbes, DF-W)

> In the wintertime, part of my favorite about being on the bridge is watching those ice floes start. They look like little flowers . . . and they join like circles and they look like little flowers floating down the river. They are so beautiful and you only get them for a few days and then it is totally solid and snow-covered, but geez, it's beautiful. (Nancy, RS-W)

Emmy also commented on the beginning of the river ice, and for her its sound is important. She describes it as *"a quiet little schwwwwsh kind of a sound"* as the ice pods gently hit other ice pods.

> I forget what they call the ice pods that are coming down the river . . . So it makes this great sound when the ice kind of hits the side and it just makes this really amazing sound and it is so beautiful just to stand there and just watch the river flow and then these ice pods coming down the river. (Emmy, KR-W)

Participants described the winter air as especially fresh and invigorating.

> But in the wintertime there's a crispness, a freshness in the air that one doesn't find in the summertime because even early mornings when you are running it's kind of warm, whereas in the winter when you have that intake of breath there's like clean air is washing over you. Yeah, so that's the one difference I find in the winter. (Adam, WC-W)

4.6.2. Snow

Snow, of course, was an important part of winter experiences. Some of the winter participants made a point of going out directly after a snowfall to take pictures. Snow has the quality of simultaneously both concealing and revealing aspects of whatever it covers. It can cover over and beautify the often ugly phase of winter after the leaves are gone, and as Martin (WC-W) notes even the most ordinary of trees *"take on a new beauty when they're piled with snow."* At the same time, snow reveals patterns in ordinary places that we might not notice in the summer.

Picture 4.27: Jane KR-W "you can see the patterns"

> Why it caught my eye . . . they [the fungi] aren't that different coloured but the snow caught on them so you can see that pattern there that you would never have seen, you see there's a lot of brush in the background, so this is a very busy scene in the summer, but it all focuses down onto that in the winter so it really catches your eye and the patterns of them and just the soft, the warm browns and greys and greens. They are very beautiful. (Jane, KR-W)

As Jane touches on above, in winter, there can be a narrowing of attention onto details that are concealed or invisible in the summer: the texture of bark and colours that are

more muted and subtle. Fresh snow provides a purity of scene in contrast to city streets that are often very dirty with sand and gravel during the wintertime. The very purity and whiteness of snow provides a background that enhances other aspects of nature so they stand out as if in relief.

> Everything is covered in white and you get these odd bits of colour. Whereas in spring and fall and summer there is such a variety of colour and I think in the winter you kind of notice it more if there is some colour, like the berries on the trees or a leaf sitting on the snow. . . . You don't have that profusion of colour that you do in the other seasons and I think . . . it is just the purity of that natural area with a covering of snow, yeah. Purity is the word I would use to describe it. (Patricia, WC-W)

The muffling effects of heavy snow intensified the sense of quiet and peace that people found in the natural areas.

> There was something about that day where it was – we were so close to the Capilano Bridge [a busy freeway] – but it was dead quiet. It felt like the city, like someone had turned the switch off on the city and it was peaceful. All I could hear was my breathing, my footsteps, and the smell of wet snow. It was absolutely beautiful and [had] such calmness about it. (Sarah, RS-W)

Picture 4.28: Sarah RS-W "like someone had turned off the switch on the city"

Sarah (RS-W) and Jane (KR-W) puzzled over describing the smell of snow, but were adamant that snow itself has a smell.

> But everything was so heavy, like that heavy wet snow and it smelled amazing. It's really weird that snow has that kind of an earthy smell to it still, even though it's just like cold water. (Sarah, RS-W)

> Even in the winter I guess it is a mossy smell, very damp and blue and green. That's the only words I have for it. And clean. It is just clean. It's clean! (Jane, KR-W)

Snow allowed people to see evidence of the other creatures that share the space with them.

Picture 4.29: Martin WC-W "I am always delighted to see the animal trails"

> I always like it when the final creek is frozen, because I am always delighted to see the animal trails, tracks on the [creek] – obviously a highway once it freezes up. And although you know that small mammals and even deer are down there you don't often see them or even their traces in the summertime, but in winter finally you get to sort of see these trails all over the place. (Martin, WC-W)

> It's like a whole community of wildlife all over the river and it's just so neat to see, like this other world exists around us and we don't often get to see it. And then when you see the tracks you know that they are around. It is just so neat. (Nancy, RS-W)

Buck talked about how snow can reveal more than just animal trails, but also some of nature's processes usually hidden from sight.

> Snow also shows you things that you don't see in the regular season, for example, . . . you can see the conflict between nature and nature where you might find the remains of a grouse or a deer in some cases where you've had a coyote or something that has tracked down one of those, so you see things you don't normally see in the summer months. You see actually a lot more. (Buck, WC-S)

A fall of new fresh snow can provoke a sense of fun and adventure. Participants talked about the allure of unbroken snow and enjoying being the first or only people to be there. Thomas (RS-W) says, *"it's kind of nice to frolic through puffy snow. It sounds very childish, but it's true. I guess being a skier you always crave that powder. It's always*

nice to make first tracks." Hilary and her husband also took advantage of new snow to have a bit of fun:

> It's actually straight up and down practically [the ravine side]. And my husband and I think it's so much fun [pause] my husband and I like to, um, when it freshly snows – we slide down that hill. [laughter] We try to beat the kids. It's actually hard on your rear end. We always think we are pretty young when we do that. So the ravine is keeping us young too. (Hilary, WC-S)

In terms of physical activity, snow gave participants additional options such as skiing or snowshoeing in addition to walking or running. Participants mentioned the feeling of achievement they had from outdoors physical activity (discussed in Section 4.3.2), but to this was added a feeling of being unique for taking advantage of the area while others were huddled indoors. Del (KR-W) states, *"I enjoy winter. I think I have the gear for it and so there's always that sense of 'I did it' and knowing that it's not everybody that's out there at that time."*

This sense of uniqueness for loving winter was often spoken of in small ways when participants would compare themselves with absent others who had a different and negative perspective of snow and winter weather. They would mention that 'people say' the wind is too cold, then elaborate that down in the ravines or amongst trees you are sheltered from the wind and it is warmer; or they would talk about how beautiful snow is in contrast to 'other people' who say, 'arghhhh, look at all that snow!'

4.7. Chapter Conclusion

The value and satisfaction that participants in this study gained from visiting natural area parks in their neighbourhoods was due in a large part to being able to access spaces dominated by natural elements rather than cityscapes and to be able to do so within a short distance from where they live. The quality of what they were getting away *to* was very important. Specifically, being surrounded by nature and in a place that was important for the health and well-being of other creatures, breathing fresh air laden with interesting and pleasant smells, being somewhere quiet and peaceful, and seeing beauty all around them were the aspects that created the experience that they most valued.

People found the attractiveness of the natural areas helped motivate them to go outdoors for exercise and they relished the physical challenges that came with different types of terrain in the parks. For some, being able to access solitude was important as it gave them a chance to connect to themselves and sort through their thoughts. For others, the feeling of community both with other visitors and with the bird and animal inhabitants of the natural areas was valued. Some enjoyed both these aspects depending on their mood or needs of the moment. The peace and serenity of nature helped engender those same feelings in participants and some felt a spiritual connection from being in nature. People valued the entire experience of the natural areas and rarely felt that only one aspect most influenced their health and well-being. Winter experiences in the parks were similar to summer ones, but often activated heightened sensory experiences. Participants enjoyed the stark beauty of winter and felt a sense of achievement for taking advantage of the outdoors environment during wintertime.

Aspects that participants identified as sometimes keeping them from visiting the parks were mostly weather or climate related—the cold, ice, and darkness of winter. While in the parks, participants felt anger or irritation over seeing incivilities such as litter or graffiti. Some felt unsafe, but mitigated their feelings by walking with companions or dogs or limiting where they went or the time of day they visited. Seeing evidence of homeless camps made some people feel unsafe and others irritated over the garbage left behind when camps moved.

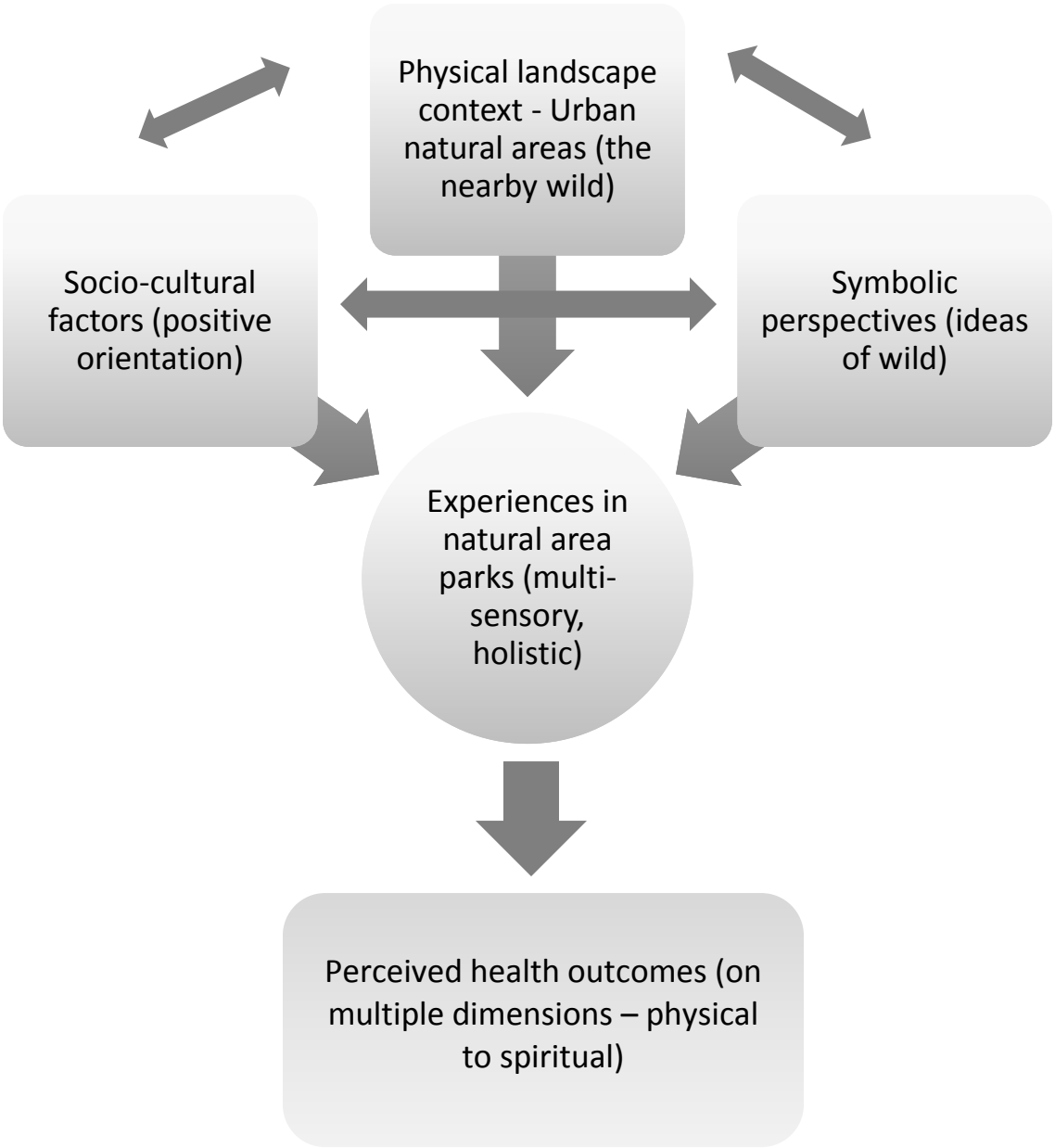
5. Chapter FIVE: Discussion

5.1. Chapter Introduction

Nature contact provides physical, mental, emotional, and spiritual benefits such as reduced stress, restorative experiences, and spiritual connections (Grahn & Stigsdotter, 2003; Kaplan & Kaplan, 1989; Snell & Simmonds, 2012). This study concentrated on the perceived health and well-being influences of wild, natural spaces located within or close to urban neighbourhoods. The qualitative methodology of the study adds context to prior research and contributes to a deeper understanding of how various aspects of being in a natural environment may be health promoting. It is easy to undervalue these small, everyday nature places in urban areas because we do not clearly understand their significance at the intimate, neighbourhood scale at which they exist since planning decisions—both urban and environmental—are usually made at much broader scales (Manuel, 2003a). This study contributes an understanding of the significance of these small wild places from a human health and well-being perspective.

Since contact with nature can offer health benefits that range from the physical to the spiritual, this study approached the subject from a generally positive orientation asking how natural areas help create environments in the city that are supportive of health and well-being. The geographic metaphor of therapeutic landscapes provided a framework to analyze these natural spaces from the perspectives of physical landscape, symbolic meanings, and socio-cultural factors to understand their potential as health-promoting places. Figure 5.1 shows how characteristics of the physical space, the participants' background and orientation, and cultural ideas of what 'wild' means influence the experiences participants report as health promoting. These experiences in turn influence multiple dimensions of health. For example, participants might enjoy feeling immersed in a wild space, but their own background and positive orientation assists them in creating that as an affirmative experience. That experience may in turn lead to benefits in multiple dimensions of health such as feeling mentally relaxed and spiritually connected.

Figure 5.1: Interrelationships



5.2. Value of the Nearby Wild

Two characteristics that initially set the context of the study, nearby location and wild spaces, also proved to be dominant factors in participant narratives of how the spaces contributed to their health and well-being. Participants valued the natural area parks near their homes for many reasons, but often simply because of their wild, natural

character. That essential characteristic of wildness set the context for most of the other qualities participants valued. Because of the wildness, there was a heightened sense of being away from the city. Participants were not just entering a typical city park: they were entering a wild space. They enjoyed the irregular physical landscape created by tree roots, fallen trees, and hilly terrain that is different from streets and sidewalks and softer underfoot. In addition, having these parks within residential neighbourhoods made them easily accessible so visits could be frequent and spontaneous. While participants valued the spaces for the benefits they personally received, they also valued them as habitat for the native species that called them home.

5.2.1. The Idea of Wild

Wilderness, by definition, is remote, untouched, vast, rugged, difficult to reach, and hard to navigate once there (International Union for Conservation of Nature, 1994; US Wilderness Act, 1964). Urban natural areas are close, small, and thoroughly influenced by humankind. But if 'wilderness' is more an idea that produces feelings associated with certain places, rather than the places themselves, as Nash (1982) contends, can ideas of 'wild' or 'wilderness' profitably be applied to city natural spaces? Will areas that are managed to be as wild as it is possible to be within a city transport people into feelings and ideas of wild that they find beneficial to their health and well-being?

For the participants in this study, the answer to these questions is clearly 'yes'. Nash (1982) demonstrated that the idea of wilderness contains multifaceted and often contradictory ideas, from fearful, lost places far removed from man's dominion to spaces of beauty, restoration, and solace. Participants' responses reflected these multidimensional views as differing perspectives of wild and wilderness threaded through their narratives. For some, it was the feeling that it was possible to become lost (but not too lost) in the tangle of brush and forest in the river valley. For others, it could be something as simple as the fleeting glimpse of a deer or seeing a wild raspberry plant. These small experiences—the wonder of coming unexpectedly on an animal, tasting wild berries, or the feeling of needing to pay attention to ones surroundings to stay safe—

provided something essential and vital to people. They were experiences that enriched their lives.

Aldo Leopold, one of the giants of the American wilderness preservation movement, once said, “no tract of land is too small for the wilderness idea” (in Meine & Knight, 2006, p. 111). This study bears out that assertion. While a few participants said they liked the bigger areas where they could wander for longer, in general no one commented on size as a factor in their enjoyment (although the size needed to be large enough to provide elements such as quiet, solitude, and feeling away which participants found indispensable). As long as the spaces provided those elements and gave them the valued experience of feeling they were in a space that was wild and natural, it was big enough. This is valuable information: small(er) spaces with the right ingredients—even in cities with airplanes flying overhead and cars driving not far away—can provide vital experiences.

5.2.2. Wild, but not entirely wild

Natural areas within cities are only preserved through human intervention and management. These areas will never be wild in the same way that remote areas of the earth might be wild. Managing the parks to put ‘nature first’ (City of Edmonton, Edmonton’s Natural Area Parks, n.d.) is still a type of human management. The natural area parks in Edmonton have various levels of human interference within them from items such as litter bins to bridges and trails, but these marks of the human world were only felt as an intrusion when they were perceived as not fitting in with the natural surroundings. Many forest environments in the Edmonton area have thick underbrush that is difficult to penetrate. Without human-built trails, these areas would be inaccessible except to the intrepid and hardy. For the majority of people, trails are a necessity to experience the area at all. Because people value the wild aspects and want to experience nature, they appreciate those human interventions that allow them to do so.

These positive attitudes towards features that might be considered to be out of place in a natural area are consistent with prior research which found that for many people an area does not become less natural through evidence of human use or management (Özgüner & Kendle, 2006). People tend to appreciate areas that show

evidence of care and attention and Nassauer (1995) suggests that when we can signal that a landscape is valued, important, and being cared for it is easier to get the public on-side about preserving sometimes messy, but biologically diverse and rich landscapes. Things such as signage, paths and trails, and ensuring the spaces are well maintained can send these signals.

One entirely unwanted sign of human presence was incivilities. Graffiti and other incivilities can be a physical signal to populations that an area is unmanaged and beyond social control (Herbert, 1993; Smith, 1989) and thus can activate feelings of fear, uneasiness, or worry about becoming a victim of crime, and these fears may act to keep people from visiting natural areas. This group of participants as regular visitors, however, spoke more about the feelings of anger and irritation that were provoked in them at the disrespect of others for spoiling the space, and spoiling their experience of the space when they were forced to witness garbage or dog messes. The incivilities produced the effect of changing the area's essential character—its naturalness and feeling of being away from urban influences—into something suggestive of and intruded upon by some of the least pleasant aspects of city life.

In urban natural areas, there will always be a tension between wild and man-made; how could there not be? Incorporating 'wild' into 'city' is a balancing act. Too much human intervention can detract from ecological value as human uses impinge on wild creatures and natural processes. Even useful and ordinary features such as trails or bridges done poorly or thoughtlessly will jar people out of the experience of being in nature: people want human conveniences to merge seamlessly with the natural world. On the other hand, too little maintenance and the areas will be under-used and nothing more than weedy, overgrown patches of bush that attract criticism and calls for re-development.

5.2.3. Safety in wild places

Until very recently in humankind's history, wilderness was a place full of danger and hardship that needed to be beaten back so civilization could flourish (Nash, 1982). As such, it makes sense that fears of wilderness and what it contains linger in the human psyche. Fears and phobias to certain animals (snakes and spiders), high places, the dark,

and being lost appear to be in-born and evolutionarily based (Bixler & Floyd, 1997; Öhman & Mineka, 2001). People perceive wild lands as scary places where boogey-men may lurk (Milligan & Bingley, 2007), attacks by wild animals are likely (Burgess, 1998), or the potential for being lost or injured is high (Jorgensen & Anthopoulou, 2007).

The experience of being enveloped by nature by walking in a forest and being able to be alone that many participants in this study referenced as important are also the experiences that many find make them uneasy in these places. The very features of woodland that people find scary—reduced visibility and darker areas, potential hiding places for attackers in dense shrubbery, and a sense that escape would be difficult on narrow paths—are inherent to a woodland environment and to mitigate those fears through design would destroy the essential character of the place (Burgess, 1998). For some, as Nancy (RS-W) articulated so clearly in her interview, it becomes a trade-off: they accept feeling unsafe sometimes and mitigate those feelings by various means, but do not want the natural area changed in ways that would make it feel safer at the expense of its naturalness. This simultaneous experience of negative and positive emotions in the presence of nature seems common: fear of nature will be intermixed with feelings of happiness and awe in the presence of natural processes (van den Berg & ter Heijne, 2005). By concentrating on trying to make these spaces feel safe for all, we might lose something vital that contributes to the positive experiences. Perhaps the heightened sensitivity that comes along with the small unknown leads to being present in the moment and being aware of one's surroundings, which in turn leads to deeper and more meaningful involvement in the experience.

The issue of encountering homeless camps seemed to go deeper than mere incivilities and likely ignited people's fears of the possibility of attack. Fear of attacks by deviant and scary men is the main reason that some people choose to avoid wooded areas (Burgess, 1998). Homeless people are predominantly men (Employment and Social Development Canada, 2013) who may be mentally ill or have addiction issues (Munn-Rivard, 2014): as such the homeless population is the embodiment of the 'scary other'. At the same time, this group of participants evinced a great deal of compassion towards people who were making their home in natural areas. While some expressed uneasiness

with them being there, any anger or disgust was directed at the unsightliness of the camps or the garbage that was left behind when they moved on. The garbage and ugliness of homeless camps had the same effect of ruining a treasured experience as the more common issues of dog messes or graffiti did. It is possible that people felt the intrusion on emotional and spiritual levels as well as the sad reality of homelessness impinged on their reflective time surrounded by the beauty of nature. Some participants certainly used these encounters to reflect on their lives or the human condition, but that was not the experience they were seeking when going to a natural area.

The fear of natural areas as a 'scary place' likely acts to keep many people away since the most common form of fear mitigation, at least for women, is simple avoidance (Valentine, 1989, 1992). Participants in this study with their positive orientation towards nature did not allow worries or fears related to their safety prevent them from visiting natural area parks, but being cognizant of their personal safety did shape the ways in which they used the parks. Krenichyn (2006) in her study of physical activity in a large, mostly natural, park said women "[found] ways to negotiate [their] fears, psychologically and geographically" (p. 635). Participants in this study used similar means to feel safe within a space that could feel unsafe. People talked about confining their visits to daylight hours or times when they knew more people would be in the park, taking human or dog companions with them, or avoiding more isolated areas. Burgess (1998) found a similar range of strategies that people used to manage their fears.

5.2.4. Being away to the wild in the heart of the city

People do not necessarily want to live away from cities and the advantages that come with them, but they want their experience of 'city' to be softer and more pleasant. Participants valued nature as a relief from city environments of traffic noise and pollution, asphalt streets, and never-ending buildings. People appreciate nature—even just trees—for their capacity to soften the hard edges of urban environments (Peckham, Duinker, & Ordóñez, 2013). In this instance, more than simply 'nature' people were getting away to wild spaces, and the experience of being away involved stepping onto territory that felt different, magical, and under different rules than a usual urban environment. Kaplan & Kaplan (1989) note this sense of being in another world as a

component of a restorative setting. It is part of the concept of extent, which is one of the four ingredients of a restorative environment (along with fascination, being away, and compatibility with the individual's wishes). Extent can be in reality or in the imagination as when a book or movie transports one into a different world. It seems likely that the ideas and feelings related to 'wild' that we all carry around with us stimulates this imaginative sense of extent and makes the space feel even more away from the city and everyday life. The feeling of being in a different world plays into the sense of being away, another of the four components of a restorative environment, and strengthens it. Participants in this study, as in previous work (e.g., Hammitt, 2000) spoke more of their desire to be away *to* green and tranquil natural environments than of a desire to be away *from* their life circumstances.

The proximity of the natural areas to people's residences in the city was the key to a number of perceived beneficial results. It created an ease of access that allowed visits to be spontaneous and frequent without a large outlay of time or money to get there: they could go whenever they wanted. Having these areas nearby facilitated repeated visits over time and this led to attachment to the natural areas as people built up layers of memory and knowledge. Smaldone, Harris, and Sanyal (2008) saw this same process amongst their participants (local residents of and visitors to a national park) as place meanings were added to and expanded over time, "the meanings for special places are varied, complex, and seem to accumulate over time, layer by layer" (p. 499). Smaldone et al. also note the difference between initial attraction (often to beautiful physical settings) and attachment as emotional bonds to a place are built up over time. In my study, the attachment to an evolving physical landscape, social aspects, and memories was evident. People remembered walking with others now gone or grown up and those remembrances coloured their present experiences with warm, nostalgic, or bittersweet feelings. Certain areas of the natural parks would forever be associated with certain people for them. People create complex meanings of place from a combination of biophysical and sociocultural aspects (Beckley, Stedman, Wallace, & Ambard, 2007). Participants also observed long-term changes such as erosion in their physical surroundings that connected them to the ever-evolving life of the natural landscape. It was if they could see both *now*

and *then* wherever they looked. This way of seeing enriched their visits and their life with subtle and shaded meanings.

Studies show that the more often people visit favorite natural settings such as urban woodlands and waterside environments, the greater the restorative effects (Korpela, Ylén, Tyrvainen, & Silvennoinen, 2010), so proximity promotes this enhanced restoration. Ouellette, Kaplan, and Kaplan (2005) also found that familiarity with a setting—that of a monastic retreat—influenced the quality of time spent in it. Repeat visitors responded very differently than did the first time users. Experience with the setting influenced visitors' reasons for going and led them to different activities while there, such as more individual and reflective time. The authors concluded that "experience and familiarity [are] potential contributors to a richer and more profound restorative experience" (Ouellette, Kaplan, & Kaplan, 2005, p. 187).

The familiarity with the space influenced feelings of both safety and community. As participants came to know other users of the space, they gained a feeling of being part of a community, which in turn led to greater feelings of safety. They recognized who walks their dog when and whom they were likely to meet and which paths to avoid in the spring when the coyotes have young. For the people who might feel uneasy or unsafe in the space, familiarity helped them manage their fears because they had a better understanding of the area. In a way, familiarity created greater accessibility for participants because it contributed to feelings of competency and ease with the surroundings because people understood its rhythms.

To want to visit natural areas, a person needs to feel comfortable and competent in the environment. The frequency of childhood visits to woodlands or green spaces predict not only visits in adulthood, but also the likelihood that people have the confidence to visit these places by themselves (Ward Thompson, Aspinall, & Montarzino, 2008). When people become familiar with natural spaces in childhood, it gives them the background necessary to access natural areas more easily in adulthood (Milligan & Bingley, 2007; Snell & Simmonds, 2012). Most participants in this study had positive childhood experiences of nature and noted the importance of that early contact. Since adults mediate children's experience of outdoors play spaces (Refshauge,

Stigsdotter, & Cosco, 2012), providing neighbourhood natural areas where people feel comfortable taking their children may be important in creating ongoing nature connections for future generations.

5.2.5. Towards a conservation ethic

Studies show that positive experiences in nature can predict pro-environmental behaviours (Dutcher, Finley, Luloff, & Johnson, 2007; Hartig, Kaiser, & Strumse, 2007). While this study did not ask questions about behaviours, participants often expressed pro-environmental attitudes in their advocacy of preserving natural areas in cities because of the ways in which they nurture the lives of other species. Through their contact with wild nature—either with the urban natural areas or through previous experience—participants seemed to gain an acceptance of things as they are, and of the cycles of nature as necessary and important. There was an understanding that nature is messy, containing both new life and dead and dying things, and that each are equally important for the continuance of life. It is possible that the contemplation of the lives of other beings—from beetles to coyotes—while being absorbed in nature contributed to or heightened the ideas of ecological fairness participants exhibited.

Sharing the space with wildlife was one of the most positive experiences people had while visiting the natural areas. Whether or not they encountered wildlife, participants valued knowing it was there—similar to how Canadians value national parks for just knowing they are there, whether or not they visit these parks (Wright & Rollins, 2009). Seeing wildlife is an enriching and often awe-inspiring experience that people seek out while visiting national parks, but having contact with birds and animals close to home may be just as important (Curtin, 2009). Positive emotions and awe in particular are related to lower levels of inflammatory activity in the body (Stellar, John-Henderson, Anderson, Gordon, McNeil, & Keltner, 2015), which suggests a way that even these small moments of wildlife contact may produce beneficial health effects.

Natural place attachment—that is, attachment to the natural aspects of a place—predicts pro-environmental behaviour (Scannell & Gifford, 2010). It is unknown if participants in my study engaged in more or fewer pro-environmental behaviours, but their experiences in the natural area parks did promote feelings of attachment and a sense

of place. Rogers and Bragg (2012) studied how sense of place influenced motivation to live sustainable lifestyles in the urban environment of Melbourne, Australia. Their participants felt that their sense of place influenced their pro-environmental behaviours; however, their sense of place related to feeling connected to nature or the planet as a whole, rather than specifically to the city they lived in. They nurtured their connection to nature through time spent in urban green spaces, gardens, and trips out of the city and this connection influenced their sense of place and encouraged their pro-environmental behaviours (Rogers & Bragg, 2012). In cities, people often have fewer opportunities to experience areas where natural cycles play out, and so gain familiarity with them and become attached to the natural environment of the place where they live. Local natural areas can provide that opportunity.

5.3. Health Promoting Experiences

The participants in this study believed that the natural areas contributed to their health in many ways. At the most basic level, it prompted them to go out and be physically active because they enjoyed being in the space. The natural areas also contributed to a web of interconnections between people, communities, and nature. There was a sense of ever changing and shifting interactions as people met, chatted, parted, to meet again on another day. Some participants valued their alone time, while others walked with companions. There was always the backdrop of the natural world to lend interest and fascination to visits—something new to see or the brief appearance of birds or animals. For many participants, a visit might mean all of these things in the course of a single outing: solitude, casual conversation, dog companionship, and immersion in nature.

5.3.1. Whole Experience

Experiences in the natural areas were never just one thing or another, but combinations that added up to something greater than the sum of the parts. People often linked several different components together in their narratives to illustrate how much they loved and valued particular experiences. Running up the ravine stairs *plus* being outdoors in the fresh air *plus* being in a beautiful space added up to a more enlivening experience. Walking with a loved one *plus* doing so in interesting and beautiful

surroundings produced more free-flowing conversation. Being alone in a quiet place *plus* listening to the sound of water *plus* inhaling nature smells equaled a more deeply relaxing experience than any one of those aspects separately. Experiences in these areas add up to 'something more' that contributes to overall health.

Often these experiences of 'something more' were made up of the pleasant sensory qualities of being in nature—seeing beauty, inhaling fresh air, listening to the multitude of small nature sounds, feeling a different quality of ground beneath the feet. Although people emphasized different sensory aspects, most of the experiences people talked about combined several. The sensory aspects also shifted throughout the year, so people enjoyed what they were experiencing in the present while simultaneously looking forward to favorite experiences to come as the year moved through its cycles.

The multi-sensory experience of being in nature would seem obvious, but I found little scholarship exploring this aspect. In their study of tourists' experiences with nature, Hill, Curtin, and Gough (2014) found their participants "express[ed] their encounters in terms of a sensuous embodied experience that was overwhelmingly visual" (p. 73). Other senses were referenced by their participants, but to a lesser extent. In my study, participants often mentioned several sensory aspects together; for instance, the smell of the air in autumn with the crispness of fallen leaves underfoot or the beauty and the quiet together. All of the senses were essential. The importance of the whole experience likely emerged as a result of the qualitative and exploratory nature of this study. Participants were free to talk about the natural areas from any perspective they chose and people's most valued experiences combined many different aspects. The unstructured nature of the space contributed to its flexibility; because it does not have one specified use, people find the combinations that work best for them.

5.3.2. Creating Healthful Connections

When participants talked about the perceived health-promoting effects of natural areas they highlighted the variety of connections they experienced—to themselves, companions, dogs, other visitors, nature, and their community. The natural areas often gave people access to solitude within a busy city environment and this facilitated connection to self for many of the participants. This solitude in beautiful and peaceful

surroundings gave them space—both mentally and physically—to muse on their life circumstances, sort out their thoughts and feelings, and gain perspective on issues affecting them.

The restorative aspects of contact with nature are some of the most thoroughly studied. Restoration may take the form of stress reduction. People recover from stressful situations more quickly in the presence of nature (e.g. Parsons, Tassinary, Ulrich, Hebl, & Grossman-Alexander, 1998). Restoration may also be the renewal of mental attention and the ability to focus (e.g. Hartig, Evans, Jammer, Davis, & Gärling, 2003; Kaplan & Kaplan, 1989). For some, feeling restored means renewing connections to their spirit (Kaplan & Kaplan, 1989; Snell & Simmonds, 2012). People seem to understand these effects instinctively. Participants sought out the natural areas when they were troubled and needed to think and found their time there soothing. Sometimes people went deliberately not to think about things, but to set troubles aside and return to them later renewed and able to look at things from fresh perspectives. Finding time to connect to the things that are most important in one's own life provides positive direction for people. Several of the participants said that the ability to connect to themselves helped make them a better person. Studies show that contact with nature does bring out positive behaviours in people such as increased generosity (Weinstein, Przbylski, & Ryan, 2009) and helping behaviours (Zhang, Piff, Iyer, Koleva, & Keltner, 2014).

Visits to the natural areas helped create and strengthen participants' social networks both with companions and through casual meetings with other visitors. Participants reported an ease about interactions in the parks. Some attributed this to the shared aspect of enjoying nature that brought many people there or to the neighbourhood situation of the parks where people were likely to meet familiar faces. O'Brien, Morris, & Stewart (2014) also found that people felt an ease about casually interacting with strangers out enjoying nature in woodland environments. Interactions in public spaces, even as small as a smile or a brief hello, help to create a sense of community and attachment to place that influence feelings of well-being (Cattell, Dines, Gesler, and Curtis, 2008). One of the most interesting aspects was how the social value of the natural areas extended to the birds, animals, and trees for some of the participants. They spoke of

these encounters as if they were in the same sort of casual social exchange as they might be with a chance-met acquaintance along the trails. The interactions were different from the social interactions of people with people, but nonetheless engaging and life enhancing.

The joy people felt when watching beloved dog companions interact with natural spaces was an unexpected finding in this research. Studies show that dogs can help promote health by lowering heart rate and blood pressure in stressful situations (Campo & Uchino, 2013) and increase mental health in individuals with Posttraumatic Stress Disorder (Stern et al., 2013). Regularly walking a dog can increase physical activity, social exchanges, and community connectedness (Cutt, Giles-Corti, Knuiman, & Burke, 2007; Toohey, McCormack, Doyle-Baker, Adams, & Rock, 2013). This was true in my study as many people commented that their dogs were an introduction to other users of the space as they met in casual interactions. More than just physical activity and community connections, people spoke of their deep happiness when witnessing their dog's joy over being able to run, play, smell, and dig however they wished. This attention to another's pleasure and happiness created positive feelings of "being a good dog parent" as Nancy (RS-W) put it. People often feel towards their dogs a level of caring and responsibility similar to feelings for other members of their family (Higgins, Temple, Murray, Kumm, & Rhodes, 2013). Giving their dogs time in an environment they loved was part of that orientation towards a family member's needs, and it provided powerful emotive feedback as their dog's joy influenced their own feelings of well-being and happiness. In some ways, this seemed similar to the pleasure people felt when seeing native species living in the wild and being glad the habitat was available for them. There was a sense that other creatures need certain conditions to live their best and happiest life and we have a responsibility to give them the opportunity to be in those environments.

5.3.3. Spiritual Benefits

One question this research sought to answer was whether smaller neighbourhood natural areas would provide the conditions necessary for the types of spiritual experiences reported in studies of wilderness or woodland areas (Fredrickson & Anderson, 1999; Heintzman, 2011; Williams & Harvey, 2001). Many participants spoke of the feelings of

connection to larger forces such as God or nature they felt while in the natural areas. These experiences brought them profound feelings of peace, gratitude, and spiritual connection.

Although participants mentioned spiritual benefits they received, the results from this study are inconclusive as to what physical aspects need to be present to prompt the experiences of connection to larger forces. Participants from the river valley and ravine parks seemed slightly more likely to report these experiences than those from Dunluce Forest or Hodgson Wetland. It is possible that the smaller, and in the case of Hodgson Wetland, more open areas were less likely to prompt spiritual feelings, but it is also possible that the smaller number of participants from Dunluce Forest and Hodgson Wetland influenced how many reported spiritual benefits. My research suggests that small nature spaces in urban areas have the potential to provide important spiritual experiences, but further research concentrating specifically on what aspects of the physical environment are necessary for people to feel those spiritual benefits needs to be conducted. It may be that certain physical aspects need to be present to facilitate feelings of spiritual connectedness.

Konijnendijk (2012) suggests woodland areas, even urban woodland areas may provide spiritual, transformative, or inspirational experiences such as those reported from wilderness adventure trips (Fredrickson & Anderson, 1999; Kaplan & Kaplan, 1989). Knecht (2004) feels that areal extent is an important factor for these types of spiritual or transformative experiences—they need to be large enough that a person on foot could not cross them in one day, but would have to sleep out for at least one night. She also admits that such large spaces are rarely available within urban areas. Both these viewpoints are borne out to some extent in my study. Participants spoke of feeling spiritually connected to God, the universe, or nature—to ideas or entities larger than themselves, but there was hesitation amongst some to attribute those experiences to the smaller woodland of Dunluce Forest or to Hodgson Wetland. Gavin (DF-S) was not sure he felt connected to God in Dunluce Forest, Clyde (DF-S) said he would need larger trees to feel a spiritual connection and Pamela (HW-W) needed more solitude and less a feeling of exposure than she was able to obtain at Hodgson Wetland.

It may be that conditions in which spiritual experiences are more likely to happen occur in the presence of old growth trees and a larger extent of territory—such as are present in the river valley and ravine areas in Edmonton—where participants spoke more often of feeling that connection to larger forces. However, it seems that the amount of territory needed is smaller than Knecht (2004) supposes, since the width of any portion of the river valley or ravine system could be traversed on foot in much less than a day. Other features such as the greater degree of quiet and the possibilities for solitude or the feeling of being enclosed in the space that so many participants emphasized as significant may prove to be more important than large extent.

5.4. Winter Experiences

For the people who access natural area parks year round, winter landscapes are therapeutic in many similar ways to summer ones. As summer visits did, winter ones gave participants access to spaces filled with natural beauty, peace, and fresh air. Winter often provided evidence that the areas were shared with wild creatures and people enjoyed the different and often stark beauty in winter. Participants in this study enjoyed winter as one part of the progression of the seasons.

In broader society, winter often seems considered only as a negative force. The darkness leads to depression; snow and ice make getting around difficult and dangerous. Winter is a time of additional stresses and spring is welcomed as a reprieve where life becomes easier and more pleasant. This is possibly why little research has concentrated on the benefits of outdoor winter nature experiences. Some previous research shows that outdoor exercise in the winter provides similar benefits to exercising outdoors in the summer (Pasanen, Tyrväinen & Korpela, 2014; Song et al., 2013), but participants in the current study spoke of an added sense of accomplishment they felt after braving the elements. This sense of accomplishment added to their well-being by increasing their self-esteem because they felt strong and competent after outdoors winter exercise.

More than such a practical viewpoint of the benefits of outdoor exercise on health; participants reveled in the different aspects of wintertime experiences. There was the unique and fleeting beauty and the heightened sensory experiences it brought such as the sensation of cold, fresh air flowing into their lungs. There was the fun of being the

first person making tracks after a snowfall. Again, the entire experience was valued—winter simply added different possible ingredients to the mixture.

5.4.1. Winter Cities

There is growing academic and policy interest around winter cities—northern cities with distinct winter seasons—and the need to plan and design them for year round use. Planning for year round use could be interpreted as building cities that minimize the effects of winter on citizens, but within the winter cities initiatives there is a movement to enhance the positives of the season rather than just working to minimize the negatives. As the City of Edmonton puts it: "to reclaim the joy of winter and embrace the season" (City of Edmonton, WinterCity Strategy, n.d). Initiatives include a variety of cultural and recreation activities such as winter festivals and promotion of winter activities, as well as working to consider all four seasons in design and planning.

Gopnik (2011) suggests that humankind could not begin to enjoy winter until we had warm places to which we could retreat and that our modern views of winter are a cultural construct that would be foreign to people from other centuries. He further says that viewing winter as a positive force is a very modern viewpoint. But modern lifestyles allow us to both enjoy winter and retreat from it when needed and embracing its positives helps people move more healthfully through the inescapable cold and dark of the season.

The participants in my study would well understand the promotion of winter as a season to be enjoyed and embraced. They emphasized the positive aspects of their winter experiences while acknowledging the constraints that winter imposed on their activities. It is possible that instilling a lifelong love of winter begins in childhood in a similar way that instilling a lifelong love of nature seems to begin with deliberate exposure during childhood. Positive outdoors winter experiences through play, sports or family time likely leads to feelings of competence and pleasant associations that carry through into adulthood. As noted, there is little academic literature on the positive benefits of outdoors winter experiences beyond literature on winter sports. Literature on winter cities is often related to broad scale design and planning of the built environment. My study adds knowledge of the positive benefits of winter nature experiences on individuals.

5.5. Chapter Conclusion: Urban Wild Nature as a Therapeutic Landscape

A therapeutic landscape experience is one that produces positive health outcomes on body, mind, or spirit as a result of a person's involvement with a particular setting (Conradson, 2005); thus it becomes clear from this study that urban natural area parks are therapeutic landscapes to the people who visit them. Further, because these areas also provide essential habitat for native species within a city environment inimical to them, one might say that these spaces are also therapeutic landscapes for their wild inhabitants.

The concept of therapeutic landscapes comes from a Western academic tradition in which nature takes second place to humans as something to be used by them (Castleden & Garvin, 2004) and only considers the healing aspects of place from the perspective of what might promote human health and well-being. However, as environmental knowledge becomes more finely tuned to the interconnections between ecosystem health and human health, it makes sense to consider how creating and promoting therapeutic landscapes for nature also creates therapeutic landscapes for humans. It becomes a recursive cycle: when we build with a view to protecting and enhancing the quality of life for the nature around us, it also enhances our quality of life.

At the most basic level, human health is inextricably entwined with ecological health as we must have clean air, food, and water to survive, but beyond mere survival, nature provides us with cultural ecosystem services. However, 'cultural ecosystem services' is a utilitarian term for experiences that add magic, richness, texture, and awe to everyday life. These experiences enhance our lives—possibly especially in sterile city environments—and contribute to quality of life.

6. Chapter SIX: Conclusion

6.1. Chapter Introduction

This thesis examined the health and well-being effects of natural area parks within an urban setting. The project sought to answer the question: *What are the perceived health and well-being effects for adults of visiting natural area parks in the City of Edmonton?* The research question pre-supposes that the natural areas do contribute health and well-being benefits. This is a reasonable assumption since much research over the last several decades points to the healthful benefits of nature contact. The project focused on direct contact with a specific type of nature (small, natural area parks), within the context of the local (residential neighbourhoods within a large city); it contained both a summer and a winter sample and used participant photography to elicit an understanding of the experiences adults felt contributed to their health and well-being. This chapter summarizes the contributions of the research and the implications for urban planners, health promoters, and others interested in the health effects of nature contact. As well, it includes some suggestions for further research. It also considers the strengths and limitations of the project and some of the changes brought about in researcher and participants because of the study.

6.2. Study Contributions and Practice Implications

While this study explored the health and well-being benefits of natural area parks in general, it focused on the potential benefits of contact with the more wild aspects in particular. It considered whether the characteristic of wildness was something that people felt added health and well-being benefits to their experiences. It also questioned whether small, local natural areas in cities could feel 'wild enough' to satisfy people's desire to be in a wild place.

6.2.1. The value of the nearby wild

Each year many people spend a great deal of time and money to visit natural and wilderness areas; for instance, in 2009, which is the most recent data available, visitors to national, provincial, and territorial parks in Canada spent over $4.4 billion (Outspan Group Inc. for Canadian Parks Council, 2011). My study shows that natural area parks

can provide contact with nature and a sense of being in a wilder place that are beneficial and valued, and more available to the general population on a regular basis. These spaces within busy city environments were small oases of peace, beauty, and living nature.

City natural areas benefit both the environment and the people who visit them. Areas protected must have the opportunity to be ecologically healthy, connected, and robust. A tiny patch of remnant land unconnected to regional networks will not be able to flourish and so over time will cease to support its native species (St. Clair et al., 2010) and thus the human connection to the wild that could be fostered there. As cities grow, protecting ecologically important areas and integrating them into new neighbourhoods can provide important refuges for wildlife and vital experiences for people.

Natural area parks do not need to be considered only on previously undisturbed land, which is a rare commodity in and around cities. Even lands that have been sites of previous industry will return to a more natural state over time. Some of Edmonton's most lush and wild spaces were previously some of its most disturbed. Participants praised Kinnaird Ravine as a place that felt 'nowhere near the city' and yet it was used as a garbage dump in the early part of the twentieth century (Del, study participant, personal communication, 2013). Whitemud Creek Ravine contained coalmines and Mill Creek Ravine, which was not included as a study site, once had a railroad running through it. There is little evidence now of the past industrial uses of some of Edmonton's natural areas. Re-development of land within city boundaries may provide opportunities to nurture new spaces where land is encouraged to return to a natural state.

6.2.2. Power of familiarity

This study deliberately concentrated on small natural areas integrated in residential neighbourhoods to understand the 'everyday' aspect of having these areas close to home. Many participants felt deeply connected to their local natural park through many visits over time. The repeated visits led to a depth of familiarity with the space and this helped people feel safer as they understood the rhythms of nature and felt part of a community when they recognized other users. Within the literature about green spaces and health there was little mention of the importance of familiarity, possibly because many studies recruited people who were not necessarily users of a particular place on a

regular basis. This study suggests that familiarity contributes a number of benefits and warrants further exploration.

This study has shown how important proximity to home is as a factor in promoting frequent and continued visits to natural areas and thus the potential for health-promoting effects from contact with nature. The focus of this study was on the benefits of small, local natural parks, but this is not to suggest that only small areas need to be preserved. Large areas are also vitally important (for instance, for animals that require a great deal of territory), but small neighbourhood natural spaces can provide an immediacy and ease of contact that, for many people, large further away spaces cannot. As Knecht (2004) notes, "larger investments in more distant amenities do not adequately substitute for smaller doses of nature near the home" (p. 91). Planning neighbourhoods to include a natural area when possible gives neighbourhood residents the opportunity to experience nature within their local environment. If natural spaces are included as a matter of course, it will help create a more equitable distribution of a known health-promoting resource.

After proximity, accessibility is another important component of neighbourhood natural areas. When we talk about accessibility, we most often visualize the mobility-challenged—the elderly, people who need wheelchairs or walking aids. However, in regards to true wilderness experiences, accessibility has always been limited to those people who are not only able-bodied, but often in splendid physical condition and who have the resources to travel to remote areas and purchase the necessary equipment. Wilderness experiences are therefore limited by physical fitness and income, but they are also limited by inclination since not everyone is interested in experiences in remote wilderness areas. While some of these same factors may limit access to urban natural areas, the accessibility gap is—at least in theory—much smaller. When natural area parks are provided in neighbourhoods, accessibility becomes about making entrances that feel welcoming, providing benches for resting and paths that allow people to access areas that would otherwise be inaccessible. Thoughtful and well-integrated built environment features can facilitate healthful human-nature contact without intruding upon it.

Accessibility may also include initiatives to promote community involvement. The Friends of Dunluce Forest arrange community days to encourage people to come out and explore the forest so the area becomes a familiar, rather than a scary place. Keeping areas cleaned up and free of incivilities helps people feel safe. Natural areas also need to feel like a community space rather than private property. A criticism several participants had about Hodgson Wetland was how close the surrounding houses are to the wetland. Some felt that if they tried to walk around the wetland it was as if they were trespassing in people's backyards.

6.2.3. The therapeutic value of winter landscapes

Winter landscapes are often something people want to escape, not embrace. This may be why there is little research on their possibilities as a health promoting resource. Understanding the ways winter experiences in natural areas can beneficially influence health is important because winter is a long, cold, and dark reality in many regions: ignoring it does not make it go away. Embracing winter and finding ways to enjoy the season can make it contribute rather than detract from health. This study included a winter sample to help expand our knowledge of the influence of wintertime on health and well-being while in nature. Participants in this study did embrace the winter season and the types of activities it offers and reported similar health benefits to summer participants from visits to natural areas.

The experience of natural landscapes changes through different seasons, so planning for those changes can enhance the aspects that visitors value. For instance, during the winter, some spaces may feel more exposed because the trees will be leafless. An area that feels secluded in the summer may feel exposed in the winter. Park planners should consider this when thinking about the size of the area to be preserved since the sense of being away was considered so important.

Some natural features will come into their own in different seasons. A perfectly ordinary hill in the summertime can transform into an extraordinary toboggan hill in the winter. A wetland pond or creek may host a neighbourhood skating rink. Manuel (2003b) noted that the advantage of small ponds is that they freeze "fast, reliably, and completely" (p. 33) and she describes how they become community spaces where neighbours and all

age groups mingle to have fun. In this study, winter participants especially talked about the role having fun played in their excursions to natural areas. Planning to increase this aspect may draw people outdoors to try new activities.

6.2.4. The whole experience

Participants valued the entire experience of time spent in natural area parks. The favourite components varied amongst participants and added up in different ways, but people appreciated the different options available to them. This is the beauty of unstructured nature spaces: they can be whatever is needed or wanted at the time: a challenging activity space, a place of calm and solace, a place to connect with others or be solitary, or just a space to spend a few minutes admiring nature and breathing fresh air.

Integrating natural topographical features into natural area parks is a way to increase interest and pleasure for visitors. These features were often a significant part of people's whole experience. People valued the varied landscape of the ravine parks not just to look at, but also to feel underneath their feet. They enjoyed the small challenges of climbing over uneven ground and clambering up ravine sides. Interacting with landscapes in this way contributed to the sense of achievement they reported.

The sensory aspects of the nature spaces were particularly important in creating the experiences people valued. The beauty, the changing light, the different smells and sounds of nature, and the feel of the air were all important aspects. One of the most important though was the experience of natural quiet which was a critical piece underpinning participants' experiences in the natural areas. The quiet was often their signal that they had entered a different space as the sounds of the city fell away behind them. Planning for quiet in a city can be a difficult proposition, but acknowledging its importance is essential, as is taking steps to mitigate city noises as much as possible. Preserving natural quiet may be close to impossible anywhere in the modern world (Hempton, 2009), but we should still strive to make urban natural areas as quiet as it is possible for them to be. Taking advantage of natural features such as valleys and preserving plenty of trees on perimeters can filter out much of the noise.

6.2.5. Therapeutic landscapes

The therapeutic landscapes framework has been used to consider the healing potential of a diverse range of places, some of them natural (Bell, 1999; Milligan, Gatrell, & Bingley, 2004; Palka, 1999) and some urban (Wakefield & McMullan, 2005). To my knowledge, it has not previously been used to examine the healing benefits of wild nature spaces within urban settings, nor has it been extended to consider how promoting the ecological health of places creates therapeutic landscapes for non-human species, which benefits both ecological and human health.

The salutogenic orientation of the therapeutic landscapes concept fits well with perspectives within the field of health promotion. Health promotion works with the social and environmental determinants of health to increase human health and well-being. Settings-based approaches to health promotion use interventions with populations within different settings such as schools, but also recognizes that settings themselves can be "important and modifiable determinants of health and well-being, both directly and indirectly" (Dooris, Poland, Kolbe, de Leeuw, McCall, & Wharf-Higgins, 2007, p. 328). Parkes and Horwitz (2009) suggest that settings approaches too often fail to consider the ecosystem context of various settings and so miss an opportunity to anchor their initiatives within a larger perspective and work with others in related disciplines. We need approaches that promote the health of ecosystems as well as human health. Initiatives to create healthier cities should be the concern of both urban planners and health promotion experts.

6.3. Further Research

6.3.1. Different types of natural landscapes

This study's original aim was to consider different types of natural areas rather than just woodlands that have been the focus of much prior research. Unfortunately, with the addition of the two areas in the river valley the types of spaces became skewed towards wooded areas. It may be that humans place more value on trees and forests, so in cities where space is at a premium these are the types of landscapes that are most likely to be preserved over other types of landscapes. While Edmonton does have other wetlands than Hodgson Wetland, they are often in areas that are more industrial and associated

with storm-water ponds, and so are less accessible from residential neighbourhoods. Edmonton also has no large or small areas of preserved grassland environment. Using this same approach in cities with other landscape types would reveal whether or not people have similar or different experiences in a very different kind of wild to a forest environment. For instance, Calgary, Alberta has Nose Hill Park, which is a large urban park set in the hilly country of the Rocky Mountain foothills. It is comprised of windswept grassy hillsides riddled with coulees, containing groves of trees only in the bottom of gullies. While the park is natural, it is a very different wild landscape than a forest. The sense of wild it possesses may elicit different responses from humans. We need to thoroughly understand the value—both to humans and to the environment—of different natural landscapes to do a better job of working with them within and around our cities.

6.3.2. Children's perceptions of urban natural areas

Research indicates that childhood experiences in nature predict adult engagement with nature (Ward Thompson, Aspinall, & Montarzino, 2008). This information often comes from adult remembrances of childhood, as it did in this study. Asking young children directly about their feelings towards and experiences in urban natural area parks would yield vital information about perceptions, as well as barriers and facilitators to nature engagement—especially if it was done in conjunction with the parents who are the gate-keepers of nature experiences for their children. Milligan and Bingley (2007) conducted research amongst young adults between the ages of 16 and 21 in the U.K. on their perceptions of woodlands, but I was unable to find any research working with younger children. A photovoice study exploring the perspectives of children and their parents—both users and non-users—towards natural area parks would contribute new insights to the body of literature. Studies such as these would yield practical information that would help planners and those in health promotion to design strategies to help connect people to nature.

6.3.3. Winter engagement

While experiences and perceived benefits in the natural areas were similar in winter as in summer, questions remain about how to promote beneficial winter

engagement with natural areas given that fewer people use these areas in the winter. What prompts some people to continue their walks (or other recreation) year round, while others give it up for the season? What are the specific barriers people face and are there ways they can be overcome without unduly changing the character of the natural area? What are the backgrounds and attitudes of people who continue outdoor recreation during the winter? The answers to all these questions would expand our knowledge of ways to enhance healthful connections to natural areas throughout the year.

6.3.4. Influence of moving through the space

Although this study concentrated on the sensory aspects of being in natural areas, the influence of moving through the space was unexplored. Further research should include this facet since it is part of the sensory and embodied experience of being in a natural space. Doughty (2013) notes the influence of movement through a landscape has been neglected in therapeutic landscapes research, but "movement is integral to therapeutic engagements with particular places" (p. 145). This was true in my study. While participants did not explicitly comment on the place of movement in their experience, there was an underlying sense that *of course* they were moving through the space: they were walking the dog or walking with others or going for a run. Therefore, while they commented on physical activity in regards to health, and one spoke about walking meditations, they did not reflect on how movement itself influenced their experience of the space. A different type of data collection such as go-along interviews would help uncover information about this aspect.

6.4. Overall Strengths and Limitations of the Study

As a group, participants in the study were passionate about and engaged with their local natural area parks and this is likely the reason they self-selected into the study. Many of them had been visiting their local natural area for years, some for decades. A few were involved with 'Friends of' stewardship groups and thus were even more involved with the park by providing conservation services such as pulling weeds or cleaning up litter, but others who were not formally affiliated with such a group were no less passionate about the areas. This passion and positive outlook on the natural area parks means that the findings of this study are not representative of everyone who uses

natural area parks and certainly not the views of people who do not visit them. However, the participants were in their own way experts on their own park and brought a wealth of experience to their interviews that might not have been available from users less involved and interested.

Some limitations in this study require reiteration. Although natural areas and neighbourhoods were chosen as much as possible to potentially include a diversity of participants, the people who volunteered were generally of higher socio-economic status and Caucasian. The reality, in Edmonton at least, is that neighbourhoods that include interesting natural features such as ravines and river views, are the ones marketed to and intended for people in higher income brackets: the people who live in these neighbourhoods are the ones who can afford to do so. As such, this was a very particular and homogenous segment of the Edmonton population. Their views on the natural area parks would be influenced by their backgrounds and circumstances. Not only were participants of higher socio-economic status, they were also generally older and well-established in their lives. This would likely have influenced their perceptions of appropriate uses of the areas and perceptions of safety. Interviewing a different group of users—for instance, young people—might have elicited entirely different viewpoints on safety or utilization of the space. Thus, the responses may not represent the opinions of people of more diverse backgrounds.

There were also issues recruiting sufficient numbers of participants, which led to an expansion of the study parks into river valley areas. While participants seemed to express similar sentiments across the study areas, it is possible that if I had found the necessary numbers from the original study sites or had added other smaller parks instead of the river valley, I would have heard different opinions expressed about experiences in small natural spaces. Time pressures—the length of time flyer delivery and the data collection process took combined with Edmonton's short summer season winding down convinced me to add river valley areas as the most likely to provide enough participants within the time I had. Next, the failure of my recording equipment, which led to nine interviews being re-done, may have inadvertently led to my own opinions influencing participant's opinions since we often chatted after the interviews were over. It is

impossible to tell if this would have significantly influenced people's answers during the re-interview.

6.5. Participant Changes / My Changes

Participants mentioned to me that doing the project had influenced them in various ways. Sometimes just taking the pictures and thinking about what they wanted to tell me made them examine their surroundings more closely. Adam (WC-W) realized that he had run through Whitemud Creek ravine for years without noticing there were other paths to explore and decided he needed to take some slow, exploratory walks through the area. George (WC-S) noted that participating in the study had forced him to reflect deeply on what he was experiencing. Some participants talked about connections they had forged with their children as they were going through the pictures they had taken, and Drea (RS-W) had an epiphany about how her mother had connected her to the beauty of nature as a child and how that connection has shaped the person she is now. Several participants commented in their interviews that participating had made them more aware of how important these spaces are to them and deepened their understanding of their value. A few added that they intend to be more involved in the future and make sure their voices are heard when the city invites citizen feedback on issues related to natural areas.

For myself, I came into the project feeling strongly that not every space needs to be groomed, manicured, and *managed*: that there is some inherent value in being exposed to places that are wild and messy, that burgeon with life, and that are outside human control. If anything, through hearing the perspectives of the participants and the passion they brought to the study, I feel even more strongly that this is the case. Before this project, while I loved being in wild spaces I had trouble articulating what it was that I loved. Through the eloquence of the participants that worked so hard to articulate and share why these spaces are so important to them, and my own grappling with the ideas in the project, I find I have more ability to understand why I feel the way I do and to express those feelings.

My awareness of my surroundings has been heightened through this project, no matter where I am, whether in the city or in natural areas. This new awareness adds a pleasant and interesting layer to my everyday life. My auditory sense has always been my

least accessed, but through this project, I have become much more aware of sounds. I attribute this to an afternoon I spent in Hodgson Wetland listening to the various splashes, ripples, and bird calls, the wind rattling the cattail leaves, and being close enough to one of the muskrats to hear him chewing. Since that afternoon, I notice sounds more and listen to them as interesting phenomena—the crunch and slide of gravel underfoot on wet pavement, the high, thin sound of the winter wind through bare branches. I had wanted to go down to the river when the river ice was first forming to hear the sound of ice hitting the shore that Emmy (KR-W) described to me so vividly. But although I watched the river and noted when the ice flowers were first forming, I still managed to miss the narrow window of opportunity to experience this phenomenon. Winter beauty is indeed fleeting and ephemeral.

6.6. Concluding Thoughts

It is easy to forget that humans are part of nature. This may be because while humans are natural beings, our dominion over nature and ability to shape and destroy it as we see fit tends to create a natural break between nature and us. In addition, humans and nature create in different ways. Cities are full of straight lines and hard spaces; nature is inherently messy and disorganized—at least by human standards. This thesis and the very idea of creating cities that provide abundant nature is a way of helping to heal this rift and re-educate people to the idea that humans and nature are one and the same. Nature is not something 'out there' it is something we are part of that is all around. When people feel connected to nature, it can have important health and well-being impacts on individuals.

Natural areas in the city provide important ecological services, both to humans (air cleaning, urban cooling) and to non-human beings (habitat, connections for migration). If we assume that these services are enough, we could locate these areas wherever they make the most sense for ecological benefits. However, if we accept that the human-nature interaction is also vitally important, we understand the need to connect these areas not only to each other for the sake of the creatures that live in them, but also connect them to us. The ecological base needs first consideration because that is the foundation, but after that base is established, ways to facilitate human-nature contact and experiences needs to be put in place. This is why providing nature in neighbourhoods is crucial. Having nature

close and local gives people more opportunities to access it and experience health-promoting effects. It becomes a reciprocal relationship: when we build cities in ways that provide abundant space for native nature to live and thrive, it also creates spaces that promote human health and well-being through connections to nature. Nature benefits: we benefit.

Although the focus of this study on the value of small, wild spaces within an urban context, our focus should not only be on supplying small patches of natural areas. Small areas of wild nature are only one aspect of a greater and over-arching perspective of ensuring that small areas are part of a larger healthy ecosystem. Small spaces often do not have enough space to support species on a long-term basis, which is why connections between natural areas are important. A city can be a patchwork of small and large natural spaces, connecting to each other and providing people the opportunity to connect with nature. When we shift ideas of what type of nature belongs in cities, we shift ideas of what cities can be.

In conclusion, I want to return to the idea of shifting baselines (Pauly, 1995). This theory suggests that each successive generation grows up in more degraded surroundings, but perceives those conditions as normal. It is important to recognize that baselines do not only need to shift downwards: "we are always only a single generation away from a new sense of what is normal" (MacKinnon, 2013, p. 229). If we build cities in ways that fill them with nature at every opportunity, then we can create new baselines for successive generations that reference cities alive with birdsong and filled with natural spaces that promote native plants, birds, and animals and a human population with an abundant and rich connection to nature in all its forms.

7. References

Annerstedt, M., Ostergren, P., Bjork, J., Grahn, P., Skarback, E., & Wahrborg, P. (2012). Green qualities in the neighbourhood and mental health – results from a longitudinal cohort study in Southern Sweden. *BMC Public Health*, *12*(1), art. no. 337.

Antonovsky, A. (1996). The salutogenic model as a theory to guide health promotion. *Health Promotion International, 11*(1), 11-18.

Bauman, A.E. (2004). Updating the evidence that physical activity is good for health: an epidemiological review 2000-2003. *Journal of Science and Medicine in Sport, 7*(1 Suppl), 6-19.

Baxter, J., & Eyles, J. (1997). Evaluating qualitative research in social geography: establishing 'rigour' in interview analysis. *Transactions of the Institute of British Geographers, 22*(4), 505-525.

Bazeley, P. (2013). Qualitative Data Analysis: Practical Strategies. Thousand Oaks, CA: Sage Publications.

Beatley, T. (2011). Biophilic cities: integrating nature into urban design and planning. Washington, DC: Island Press.

Beckley, T.M., Stedman, R.C., Wallace, S.M., & Ambard, M. (2007). Snapshots of what matters most: Using resident-employed photography to articulate attachment to place. *Society & Natural Resources: An International Journal, 20*(10), 913-929. doi: 10.1080/08941920701537007

Belanger, M., Gray-Donald, K., O'Loughlin, J., Paradis, G., & Hanley, J. (2009). Influences of weather conditions and seasons on physical activity in adolescents. *Annals of Epidemiology, 19*(3)*,* 180-186. doi:10.1016/j.annepidem.2008.12.008

Bell, M. (1999). Rehabilitating Middle England: Integrating ecology, aesthetics and ethics. In A. Williams (Ed.), *Therapeutic landscapes: The dynamic between place and wellness* (pp. 29-51). Lanham, MD: University Press of America.

Bensley, R.J. (1991). Defining spiritual health: A review of the literature. *Journal of Health Education, 22*(5), 287-290.

Bixler, R.D. & Floyd, M.F. (1997). Nature is scary, disgusting, and uncomfortable. *Environment and Behavior, 29*(4), 443-467.

Bowler, D.E., Buyung-Ali, L.M., Knight, T.M., & Pullin, A.S. (2010). A systematic review of evidence for the added benefits to health of exposure to natural environments. *BMC Public Health, 10*, 456. http://www.biomedcentral.com/1471-2458/10/456

Bradshaw, M., & Stratford, E. (2000). Qualitative research design and rigour. In I. Hay (Ed.), Qualitative Research Methods in Human Geography (p. 37 – 49). South Melbourne, Australia: Oxford University Press.

Burgess, J. (1998). But is it worth taking the risk? How women negotiate access to urban woodland: A case study. In R. Ainley (Ed.), New Frontiers of Space, Bodies, and Gender (p. 115-128). New York: Routledge.

Butler, C.D. & Oluoch-Kosura, W. (2006). Linking future ecosystem services and future human well-being. *Ecology and Society, 11*(1), 30. URL: http://www.ecologyandsociety.org/vol11/iss1/art30/

Campo, R.A., & Uchino, B.N. (2013). Humans' bonding with their companion dogs: Cardiovascular benefits during and after stress. *Journal of Sociology and Social Welfare, 40*(4), 237-259.

Carson, V., Spence, J.C., Cutumisu, N., Boule, N., & Edwards, J. (2010). Seasonal variation in physical activity among preschool children in a northern Canadian city. *Research Quarterly for Exercise and Sport*, *81*(4), 392-399.

Castleden, H., & Garvin, T. (2004). Therapeutic landscapes as sacred land: Wolf in sheep's clothing? In J. Oakes, R. Riewe, Y. Belanger, S. Blady, K. Legge, P. Wiebe (Eds.), *Aboriginal Cultural Landscapes* (p. 86-96). Winnipeg, MB: Aboriginal Issues Press.

Cattell, V., Dines, N., Gesler, W., & Curtis, S. (2008). Mingling, observing, and lingering: everyday public spaces and their implications for well-being and social relations. *Health & Place, 14*(3), 544-561. doi:10.1016/j.healthplace.2007.10.007

City of Edmonton. (n.d.) Edmonton's Natural Area Parks. Retrieved from: http://www.edmonton.ca/city_government/environmental_stewardship/natural-area-parks.aspx

City of Edmonton. (n.d.) Municipal Census Results 2014. Retrieved from http://www.edmonton.ca/city_government/facts_figures/municipal-census-results.aspx

City of Edmonton. (n.d.) River Valley. Retrieved from: http://www.edmonton.ca/city_government/city_organization/river-valley.aspx

City of Edmonton. (n.d.) WinterCity Strategy. Retrieved from, http://www.edmonton.ca/city_government/initiatives_innovation/wintercity-strategy.aspx

City of Edmonton. (2007). Natural connections strategic plan, 2007. Edmonton, AB. Retrieved from: http://www.edmonton.ca/city_government/documents/Natural_Connections_-_Strategic_Plan_JUNE_09.pdf

Cole, D.N., & Hall, T.E. (2010). Experiencing the restorative components of wilderness environments: Does congestion interfere and does length of exposure matter? *Environment and Behavior,* 42(6), 806-823. doi: 10.1177/0013916509347248

Coles, R.W., & Bussey, S.C. (2000). Urban forest landscapes in the UK—progressing the social agenda. *Landscape and Urban Planning*, *52*(2-3), 181-188. doi: 10.1016/S0169-2046(00)00132-8

Conradson, D. (2005). Landscape, care and the relational self: Therapeutic encounters in rural England. *Health & Place, 11*(4), 337-348.

Creswell, J.W. (2009). Research design: Qualitative, quantitative, and mixed methods approaches. Thousand Oaks, CA: Sage Publications.

Creswell, J.W. (2013). Qualitative inquiry and research design: Choosing among five approaches. Thousand Oaks, CA: Sage Publications.

Curtin, S. (2009). Wildlife tourism: the intangible, psychological benefits of human-wildlife encounters. *Current Issues in Tourism, 12*(5-6), 451-474. doi: 10.1080/13683500903042857

Cutt, H., Giles-Corti, B., Knuiman, M., & Burke, V. (2007). Dog ownership, health and physical activity: A critical review of the literature. *Health & Place, 13*(1), 261-272. doi:10.1016/j.healthplace.2006.01.003

Dale, H., Brassington, L., & King, K. (2014). The impact of healthy lifestyle interventions on mental health and wellbeing: a systematic review. *Mental Health Review Journal, 19*(1), 1-25. doi:10.1108/MHRJ-05-2013-0016

Dallimer, M., Irvine, K.N., Skinner, A.M.J., Davies, Z.G., Rouquette, J.R., Maltby, L.L. . . . Gaston, K.J. (2012). Biodiversity and the feel-good factor: Understanding associations between self-reported human well-being and species richness. *BioScience, 62*(1), 47-55.

Dandy, N., & Van Der Wal, R. (2011) Shared appreciation of woodland landscapes by land-management professionals and lay people: An exploration through field-based interactive photo-elicitation. *Landscape and Urban Planning, 102*(1), 43-53. doi:10.1016/j.landurbplan.2011.03.008

Dinnie, E., Brown, K.M., & Morris, S. (2013). Community, cooperation and conflict: Negotiating the social well-being benefits of urban greenspace experiences. *Landscape and Urban Planning, 112*(1), 1-9. doi: http://dx.doi.org/10.1016/j.landurbplan.2012.12.012

Dooris, M., Poland, B., Kolbe, L., de Leeuw, E., McCall, D.S., & Wharf-Higgins, J. (2007). Healthy settings: Building evidence for the effectiveness of whole system health promotion – challenges and future directions. In David V. McQueen and Catherine M. Jones (Eds.), Global Perspectives on Health Promotion Effectiveness (p. 327-352). Retrieved from

http://link.springer.com/chapter/10.1007/978-0-387-70974-1_19#. doi:10.1007/978-0-387-70974-1_19

Doughty, K. (2013). Walking together: The embodied and mobile production of a therapeutic landscape. *Health & Place, 24*(2013), 140-146. doi: http://dx.doi.org/10.1016/j.healthplace.2013.08.009

Douglas, I. & Sadler, J.P. (2011). Urban wildlife corridors: Conduits for movement or linear habitat? In I. Douglas, D. Goode, M.C. Houck, R. Wang (Eds.), *The Routledge Handbook of Urban Ecology* (pp. 274-288). New York: Routledge.

Dowling, R. (2000). Power, subjectivity and ethics in qualitative research. In I. Hay (Ed.), Qualitative Research Methods in Human Geography (p. 23 – 36). South Melbourne, Australia: Oxford University Press.

Dutcher, D.D., Finley, J.C., Luloff, A.E., & Johnson, J.B. (2007). Connectivity with nature as a measure of environmental values. *Environment and Behavior, 39*(4), 474-493. doi:10.1177/0013916506298794

Ecological Framework of Canada. (n.d.). Ecoregions of Canada: Aspen parkland. Retrieved from: http://ecozones.ca/english/region/156.html

Ehrenfeld, J.G., Palta, M., & Stander, E. (2011). Wetlands in urban environments. In I. Douglas, D. Goode, M.C. Houck, R. Wang (Eds.), *The Routledge Handbook of Urban Ecology* (pp. 338-351). New York: Routledge.

Employment and Social Development Canada. (2013). The national shelter study 2005-2009 – highlights. Government of Canada. Retrieved from http://www.esdc.gc.ca/eng/communities/homelessness/reports/shelter_study.shtml

Fisher, J. (2011). The four domains model: Connecting spirituality, health and well-being. *Religions, 2*(1), 17-28.

Fredrickson, L.M., & Anderson, D.H. (1999). A qualitative exploration of the wilderness experience as a source of spiritual inspiration. *Journal of Environmental Psychology*, *19*. 21-39.

Fuller, R.A., Irvine, K.N., Devine-Wright, P., Warren, P.H., & Gaston, K.J. (2007). Psychological benefits of greenspace increase with biodiversity. *Biology Letters, 3*(4), 390-394. doi:10.1098/rsbl.2007.0149

Fusco, C., Moola, F., Faulkner, G., Buliung, R., & Richichi, V. (2012). Toward an understanding of children's perceptions of their transport geographies: (non)active school travel and visual representations of the built environment. *Journal of Transport Geography*, *20*(1), 62-70. doi:10.1016/j.jtrangeo.2011.07.001

Garvin, T., Nykiforuk, C.I.J., & Johnson, S. (2012). Can we get old here? Seniors' perceptions of seasonal constraints of neighbourhood built environments in a northern, winter city. *Geografiska Annaler, Series B: Human Geography, 94*(4), 369-389.

Gastaldo, D., Andrews, G.J., & Khanlou, N. (2004). Therapeutic landscapes of the mind: theorizing some intersections between health geography, health promotion, and immigration studies. *Critical Public Health, 14*(2), 157-176.

Gatersleben, B. & Andrews, M. (2013). When walking in nature is not restorative—the role of prospect and refuge. *Health & Place, 20,* 91-101. doi:10.1016/j.healthplace.2013.01.001

Gesler, W. (1992). Therapeutic landscapes: Medical issues in light of the new cultural geography. *Social Science & Medicine*, *34*(7), 735-746.

Gesler, W. (2005). Therapeutic landscapes: an evolving theme. *Health & Place*, *34*(7), 295-297.

Gopnik, A. (2011). Winter: Five windows on the season. Toronto, ON: House of Anansi Press.

Grahn, P., & Stigsdotter, U. (2003). Landscape planning and stress. *Urban Forestry & Urban Greening*, *2*(1), 1-18.

Green, J. & Tones, K. (2010). Health promotion: Planning and strategies. Thousand Oaks, CA: Sage Publications.

Guillemin, M., & Drew, S. (2010). Questions of process in participant-generated visual methodologies. *Visual Studies*, *25*(2), 175-188. doi: 10.1080/1472586X.2010.502676

Hammitt, W.E. (2000). The relation between being away and privacy in urban forest recreation environments. *Environment and Behavior, 32*(4), 521-540. doi: 10.1177/00139160021972649

Harper, D. (2002). Talking about pictures: a case for photo elicitation. *Visual Studies, 17*(1), 13-26.

Harris, A., & Guillemin, M. (2012). Developing sensory awareness in qualitative interviewing: A portal into the otherwise unexplored. *Qualitative Health Research*, *22*(5), 689-699. doi: 10.1177/1049732311431899

Hartig, T., Evans, G.W., Jammer, L.D., Davis, D.S., & Gärling, T. (2003). Tracking restoration in natural and urban field settings. *Journal of Environmental Psychology, 23*(2), 109-123. doi:10.1016/S0272-4944(02)00109-3

Hartig, T., Kaiser, F.G., & Strumse, E. (2007). Psychological restoration in nature as a source of motivation for ecological behaviour. *Environmental Conservation, 34*(4), 291-299. doi:10.1017/S0376892907004250

Hartig, T., Mitchell, R., de Vries, S., & Frumkin, H. (2014). Nature and health. *Annual Review of Public Health 35*, 207-228. 10.1146/annurev-publhealth-032013-182443

Hedblom, M., Heyman, E., Antonsson, H., & Gunnarsson, B. (2014). Bird song diversity influences young people's appreciation of urban landscapes. *Urban Forestry & Urban Greening, 13*(3), 469-474. doi: http://dx.doi.org/10.1016/j.ufug.2014.04.002

Heintzman, P. (2011). Spiritual outcomes of wilderness experience: A synthesis of recent social science research. *Park Science 28*(3), 89-102.

Hempton, G. (2009). One square inch of silence: One man's search for natural silence in a noisy world. New York: Free Press.

Herbert, D.T. (1993). Neighbourhood incivilities and the study of crime in place. *Area, 25*(1), 45-54. URL: http://www.jstor.org/stable/20003211

Higgins, J.W., Temple, V., Murray, H., Kumm, E., & Rhodes, R. (2013). Walking sole mates: Dogs motivating, enabling and supporting guardians' physical activity. *Anthrozoös 26*(2), 237-252.

Hill, J., Curtin, S., & Gough, G. (2014). Understanding tourist encounters with nature: a thematic framework. *Tourism Geographies: An International Journal of Tourism Space, Place and Environment, 16*(1), 68-87. doi: 10.1080/14616688.2013.851265

Imhoff, M.L., Bounoua, L., DeFries, R., Lawrence, W.T., Stutzer, D., Tucker, C.J. & Ricketts, T. (2004). The consequences of urban land transformation on net primary productivity in the United States. *Remote Sensing of Environment, 89*, 434–443.

International Union for Conservation of Nature. (1994). *Guidelines for applying protected areas management categories*. Retrieved from: http://cmsdata.iucn.org/downloads/guidelines_for_applying_protected_area_management_categories.pdf

Jackson, P. (2001). Making sense of qualitative data. In M. Limb and C. Dwyer (Eds.), Qualitative Methodologies for Geographers (p. 199 – 214). New York: Oxford University Press.

Jackson, R.J., Dannenberg, A.L., & Frumkin, H. (2013). Health and the built environment: 10 years after. Editorial. *American Journal of Public Health, 103*(9), 1542-1544. doi: 10.2105/AJPH.2013.301482

Jauhiainen, J.S., & Mönkkönen, M. (2005). Seasonality: Nature, people's preferences and urban planning in Oulunsalo, Finland. *Landscape Research, 30*(2), 273-281. doi:10.1080/01426390500044499

Jorgensen, A., & Anthopoulou, A. (2007). Enjoyment and fear in urban woodlands – does age make a difference? *Urban Forestry & Urban Greening*, *6*(4), 267-278. doi**:** 10.1016/j.ufug.2007.05.004

Jorgensen, A., Hitchmough, J., & Dunnett, N. (2007). Woodland as a setting for housing: appreciation and fear and the contribution to residential satisfaction and place identity in Warrington New Town, UK, *Landscape and Urban Planning, 79*(3-4), 273-287. doi:10.1016/j.landurbplan.2006.02.015

Kaplan, R., & Kaplan, S. (1989). The Experience of Nature: a psychological perspective. New York: Cambridge University Press.

Kaźmierczak, A. (2013). The contribution of local parks to neighbourhood social ties. *Landscape and Urban Planning, 109*(1), 31-44.

Keniger, L.E., Gaston, K.J., Irvine, K.N., & Fuller, R.A. (2013). What are the benefits of interacting with nature? *International Journal of Environmental Research and Public Health, 10*, 913-935. doi:10.3390/ijerph10030913

King, A.C., Castro, C., Wilcox, S., Eyler, A.A., Sallis, J.F., & Brownson, R.C. (2000). Personal and environmental factors associated with physical inactivity among different racial-ethnic groups of US middle-aged and older-aged women. *Health Psychology, 19*(4) 354-364.

Knecht, C. (2004). Urban nature and well-being: Some empirical support and design implications. *Berkeley Planning Journal*, *17*, 82-108.

Konijnendijk, C.C. (2012). Between fascination and fear – The impacts of urban wilderness on health and wellbeing. *Socialmedicinsk tidskrift, 89*(3), 289-295. http://www.socialmedicinsktidskrift.se/index.php/smt/article/view/905

Korpela, K.M., Hartig, T., Kaiser, F.G., & Fuhrer, U. (2001). Restorative experience and self-regulation in favorite places. *Environment and Behavior, 33*(4), 572-589.

Korpela, K.M., & Ylén, M. (2007). Perceived health is associated with visiting natural favorite places in the vicinity. *Health & Place, 13*(1), 138-151. doi:10.1016/j.healthplace.2005.11.002

Korpela, K.M., Ylén, M., Tyrvainen, L., & Silvennoinen, H. (2010). Favorite green, waterside, and urban environments, restorative experiences and perceived health

in Finland. *Health Promotion International, 25*(2), 200-209. doi:10.1093/heapro/daq007

Krenichyn, K. (2006). 'The only place to go and be in the city': women talk about exercise, being outdoors, and the meanings of a large urban park. *Health & Place, 12*(4), 631-643. doi:10.1016/j.healthplace.2005.08.015

Kuo, F.E., Sullivan, W.C., Coley, R.L., & Brunson, L. (1998). Fertile ground for community: Inner-city neighborhood common spaces. *American Journal of Community Psychology, 26*(6), 823-851.

Lee, I.-M., Shiroma, E.J., Lobelo, F., Puska, P., Blair, S.N., & Katzmarzyk, P.T. (2012). Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *Lancet, 380,* 219-229. doi: http://dx.doi.org/10.1016/ S0140-6736(12)61031-9

Limb, M., & Dwyer, C. (2001). Introduction: doing qualitative research in geography. In M. Limb & C. Dwyer (Eds.), Qualitative Methodologies for Geographers (p. 1 – 23). New York: Oxford University Press.

Louv, R. (2011). The nature principle. Chapel Hill, N.C.: Algonquin Books of Chapel Hill.

Maas, J., van Dillen, S.M.E., Verheij, R.A., & Groenewegan, P.P. (2009). Social contacts as a possible mechanism behind the relation between green space and health. *Health & Place, 15*(2), 586-595. doi:10.1016/j.healthplace.2008.09.006

Maas, J., Verheij, R. A., Groenewegen, P. P., de Vries, S. & Spreeuwenberg, P. (2006). Green space, urbanity, and health: how strong is the relation? *Journal of Epidemiology and Community Health, 60*(7), 587-592.

MacKinnon, J.B. (2013). The once and future world: Nature as it was, as it is, as it could be. Toronto, ON: Random House Canada

Maller, C., Townsend, M., Pryor, A., Brown, P., & St Leger, L. (2005). Healthy nature healthy people: 'contact with nature' as an upstream health promotion

intervention for populations. *Health Promotion International, 21*(1), 45-54. doi:10.1093/heapro/dai032

Manuel, P.M. (2003a.). Cultural perceptions of small urban wetlands: Cases from the Halifax Regional Municipality, Nova Scotia, Canada. *Wetlands, 23*(4), 921-940. doi: http://dx.doi.org/10.1672/0277-5212(2003)023[0921:CPOSUW]2.0.CO;2

Manuel, P.M. (2003b). Occupied with ponds: Exploring the meaning, bewaring the loss for kids and communities of nature's small spaces. *Journal of Occupational Science, 10*(1), 31-39. doi: http://dx.doi.org/10.1080/14427591.2003.9686508

Mayan, M.J. (2009). *Essentials of qualitative inquiry*. Walnut Creek, CA: Left Coast Press, Inc.

McSherry, W., & Cash, K. (2003). The language of spirituality: an emerging taxonomy. *International Journal of Nursing Studies, 41*(2), 151-161. doi:10.1016/S0020-7489(03)00114-7

Meine, C., & Knight, R.L. (Eds.). (2006). The essential Aldo Leopold: quotations and commentaries. Madison, WI: University of Wisconsin Press. Retrieved from http://web.a.ebscohost.com.login.ezproxy.library.ualberta.ca/ehost/ebookviewer/ebook (Original work published 1999)

Merrill, R.M., Shields, E.C., White Jr., G.L., & Druce, D. (2005). Climate conditions and physical activity in the United States. *American Journal of Health Behavior, 29*(4), 371-381.

Miller, J.R. (2006). Restoration, reconciliation, and reconnecting with nature nearby. *Biological Conservation, 127*(3), 356-361. doi:10.1016/j.biocon.2005.07.021

Milligan, C., & Bingley, A. (2007). Restorative places or scary spaces? The impact of woodland on the mental well-being of young adults. *Health & Place*, *13*(4), 799-811.

Milligan, C., Gatrell, A., & Bingley, A. (2004). Cultivating health: Therapeutic landscapes and older people in northern England. *Social Science & Medicine, 58*(9), 1781-1793. doi:10.1016/S0277-9536(03)00397-6

Millward, H. (2006). Metropolitan form and the environment. In T. Bunting & P. Filion (Eds.), *Canadian Cities in Transition: Local through Global Perspectives* (pp. 363-378). Don Mills, ON: Oxford University Press.

Mitchell, R. (2013). Is physical activity in natural environments better for mental health than physical activity in other environments? *Social Science & Medicine, 91*, 130-134. doi:10.1016/j.socscimed.2012.04.012

Munn-Rivard, L. (2014). Current issues in mental health in Canada: Homelessness and access to housing (in brief). Ottawa, ON: Library of Parliament. Publication No. 2014-11-E. Retrieved from: http://www.parl.gc.ca/Content/LOP/ResearchPublications/2014-11-e.pdf

Murphy, S.D. (2006). Why micro-scale urban ecology matters. In T. Bunting & P. Filion (Eds.), *Canadian Cities in Transition: Local through Global Perspectives* (pp. 379-392). Don Mills, ON: Oxford University Press.

Nash, R. (1982). Wilderness and the American mind. New Haven, CT: Yale University Press.

Nassauer, J.I. (1995). Messy ecosystems, orderly frames. *Landscape Journal, 14*(2), 161-170.

Nykiforuk, C.I.J., Vallianatos, H., & Nieuwendyk, L.M. (2011). Photovoice as a method for revealing community perceptions of the built and social environment. *International Journal of Qualitative Methods, 10*(2), 103-124.

O'Brien, L., Morris, J. & Stewart, A. (2014). Engaging with peri-urban woodlands in England: The contribution to people's health and well-being and implications for future management. *International Journal of Environmental Research and Public Health, 11*(6), 6171-6192. doi:10.3390/ijerph110606171

Öhman, A. & Mineka, S. (2001). Fears, phobias, and preparedness: Toward an evolved module of fear and fear learning. *Psychological Review, 108*(3), 483-522.

Oldrup, H.H., & Carstensen, T.A. (2012). Producing geographic knowledge through visual methods. *Geografiska Annaler: Series B, Human Geography*, *94*(3), 223-237. doi: 10.1111/j.1468-0467.2012.00411.x

Ouellette, P., Kaplan, R., & Kaplan, S. (2005). The monastery as a restorative environment. *Journal of Environmental Psychology, 25*(2), 175-188.

Outspan Group for Canadian Parks Council. (2011). The economic impact of Canada's national, provincial & territorial parks in 2009. Retrieved from: file:///E:/econ_impact_2009_national%20parks.pdf

Özgüner, H., & Kendle, A.D. (2006). Public attitudes towards naturalistic versus designed landscapes in the city of Sheffield (UK). *Landscape and Urban Planning, 74*(2), 139-157. doi:10.1016/j.landurbplan.2004.10.003

Palka, E. (1999). Accessible wilderness as therapeutic landscape: experiencing the nature of Denali National Park, Alaska. In A. Williams (Ed.), *Therapeutic landscapes: The dynamic between place and wellness* (pp. 29-51). Lanham, MD: University Press of America.

Parkes, M.W., & Horwitz, P. (2009). Water, ecology and health: ecosystems as settings for promoting health and sustainability. *Health Promotion International 24*(1), 94-102. doi:10.1093/heapro/dan044

Parsons, R., Tassinary, L.G., Ulrich, R.S., Hebl, M.R., & Grossman-Alexander, M. (1998). The view from the road: implications for stress recovery and immunization. *Journal of Environmental Psychology, 18*(2), 113-139.

Pasanen, T.P., Tyrväinen, L., & Korpela, K.M. (2014). The relationship between perceived health and physical activity indoors, outdoors in built environments, and outdoors in nature. *Applied Psychology: Health and Well-Being, 6*(3), 324-346. doi: 10.1111/aphw.12031

Patton, M.Q. (1990). Qualitative evaluation and research methods. New York: Sage Publications.

Pauly, D. (1995). Anecdotes and the shifting baseline syndrome of fisheries. *Trends in Ecology & Evolution, 10*(10), 430.

Peckham, S.C., Duinker, P.N., & Ordóñez, C. (2013). Urban forest values in Canada: Views of citizens in Calgary and Halifax. *Urban Forestry & Urban Greening, 12*(2), 154-162. doi:10.1016/j.ufug.2013.01.001

Peters, K., Elands, B., & Buijs, A. (2010). Social interactions in urban parks: stimulating social cohesion? *Urban Forestry & Urban Greening, 9*(2), 93-100. doi:10.1016/j.ufug.2009.11.003

Power, N.G., Norman, M.E., & Dupre, K. (2014). Rural youth and emotional geographies: how photovoice and words-alone methods tell different stories of place. *Journal of Youth Studies, 17*(8), 1114-1129. doi: 10.1080/13676261.2014.881983

Pretty, J., Peacock, J., Sellens, M., & Griffin, M. (2005). The mental and physical health outcomes of green exercise. *International Journal of Environmental Health Research, 15*(5), 319-337.

Ratcliffe, E., Gatersleben, B, & Sowden, P.T. (2013). Bird sounds and their contributions to perceived attention restoration and stress recovery. *Journal of Environmental Psychology, 36,* 221-228. doi:10.1016/j.jenvp.2013.08.004

Refshauge, A.D., Stigsdotter, U.K., & Cosco, N.G. (2012). Adults' motivations for bringing their children to park playgrounds. *Urban Forestry & Urban Greening, 11*(4), 396-405. doi: http://dx.doi.org/10.1016/j.ufug.2012.06.002

Richards, L. (2009). Handling qualitative data: A practical guide. Thousand Oaks, CA: Sage Publications.

Rogers, Z., & Bragg, E. (2012). The power of connection: Sustainable lifestyles and sense of place. *Ecopsychology, 4*(4), 307-318. doi: 10.1089/eco.2012.0079

Rosenwzeig, M.L. (2003). Win-win ecology: How the earth's species can survive in the midst of human enterprise. New York: Oxford University Press.

Sanon, M., Evans-Agnew, R.A., & Boutain, D.M. (2014). An exploration of social justice intent in photovoice research studies from 2008 – 2013. *Nursing Inquiry, 21*(3), 212-226. doi: 10.1111/nin.12064

Scannell, L., & Gifford, R. (2010). The relations between natural and civic place attachment and pro-environmental behavior. *Journal of Environmental Psychology, 30*(3), 289-297. doi:10.1016/j.jenvp.2010.01.010

Shwartz, A., Turbé, A., Simon, L., & Julliard, R. (2014). Enhancing urban biodiversity and its influence on city-dwellers: an experiment. *Biological Conservation, 171* 82-90. doi:10.1016/j.biocon.2014.01.009

Silverman, D. (2010). Doing qualitative research: A practical handbook. Thousand Oaks, CA: Sage Publications.

Smaldone, D., Harris, C., & Sanyal, N. (2008). The role of time in developing place meanings. *Journal of Leisure Research, 40*(4), 479-504.

Smith, S.J. (1989). Social relations, neighbourhood structure and fear of crime in Britain. In D.J. Evans & D.T. Herbert (Eds.), *The Geography of Crime* (pp. 193-227). London: Routledge.

Snell, T.L. & Simmonds, J.G. (2012). "Being in that environment can be very therapeutic": Spiritual experiences in nature. *Ecopsychology, 4*(4), 326-335. doi: 10.1089/ECO.2012.0078

Song, C., Joung, D., Ikei, H., Igarashi, M., Aga, M., Park, B., . . . Miyazaki, Y. (2013). Physiological and psychological effects of walking on young males in urban parks in the winter. *Journal of Physiological Anthropology, 32*(18) 1-5 doi: 10.1186/1880-6805-32-18

Statistics Canada. (n.d.) Focus on Geography Series, 2011 Census. Retrieved from: http://www12.statcan.gc.ca/census-recensement/2011/as-sa/fogs-spg/Facts-cma-eng.cfm?LANG=Eng&GK=CMA&GC=835

St. Clair, C.C., Tremblay, M., Gainer, F., Clark, M., Murray M., & Cembrowski, A. (2010). Urban biodiversity: Why it matters and how to protect it. The Edmonton

Sustainability Papers: Discussion Paper 8. Retrieved from: http://www.edmonton.ca/city_government/city_vision_and_strategic_plan/the-way-we-green-discussion-papers.aspx

Stedman, R.C. (2003). Is it really just a social construction?: The contribution of the physical environment to sense of place. *Society and Natural Resources: An International Journal, 16*(8), 671-685. doi:http://dx.doi.org/10.1080/08941920309189

Stellar, J.E., John-Henderson, N., Anderson, C.L., Gordon, A.M., McNeil, G.D., & Keltner, D. (2015). Positive affect and markers of inflammation: Discrete positive emotions predict lower levels of inflammatory cytokines. *Emotion, 15*(2), 129-133. doi:http://dx.doi.org/10.1037/emo0000033

Stern, S.L., Donahue, D.A., Allison, S., Hatch, J.P., Lancaster, C.L., Benson, T.A. . . . Johnson, A.L. (2013). Potential benefits of canine companionship for military veterans with posttraumatic stress disorder (PTSD). *Society & Animals, 21*(6), 568-581. doi: 10.1163/15685306-12341286

Thompson Coon, J., Boddy, K., Stein, K., Whear, R., Barton, J., & DePledge, M.H. (2011). Does participating in physical activity in outdoor natural environments have a greater effect on physical and mental wellbeing than physical activity indoors? A systematic review. *Environmental Science and Technology, 45*(5), 1761-1772.

Toohey, A.M., McCormack, G.R., Doyle-Baker, P.K., Adams, C.L., & Rock, M.J. (2013). Dog-walking and sense of community in neighborhoods: Implications for promoting regular physical activity in adults 50 years and older. *Health & Place, 22*, 75-81. doi: http://dx.doi.org/10.1016/j.healthplace.2013.03.007

Ulrich, R.S. (1984). View through a window may influence recovery from surgery. *Science, 224*(4647), 420-421. URL: http://www.jstor.org/stable/1692984

United Nations. (2014). World Urbanization Prospects, highlight, 2014 Revision. Retrieved from: http://esa.un.org/unpd/wup/Highlights/WUP2014-Highlights.pdf

US Wilderness Act. (1964). *To establish a National Wilderness Preservation System for the permanent good of the whole people, and for other purposes. Public Law 88-577, 88th Congress, 3 September 1964.* Retrieved from: http://www.wilderness.net/NWPS/legisAct

Vader, J.-P. (2006). Spiritual health: The next frontier. *European Journal of Public Health, 16*(5), 457. doi:10.1093/eurpub/ckl234

Valentine, G. (1989). The geography of women's fear. *Area, 21*(4), 385-390.

Valentine, G. (1992). Images of danger: Women's sources of information about the spatial distribution of male violence. *Area, 24*(1), 22-29.

van den berg, A.E., Jorgensen, A., & Wilson, E.R. (2014). Evaluating restoration in urban green spaces: Does setting type make a difference? *Landscape and Urban Planning, 127*, 173-181.

van den Berg, A.E. & ter Heijne, M. (2005). Fear versus fascination: An exploration of emotional responses to natural threats. *Journal of Environmental Psychology, 25*(3), 261-272. doi:10.1016/j.jenvp.2005.08.004

Volker, S., & Kistemann, T. (2013). "I'm always entirely happy when I'm here!" Urban blue enhancing human health and well-being in Cologne and Dusseldorf, Germany. *Social Science & Medicine*, *78*(1), 113-124.

Wakefield, S., & McMullan, C. (2005). Healing in places of decline: (Re)Imagining everyday landscapes in Hamilton, Ontario. *Health & Place, 11*(4), 299-312.

Wang, C.C. (1999). Photovoice: A participatory action research strategy applied to women's health. *Journal of Women's Health, 8*(2), 185-192.

Wang, C., & Burris, M.A. (1994). Empowerment through photo novella: Portraits of participation. *Health Education & Behavior, 21*(2), 171-86.

Wang, C., & Burris, M.A. (1997). Photovoice: Concept, methodology, and use for participatory needs assessment. *Health Education & Behavior*, *24*(3), 369-387.

Warburton, D.E.R., Charlesworth, S., Ivey, A., Nettlefold, L., & Bredin, S.S.D. (2010). A systematic review of the evidence for Canada's physical activity guidelines for

adults. *International Journal of Behavioral Nutrition and Physical Activity, 7*, 39. doi:10.1186/1479-5868-7-39

Ward Thompson, C. (2002). Urban open space in the 21st Century. *Landscape and Urban Planning, 60*(2), 59-72.

Ward Thompson, C. (2011). Linking landscape and health: the recurring theme. *Landscape and Urban Planning*, *99*(3-4), 187-195.

Ward Thompson, C., & Aspinall, P.A. (2011). Natural environments and their impact on activity, health, and quality of life. *Applied Psychology: Health and Well-Being, 3*(3), 230-260. doi:10.1111/j.1758-0854.2011.01053.x

Ward Thompson, C., Aspinall, P., Bell, S., & Findlay, C. (2005). "It gets you away from everyday life": Local woodlands and community use—what makes a difference? *Landscape Research*, *30*(1), 109-146. doi: 10.1080/0142639042000324794

Ward Thompson, C., Aspinall, P., & Montarzino, A. (2008). The childhood factor: Adult visits to green places and the significance of childhood experience. *Environment and Behavior, 40*(1), 111-143. doi: 10.1177/0013916507300119

Weinstein, N., Przbylski, A.K., & Ryan, R.M. (2009). Can nature make us more caring? Effects of immersion in nature on intrinsic aspirations and generosity. *Personality and Social Psychology Bulletin, 35*(10)*,* 311-330. doi:10.1177/0146167209341649

White, M., Smith, A., Humphryes, K., Pahl, S., Snelling, D., & DePledge, M. (2010). Blue space: The importance of water for preference, affect, and restorativeness ratings of natural and built scenes. *Journal of Environmental Psychology, 30*(4), 482-493. doi:10.1016/j.jenvp.2010.04.004

Williams, A.M. (2013). Surfing therapeutic landscapes: Exploring cyberpilgrimage. *Culture and Religion: An Interdisciplinary Journal, 14*(1), 78-93. doi: 0.1080/14755610.2012.756407

Williams, K., & Harvey, D. (2001). Transcendent experiences in forest environments. *Journal of Environmental Psychology*, *21*. 249-260.

Winchester, H.P.M. (2002). Qualitative research and its place in human geography. In I. Hay (Ed.), Qualitative Research Methods in Human Geography (p. 1 – 21). South Melbourne, Australia: Oxford University Press.

Wood, R.J., Wood, A.R., & Keen, K.M. (2010). Defining spiritual health for the 21st century: An ethnographic content analysis of the professional literature. In A. Fortier & S. Turcotte (Eds.), Health Education: Challenges, Issues and Impact. New York: Nova Science Publishers.

World Bank. (2013). "Urban population (% of total)", Retrieved from http://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS

World Health Organization. (n.d.). Health promotion definition. Retrieved from: http://www.who.int/topics/health_promotion/en/

World Health Organization. (1946). Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.

World Health Organization. (1986). Ottawa Charter for Health Promotion. Retrieved from: http://www.who.int/healthpromotion/conferences/previous/ottawa/en/

World Health Organization. (2015). Introduction to Healthy Settings. Retrieved from: http://www.who.int/healthy_settings/about/en/

Wright, P. & Rollins, R. (2009). Managing the national parks. In P. Dearden & R. Rollins (Eds.), Parks and Protected Areas in Canada: Planning and Management (p. 237-271). Don Mills, ON: Oxford University Press.

Wylie, J. (2009). Sense of place. In D. Gregory, R. Johnson, G. Pratt, M.J. Watts, & S. Whatmore. (Eds.) *The Dictionary of Human Geography* (5th ed.). Retrieved from http://eds.b.ebscohost.com/eds/detail?sid=9f77243a-ba61-4e15-a85c-8af8f8dcb938@sessionmgr114&vid=4#db=nlebk&AN=277784

Zhang, J.W., Piff, P.K., Iyer, R., Koleva, S., & Keltner, D. (2014). An occasion for unselfing: Beautiful nature leads to prosociality. *Journal of Environmental Psychology, 37*, 61-72. http://dx.doi.org/10.1016/j.jenvp.2013.11.008

Appendix A - Example of Recruitment Flyer

Do you enjoy spending time in your local natural area park?

(Whitemud Creek Natural Area)

University of Alberta Geography Master's Student is looking for interview participants to take photographs and talk about them in interviews about local natural area parks.

- Are you 18 or older?
- Do you spend time in a natural area park at least once a month?
- Would you like to take photographs that represent your feelings about having natural areas available in the city, how they impact health and wellbeing, and talk about them in an interview?
- Would you like to help researchers better understand how natural areas contribute to the health and wellbeing of the people who use them?

Please contact Alison Cheesbrough for more information at:
cheesbro@ualberta.ca OR www.naturalparksedmontonstudy.com

Appendix B - Screen Captures of Recruitment Webpage

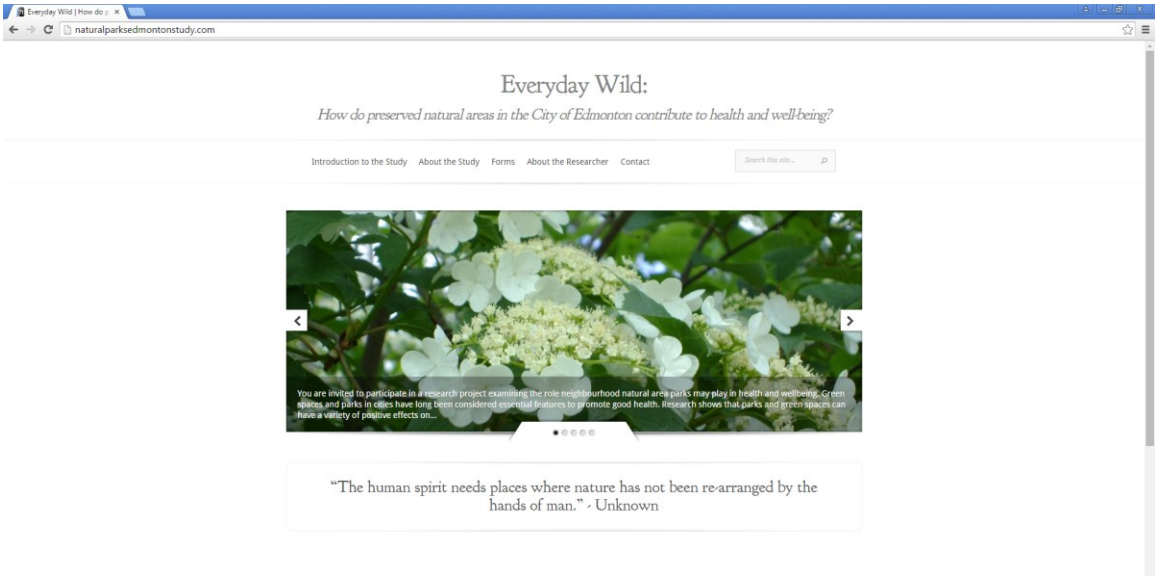


Figure B.1: Website welcome page

Figure B.2: Website introduction to the study

Figure B.3: Website about the study

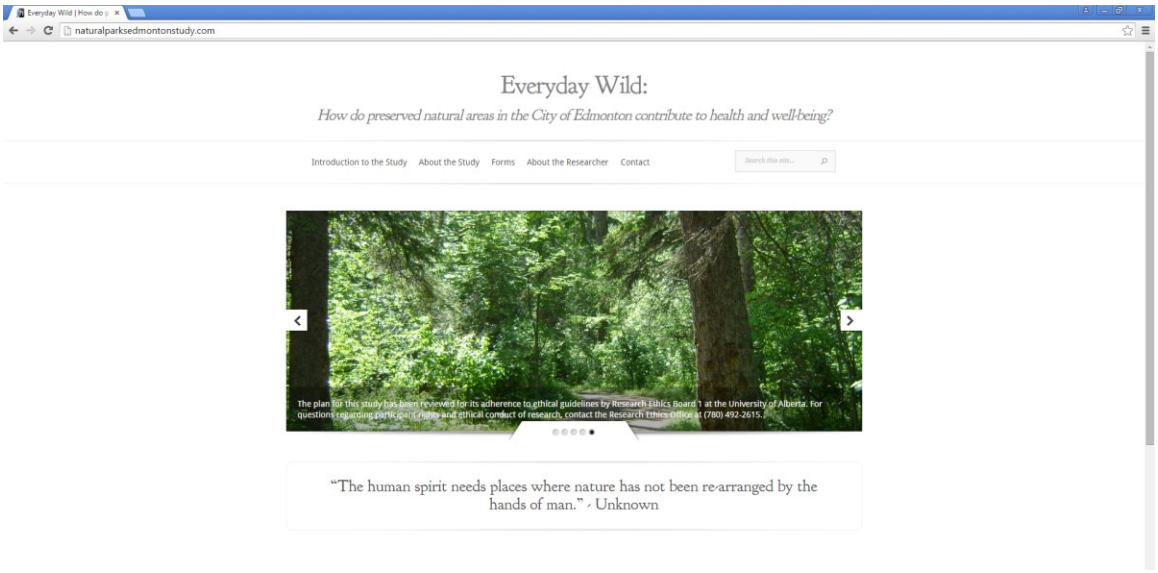


Figure B.4: Website ethics statement

Appendix C - Information Letter and Informed Consent Form

UNIVERSITY OF ALBERTA
Earth and Atmospheric Sciences
Faculty of Science
1-26 Earth Sciences Building
Edmonton, Alberta, Canada T6G 2E3
www.ualberta.ca/eas
eas.enquiries@ualberta.ca
Tel: 780.492.2000
Fax: 780.492.2000

INFORMATION LETTER FOR RESEARCH STUDY

Everyday Wild: How do preserved natural areas in the City of Edmonton contribute to health and well-being?

Research Investigator
Alison Cheesbrough
Master of Arts Student
Human Geography
1-26 ESB
University of Alberta
Edmonton, AB, T6G 2E3
cheesbro@ualberta.ca

Supervisors
Dr. Theresa Garvin
Associate Professor
Human Geography
1-26 ESB
University of Alberta
Edmonton, AB, T6G 2E3
Theresa.Garvin@ualberta.ca
780-492-4593

Dr. Candace Nykiforuk
Associate Professor – Centre for Health Promotion Studies
3-300 ECHA
University of Alberta
Edmonton, AB T6G 1C9
Candace.Nykiforuk@ualberta.ca
780-492-4109

Background

You are invited to participate in a research project conducted by Alison Cheesbrough, a Master of Arts student in Human Geography at the University of Alberta. As someone who visits neighbourhood natural area parks on a regular basis, you are being asked to take photographs that represent your experiences in these spaces and share them during an interview. Research shows that visiting green spaces and parks is good for people's health on many levels, but less is known about how visits to natural areas in the city may be different. Your participation will help us better understand what you value in these spaces and how they contribute to health and wellbeing.

Purpose

This study focuses on experiences adults have in natural area parks in the City of Edmonton. The goal of this project is to understand what people value in natural area parks within the city and how the natural area parks contribute to wellness.

Study Procedures

In order to participate in this project, you must be 18 years of age or older and visit your neighbourhood natural area park at least once a month. This study will recruit up to 30 adults who use natural area parks, from three neighbourhoods in Edmonton that contain or are near a natural area park. Participants are those that have seen information posters or received an information flyer and volunteered to take part. During the study, you will be loaned a digital camera and asked to take pictures during your regular outings to natural area parks. Before you start taking pictures we will meet to talk about what I am asking you to do and to inform you about your rights during the research process. This meeting will take no more than one hour. After that meeting you will be given a camera, and you will have a week or so to take pictures. The pictures should be of things in natural area parks that represent what you value in these

areas and how you feel they may influence your health and wellbeing. You can take as many pictures as you want, but before we meet please narrow your pictures down to only 10 to 12 of the ones that you feel best represent your feelings about the natural area park. After you take the pictures, we will meet one-on-one so you can tell me about your pictures. The second meeting will take no more than 1.5 hours and can take place in your home, or we can meet in a quiet public place like a coffee shop or library. With your permission, interviews will be tape-recorded and then transcribed word-for-word. You will then have the chance to look at what you said and make changes and revisions or to add more information and explain your answers if you would like. A copy of your photographs will be provided to you by email after the interview is completed.

Confidentiality, Use of Data, Security

If you participate in this research, what you say will be kept confidential. This means that no one but you and the research team will know what you said or even if you participated in the research at all. At the beginning of the interview, you will have the opportunity to select a false name (pseudonym), which will then be used for the rest of the project. If you do not wish to choose one yourself, one will be assigned to you. When your interview is transcribed, all identifying information will be removed so that no one can find out who you are or what you said. If for some reason you would like your real name to be used, we have a separate process in place to let you do this. Please just let me know and I can further explain what it means to use your real name in a research project. The information and photographs provided by you and all the other participants will then be put in a large database of responses, which will be analyzed collectively. If you would like to receive a copy of the research results in the future, your name and address will be collected and stored separately from the interview data.

The findings from this research will be used in Alison Cheesbrough's Master of Art's thesis, as well as in publications for academic journals, presentations to academic conferences, and for public talks and teaching purposes. In all these cases we may use direct quotes or photographs from participants to support the research findings; however, those direct quotes and photographs will not contain any information that will allow you to be identified as the source.

According to University of Alberta policy, once interviews have been transcribed all of your identifying or contact information will be removed from the files and on February 28, 2014 we will destroy any materials that can link you to specific comments. Only the members of the research team identified on this form will know that you participated in the research.

The data for this project (without identifying information) will be kept at the University of Alberta in a password-protected file on a secure server in a locked lab. Only the research team will have access to this data. According to University of Alberta policy this data will be kept for a minimum of 5 years in the Community, Health and Environment Research lab. After 5 years, all electronic and print copies of the data will be destroyed.

Voluntary Participation

Your participation in the research is completely voluntary. You do not have to answer any specific questions during the interview, and you can stop the interview at any time without

explanation. Once the interview is completed, you will be offered the chance to look at a written copy of what you have said and make changes, deletions or additions. If you do not want to look at the written copy, you do not have to. You have the right to refuse participation or to withdraw consent at any time during the interview process. Once the interview is complete, you have until February 28, 2014 to withdraw your interview. After this point we will no longer have names linked to specific interviews so we will be unable to delete your information. If you withdraw from the study prior to February 28, 2014, we will destroy the paper documents, permanently delete photographs and computer files relevant to you, and remove your information from the research.

Benefits

There may be few direct benefits to you as an individual participating in this study. However, past research has shown that some people learn about themselves and their lives by talking out loud about experiences they have. In addition, some people get satisfaction from knowing that they are contributing to possibly making things better in their community. The larger benefits of this research include a better understanding of the value of having natural area parks within cities and how they contribute to health and wellbeing.

Risk

There is minimal risk to you in participating in this research. Photographs should be taken during the ordinary course of regular outings to natural area parks, but there is the potential for falls or scrapes in these areas. During the interview, some people may feel uncomfortable talking about their lives and experiences, and others might participate only because their friends and family say they should. However, as mentioned previously all participation is voluntary and you may choose to withdraw from the research or may refuse to answer any questions.

Participant Rights

You have the right to refuse to participate, to refuse to answer any questions and to withdraw from the study completely prior to February 28, 2014 without explanation. After this time all identifying information will be removed from your information and we will have no way of telling which information belongs to which participant. You have the right to ask questions about the project, and to know how the information will be used in the future. You have the right to receive a copy of the research findings from this project and are welcome to contact any member of the research team at any time if you would like to talk about the project

You will be given a copy of this information letter and the consent form to retain for your own records.

The plan for this study has been reviewed for its adherence to ethical guidelines by Research Ethics Board 1 at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at (780) 492-2615.

Participant Informed Consent

Everyday Wild: How do preserved natural areas in the City of Edmonton contribute to health and well-being?

Statement by the participant:

I have read and understood the information letter attached to this consent form. I understand that I am a voluntary participant and that I have until February 28, 2014 to withdraw from the study. I have had the opportunity to ask questions about the research project and my questions have been answered to my satisfaction. I have received a copy of this information sheet and informed consent form to keep for my own records.

I agree to participate in this study. Furthermore:

I would like to be contacted in the future to review the written copy of my interview	Yes	No
I would like to receive a copy of the final project results	Yes	No

Printed Name of Participant: _____

Signature of Participant: _____

Date: _____

Printed Name of Researcher: _____

Signature of Researcher: _____

Date: _____

Appendix D - Camera Possession Form

Camera Possession Form

Everyday Wild: How do preserved natural areas in the City of Edmonton contribute to health and well-being?

Please Print
Name:
_____
Phone:
_____Email:_____
Address:_____
_____

University of Alberta Camera Identification Number:_____
Camera Serial Number: _____

I, _____, acknowledge that I have received the above camera and will return it at the agreed upon date, _____, in the condition it was received.

Signature: _____

Date: _____

If you have any questions or concerns, please feel free to contact:

- Alison Cheesbrough, Student Investigator at cheesbro@ualberta.ca
- Theresa Garvin, Supervisor at 780-492-4593or theresa.garvin@ualberta.ca

Appendix E - Pedestrian Safety Training Outline

Pedestrian Safety Training Outline

Some of this information was found on the Government of Ontario's Department of Transportation website on the following link:
http://www.mto.gov.on.ca/english/safety/topics/pedestrian.shtml

Pedestrian Safety

Pedestrian safety is for all ages. Unfortunately, in traffic incidents involving pedestrians and motorists, it is the pedestrian who suffers, often with tragic results. In many cases it is not the driver's fault. It is the responsibility of both driver and pedestrian to ensure each other's safety by following some simple rules.

As a pedestrian:

- Cross at marked crosswalks or traffic lights, not in the middle of the block or between parked cars;
- Make sure drivers see you before you cross;
- Cross when traffic has come to a complete stop;
- At a traffic light, cross at the beginning of a green light. Do not cross once the "Don't Walk" signal begins to flash or once the light has turned to yellow. Never cross on a red light;
- Watch for traffic turning at intersections or entering and leaving driveways;
- Wear bright or light-coloured clothing or reflective strips, when walking in dusk or darkness.

As a pedestrian in natural area parks:

- Edmonton's parklands are governed by Parkland Bylaw C2202 available at
  http://www.edmonton.ca/attractions_recreation/parks_rivervalley/parkland-bylaw-c2202.aspx
- Stay on improved (pavement, granular surface, or mulch) and unimproved trails (natural surface) that are greater than 0.5 metres in width
- Obey all posted signs regarding trail closures

- Stay off unimproved trails during wet and rainy conditions when damage to the trail could occur.
- Obey dog leashing requirements
- Ask to be accompanied if you have safety concerns.

As a motorist:

- Be patient, especially with older pedestrians who need more time to cross the road;
- Always look for pedestrians, especially when turning;
- Remember, stay alert and slow down on residential streets and through school zones.

As a pedestrian in winter conditions

- Walk carefully and slowly; dress warmly and cover up
- Avoid ice and snowy patches that may be slippery
- Avoid walking when it is snowing and windy
- Ask to be accompanied if you have safety concerns
- Take a cell phone or pager in case you require assistance.

Appendix F - Participant Instructions

Camera Instructions and Instructions for Participants

Thank you for helping me to understand how natural areas in the city can influence health and wellbeing.

Here are a few reminders to help you with your photography task:

How to Use the Camera:

- **Cameras will come with batteries and are ready to go.**

- **Turn on the power:** Use the small button on the top of the camera.

- **To set-up the camera:** The dial should be on the "Auto" setting (marked by a green camera icon). This will let the camera auto-focus.

- **To take a picture:** Point and press the large button in the middle of the dial on top of the camera.

- **To focus the picture:** Hold the large button in the middle of the dial down halfway. The blue brackets on the screen will turn to green. Now press the button down all the way and your picture should be in focus.

- **To review pictures:** Press the "review" button on the back of the camera. Use the side to side functions on the "OK" to scroll through pictures you have taken.

- **To delete pictures:** Display the picture in "review" mode. Then use the "delete" button on the back of the camera. You will have to use the ring outside of the "OK" circle to scroll up to "delete".

BE VERY CAREFUL YOU DON'T ACCIDENTALLY CHOOSE "ALL" OR ALL OF YOUR PICTURES WILL BE DELETED. **If you are unsure about how to delete, just leave the unwanted pictures on the camera and we will not discuss them during the interview.**

- **Want more information?** You can consult the user's manual for more detailed instructions on the features of the camera if you are interested.

Photovoice Question Sheet for Participants

Your Photography Mission!

Please focus on taking pictures that reflect your experiences in natural areas that you would consider to influence health and wellbeing in some way. Record the aspects that are most meaningful to you about your experiences in natural area parks.

Remember – you can take your pictures at any time of the day and in whatever weather you want to be in your picture. Have fun!

Please try to avoid taking pictures of people. We understand that it is not always easy to take pictures in public spaces without having other people in the picture. If this happens, we will blur any faces that appear in the pictures.

Please be safe! Your personal safety is important. Please don't engage in any behaviour that might potentially put you or other people in harm's way or that makes you feel uneasy in any way. Photographs should be taken in the ordinary course of your regular visits to natural area parks.

Please take approximately ten (10) photographs over the next week or ten days on your regular outings to natural areas. You can take more pictures, but try to weed them down to 10 or 12 by our meeting. Take pictures that reflect your experiences in natural areas that you would consider to influence health and wellbeing in some way. These may be positive or negative and may reflect one or more of the different dimensions of health (physical, mental, emotional, social,

or spiritual health). Record the aspects of these spaces that are most meaningful to you about your experiences in natural area parks.

While you are taking your pictures it would be helpful if you could provide us with some very brief notes about each of your pictures. For example: “This view makes me feel peaceful, so I sit here a lot.” This will help us understand what your pictures are all about.

If you have any problems, please contact:

Alison Cheesbrough, Student Researcher at cheesbro@ualberta.ca

Appendix G - Interview Guide

Note: Summer and winter versions of the interview guide were the same with the exception of two additional questions in the winter version:

1) What do you like best about being in a natural area in the wintertime?
2) How is your experience of natural areas different in the wintertime?

In addition to these two questions I would steer the conversation back to winter experiences if I felt like they had strayed away to answering from a summer perspective, but this was rare.

Everyday Wild Interview Guide

Interviewee_____

Date_____

Introduction and Reiteration of Consent/Anonymity:

First, thank you for taking part in this study. The information you provide will help us better understand the contributions natural areas in the city make to people's health and well-being. I just want to go over again what we talked about in the pre-interview when you got the camera. You do not have to answer any questions you don't want to and you can stop the interview at any point without explanation. You can withdraw from the study completely at any point before February 28, 2014. You may also ask that any specific portion of your interview or any particular photograph(s) not be used at any point before February 28, 2014. Your photographs and what you say in the interview will only be identified by a pseudonym in any presentations or written material about the study. Do you have any questions or concerns before we start?

Would you like to choose a pseudonym right now?

Pseudonym: _____

Background Questions

Before we get to the photographs, I have a couple of introductory questions.

1) How often do you visit your neighbourhood natural area park? (*Does the frequency change with different seasons? Do you do different things or go different places depending on the season?*)

2) Why do you choose to visit your neighbourhood natural area park? (*What are the aspects that encourage you to visit? Are there aspects that you avoid or that keep you from visiting? Why?)*

Photographs as a Group Questions

First, let's look at all the photos you took as a group.

1) What was your experience of taking the pictures like?
2) When you were taking the pictures or choosing the final ten, did any overall themes strike you about the pictures you had taken?

3) As you were doing this project did you have any insights or thoughts about what natural areas give to you that you hadn't had before?

4) Out of all the photographs you've taken are there certain ones that really stand out to you for some reason?

Let's talk about these photographs first then and then we'll see if the other photographs represent anything else that we've missed.

Individual Photographs x number chosen to talk about.

Name/number/description of photo:_____
(change and save identifying number/description as you go along.)

1) Please, tell me about this photo? What does it express for you?

2) What is the experience you were trying to capture or represent in this photo?

3) How does the experience this photo represents relate to health and wellbeing for you?

General Questions

1) What is it about natural areas that you feel influence health and wellbeing for you—either positively or negatively?

2) Which aspects of health—physical, mental, emotional, social, spiritual—do you feel natural areas influence the most strongly for you?

3) Do you feel differently at the end of time spent in a natural area than you did at the beginning?

   If so, how?

   If so, to what do you attribute the change?

4) What is it about your experiences in natural areas that you most value?

5) What is it about this physical environment that helps you to have the experiences you value?

6) What were your experiences of nature and the outdoors as a child? *(How would you say your experiences as a child relate to how you view nature now?)*

Concluding Questions

Which photos would you regard as the best illustration of your experiences in these spaces that in your view influence health and wellbeing—either positively or negatively? (Choose between one and three.)

Is there anything further that you want to say? Any further remarks or points you want included?

Demographic questions

And finally, I just have a demographic question.

How old were you on your last birthday?

Thank you!

Appendix H - Participants

Table H1: Summer Participants

Pseudonym	Sex	Natural Area Park	Age	Dog	Re-Interview
Buck	M	Whitemud Creek Ravine	Early 60s	Yes	No
Bethany	F	Whitemud Creek Ravine	Mid-30s	No	No
Hilary	F	Whitemud Creek Ravine	Early 60s	Yes	No
George	M	Whitemud Creek Ravine	Mid-60s	No	No
Aurora	F	Dunluce Forest	Late 50s	Yes	No
Liz	F	Hodgson Wetland	Mid-60s	No	No
Mubula	F	Dunluce Forest	Mid-50s	No	No
Donna	F	Whitemud Creek Ravine	Mid-60s	No	No
David	M	Whitemud Creek Ravine	Early 70s	No	No
Gavin	M	Dunluce Forest	Mid-40s	Yes	No
Zoe	F	Riverside	Mid-40s	Yes	No
Clyde	M	Dunluce Forest	Mid-60s	Yes	No
Elizabeth	F	Riverside	Late 20s	Yes	No
Levin	M	Kinnaird Ravine	Mid-50s	No	No
Ziggy	F	Kinnaird Ravine	Late 30s	Yes	No
Pepper	M	Dunluce Forest	Early 60s	No	No
Frances	F	Riverside	Mid-50s	Yes	No
Preston	M	Hodgson Wetland	Mid-50s	No	No

Table H2: Winter Participants

Pseudonym	Sex	Natural Area Park	Age	Dog	Re-Interview
Hobbes	M	Dunluce Forest	Late 80s	Yes	No
Adam	M	Whitemud Creek Ravine	Mid-30s	No	No
Emmy	F	Kinnaird Ravine	Early 50s	Yes	No
Sarah	F	Riverside	Early 30s	Yes	Yes
Del	M	Kinnaird Ravine	Late 40s	No	No
Meredith	F	Riverside	Mid-30s	Yes	Yes
Thomas	M	Riverside	Mid-30s	Yes	Yes
Drea	F	Riverside	Early 40s	Yes	Yes
Travis	M	Whitemud Creek Ravine	Mid-60s	Yes	Yes
Patricia	F	Whitemud Creek Ravine	Late 50s	No	Yes
Martin	M	Whitemud Creek Ravine	Late 70s	No	Yes
Nancy	F	Riverside	Early 30s	Yes	No
Jane	F	Kinnaird Ravine	Mid-40s	No	No
Pamela	F	Hodgson Wetland	Early 70s	No	Yes
Charlie	M	Hodgson Wetland	Early 70s	No	Yes

Appendix I - Coding Framework

Coding Framework

The first column of Table H1 delineates the themes and sub-themes developed in the coding framework. Those themes designated with a * were not included in the results due to low numbers of mentions associated with that theme or themes that were less relevant to the research objectives. The second column shows the number of participants that spoke about that theme and the number of times that theme was mentioned overall.

Table I1: Coding Framework

Codes	# of sources / # of mentions
Attributes (of the space)	
• Accessibility, including proximity	26 / 61
• Calm & serene; relaxed & peaceful	26 / 67
Experiences (that are important)	
• Away from the city in the middle of the city	26 / 77
• Nature and creativity*	8 / 16
• Sharing nature with children	13 / 26
• Solitude (accessing solitude)	16 / 33
• Spaces of freedom and possibility	
o Achievement	6 / 9
o Adventure & exploration	9 / 12
o Freedom & possibilities	10 / 21
o Spontaneity, fun, unstructured activity	11 / 17

Codes	# of sources / # of mentions
Health Aspects	
• Interconnectedness of health aspects	10 / 17
• Mental, emotional, and spiritual health	
○ Gratitude that these spaces exist	15 / 29
○ Makes me happy / feel good / need green	9 / 17
○ Recharging and rejuvenation	16 / 21
○ Reflection, thinking, pondering	
▪ Metaphors for thinking about life and seeing the bigger picture	8 / 43
▪ Wonder, fascination, curiosity	11 / 36
○ Relaxation and stress reduction	22 / 40
○ Spirit / spiritual / spirituality	23 / 44
• Physical fitness	25 / 50
• Social and Community Health	
○ Connection	
▪ Connecting with community	23 / 69
▪ Connecting with family and friends	11 / /22
▪ Connecting to canine companionship	12 / 23
▪ Connection to childhood memories	9 / 14
▪ Connection to Edmonton*	6 / 10
▪ Connection to memories of time spent with others in natural area	5 / 10
▪ Connection with the space over time	14 / 36
Human Environment	
• Built environment in natural areas / preservation of the space	
○ Important built environment aspects of the space	
▪ Entrances	9 / 11
▪ Extent	3 / 4
▪ Paths that wind	8 / 10
○ Human history in natural areas*	7 / 15
Inhibiting Factors and Detracting Elements	
• Disinclination factors	14 / 18
• Incivilities (e.g. Litter, dog messes, graffiti)	15 / 38
○ Homelessness	7 / 15
• Safety	17 / 37

Codes	# of sources / # of mentions
Nature Environment	
• Important natural aspects of the space	
○ Beauty, colour, patterns, clean, pristine	26 / 103
○ Blue space	9 / 15
○ Different types of light	4 / 4
○ Fresh air and delightful smells	18 / 36
○ Movement*	3 / 3
○ Quality of the ground; differing terrain	5 / 8
○ Shade and coolness*	2 / 3
○ Sounds (and the lack thereof)	26 / 71
○ Touch and texture*	2 / 4
• Nature – changing and unchanging	16 / 34
• Nature is a space apart and we are only visitors	25 / 63
• Valuing the wild	30 / 107
○ Co-existing	4 / 6
○ Cycle of life	14 / 21
Winter Aspects	
• Winter reveals different things in nature	13 / 27
○ Winter light	3 / 3
Retired Nodes	
• Conflict*	8 / 25
• Looking forward / regretting leaving*	6 / 8
• Spaces for teenagers*	3 / 5