

**Nature in Focus: A Photovoice Project Exploring Perspectives of Equity-Owed
Youth on Challenges to Engaging with Nature in Nova Scotia**

by

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Dalhousie University is located in Mi'Kma'ki, the ancestral and unceded territory of
the Mi'kmaq People.

African Nova Scotians are a distinct people whose histories, legacies and
contributions have enriched that part of Mi'kma'ki known as Nova Scotia for over
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Abstract

Intro: Research shows that participating in nature-based activities supports youth wellbeing and resilience. However, many youth face barriers to accessing nature, particularly those from equity-owed communities, underscoring a critical need for more inclusive and accessible nature-based opportunities for youth. **Purpose:** Using photovoice methodology, which empowers participants to document issues through photography, the purpose of this study is to examine the challenges that youth experience when engaging with nature in Nova Scotia (NS). This project is part of a larger funded initiative, entitled Outdoor Health Nova Scotia, which hosted three photovoice projects across the province with various community partner organizations. This thesis will present findings from one of these sites, working with youth from a community-based organization dedicated to supporting diverse and equity-owed youth in NS. **Methods:** The photovoice process involved a focus group, photography workshop, a three-week period to take photos, two collaborative analysis sessions, and a final presentation planning session. The collaborative analysis engaged youth participants (n=12, ages 17-22) in a three-step participatory process, where participants were able to identify codes that were further developed by the researcher into final themes using polytextual thematic analysis. **Findings:** The photovoice process resulted in four themes, which developed from the main challenges identified by the youth in this project when engaging with nature in NS. The four themes are: 1) Preserving Urban Nature; 2) Lack of Spaces and Services that Promote Nature Engagement as Youth Age; 3) The Importance of Safe Public Transportation that Connects Youth to Nature 4) Addressing the Challenges of Nova Scotia's Complex Climate to Facilitate Engagement with Nature. **Implications:** By centering youth voices and supporting their participation as co-researchers, this thesis highlights valuable youth perspectives to inform multisectoral end-users and contributes to youth capacity building. The broader project will culminate in a knowledge mobilization event where youth will share their insights with practitioners, offering valuable perspectives to inform more equitable access to nature for youth across Nova Scotia.

Keywords: Youth, Nature, Photovoice, Equity-Owed, Participatory Research, Youth Engagement, Outdoor Health, Wellbeing

List of Abbreviations Used

NS – Nova Scotia

LOVE – Leave Out Violence

PAR – Participatory Action Research

PTA – Polytextual Thematic Analysis

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Chapter 1: Introduction

1.1 Background and Rationale

Access to natural spaces promotes physical, mental, and social wellbeing (Jimenez et al., 2021; Pretty & Barton, 2020), while fostering positive youth development (Bowers et al., 2021). Nonetheless, youth from equity-owed communities, including those from racialized and low-income backgrounds, experience barriers to accessing nature (Waite et al., 2023). In Nova Scotia (NS), despite the vast and diverse natural landscapes, many youth face constraints in accessing nature (Healthy Populations Institute, 2022). As such, there is a critical need for inclusive and accessible opportunities for all young people to experience the health-promoting benefits of nature.

Despite the growing body of literature addressing the benefits of nature for youth wellbeing, there are limited studies that explore access to nature with youth (Zhang et al., 2020). In addition, many studies highlight the need for more research that centers the voices of youth, including those from equity-owed communities (Waite et al., 2023) to broaden the current literature and explore youth as a heterogeneous group (Birch et al., 2020). Additionally, while there is a lot of research about youth, few studies engage them as experts of their lived experience (Mawn et al., 2015). Using photovoice methods, this research positions youth as experts of their experiences in nature to explore their perspectives on challenges to accessing nature in NS. What we learned through this process can inform the development of accessible and inclusive outdoor spaces and nature-based

programming for diverse youth in NS.

1.2 Project Overview: Outdoor Health NS Project

This study is part of a larger research initiative titled *Mobilizing the Health Benefits of Being in Nature Through Community-Based Participatory Research and Youth Engagement*. This project is being carried out by the Outdoor Health NS research team at Dalhousie University, led by Dr. Son Truong and co-PI, Dr. Michelle Stone, and funded by Research Nova Scotia. This larger project is a multiphase study spanning two years to develop a comprehensive and multidisciplinary understanding of the intersections of services that support youth wellbeing, and to help people connect with nature.

The larger project is divided into three different parts. The first was an environmental scan (Fall 2024) that identified nature-based programs focused on supporting youth mental health in Nova Scotia. The second was a provincial youth and nature survey (Fall 2025), geared toward youth aged 13 to 18 years. The third was a photovoice project (Spring 2025), which worked collaboratively with youth to explore their experiences with nature and nature-based services in-depth, as well as the challenges they face accessing natural spaces and nature-based services within the province. This photovoice project was conducted with three community partner organizations. The focus of this thesis will be on the photovoice project with one of these organizations. At the end of this multiphase study, we plan to hold a knowledge mobilization event and disseminate findings to multi-sectoral practitioners that work at the intersection of youth, nature, and wellbeing.

For this thesis, I will focus on our photovoice project with the community partner Leave Out Violence Nova Scotia (LOVE NS). LOVE NS is a community organization that serves youth from equity-owed populations across the province, including youth from diverse racial, ethnic, and sexual identities, as well as varying levels of abilities and life experiences (LOVE NS, 2023). The primary investigator had a relationship with the organization and determined with them that the project would complement their programming. LOVE was founded in Montreal in 1993, to help end the cycle of violence in the lives of youth and has grown into a national program that helps young people find healing and purpose through creativity (LOVE NS, 2026). LOVE NS states that many youth enter their programs during challenging times, where they are underserved by current systems and navigate increased risk due to systemic barriers. Through their programs, youth have access to a youth worker and registered social worker 24/7, to ensure that they have access to care (LOVE NS, 2026). Through programs that emphasize emotional intelligence and relationship-building, LOVE NS helps youth overcome barriers and thrive (LOVE NS, 2023). We collaborated with youth from the LOVE NS Leadership Program, which is a youth-driven program designed for ages 16 and up. The Leadership Program is for youth who have been identified by staff as ambassadors of non-violence within their communities and demonstrate strong leadership potential (LOVE NS, 2023).

1.3 Purpose and Objectives

The purpose of this photovoice study is to examine challenges experienced by LOVE youth when engaging with nature in Nova Scotia. The following objectives

have been written in alignment with Wang and Burris's (1997) three main aims of photovoice research:

1. To enable youth to reflect on how they view and interact with nature.
2. To engage youth in critical conversations about challenges they may experience accessing nature and nature-based services.
3. To identify youth ideas to promote equitable access to nature and nature-based services.

1.4 Key Terms

1.4.1 Youth (and other terms that might be used interchangeably)

For this project I will define youth using the definition of the United Nations (UN), which recognizes there is no universally agreed international definition of the youth age group, and so for statistical purposes, they define youth as “those persons between the ages of 15 and 24 years” (United Nations, 2025). Other terms used in literature describe this demographic group, or age groups that overlap with this definition, include adolescents, young people, teenagers, older children, and juveniles. When citing literature, I will defer to the terminology used by the authors of the corresponding reference; however, when referring to my own project, I will use the term “youth”.

1.4.2 Equity-Owed Youth

For this project, we have partnered with LOVE NS. The term equity-owed was selected as a broad term that has the potential to encompass the various identities that exist within this youth population. Terms such as “equity-seeking”, “equity-

deserving”, and “equity-denied”, have been used to describe groups of people facing systemic barriers due to disadvantage and discrimination (Oncescu et al., 2025). For this project, I am choosing the term equity-owed to emphasize justice, implying that equity is a societal responsibility addressed through actions (Oncescu et al., 2025). In discussions with LOVE staff about this terminology, they agreed with the use of *equity-owed youth* to describe their youth, which captures the reality of many youth situations, without framing them in a deficit-based way.

1.4.3 Nature/Nature-Based Programming

The concept of nature is complex and varies across sources. According to the Oxford English Dictionary, nature is defined as “the phenomena of the physical world collectively, including plants, animals, the landscape, and other features and products of the earth, as opposed to humans or human creations” (*Oxford Languages*, 2026). However, all individuals on this planet have a unique and personal conceptualization of nature based on their lived experiences, and hence science cannot, and should not, artificially simplify the definition of nature down to one singular thing (Ducarme & Couvet, 2020). Birch et al. (2020) also argue that in a qualitative study, formulating top-down terms is limiting when trying to understand the complexities of individual experiences, and these authors defer to participants’ own self-defined experiences to define such terms. For this thesis, the term nature may broadly refer to a physical and ideological space in which people engage with their environment, and an important vehicle for learning and leisure (Humberstone et al., 2015). Nature-based programming, activities, or services can fall into the

broad definition of the action, or process, of scheduling something in nature. This definition was chosen as it provides a broad, rather than a singular, interpretation of the term nature. By not establishing a strict definition of what counts as nature, youth can identify and create their own meaning out of the word throughout the research process.

1.4.4 Barriers/Challenges

Barriers to nature and public green spaces are broadly defined as elements that prevent people from engaging with nature meaningfully (Noël et al., 2021). In this thesis, challenges may also be used synonymously with barriers. The reason for this is because in our sessions with youth, we used more conversational language including ‘challenges’ and ‘things that make it harder to connect with nature’ rather than barriers. Previous research has made various efforts to identify barriers to public green space use, however, many of these studies focus on the availability and accessibility of public green spaces, and do not focus on the personal and social dimensions that influence the use of these spaces (Noël et al., 2021). For this project, we wanted to develop a deeper understanding of how youth perceive nature, as well as how they perceive barriers/challenges to access nature in Nova Scotia. To do this, we explored the subjective experience of barriers/challenges to accessing nature through conversations with youth.

1.5 Positionality Statement

Crotty (1998) suggests that researchers must carefully consider the methodologies they will employ and justify their choices with an appropriate

theoretical framework. This requires reflection on the research purpose and the underlying assumptions about reality that shape our work (Crotty, 1998). I would like to take this step by acknowledging and reflecting on my own experiences and privileges that shape my perspectives within this research. In doing so, my goal is to make this reflection on my positionality an interwoven part of my research journey.

I come to this research with nearly a decade of experience working with children and youth as an outdoor recreation service provider. I often think I ended up on this path due to my positive experiences in nature as a child, which I can trace back to attending summer camp when I was twelve. At this camp, I spent the days hiking in the forest, canoeing across lakes, and singing campfire songs under the stars, and thanks to my leaders at the time, I felt safe and supported to explore the natural world. I developed an appreciation for nature, and I wanted to share that with others, which led me to pursue formal work opportunities as a camp instructor, sea kayak guide, and program coordinator with various outdoor organizations. Over the years, I have experienced and witnessed the transformative effects of nature-based experiences for young people, including the mental, physical, and emotional health benefits, as well as the value of nature-based programming to help build resilience, relationships, and confidence in young people.

However, I am also aware that participating in nature-based activities comes with financial, cultural, and systemic privileges I have benefitted from, which simultaneously limit other people from participating. I recognize my own perceptions of nature are influenced by my education, which includes a bachelor's

degree in biology, and lived experiences as a woman, white person, and first-generation immigrant. I was raised in a cultural and social network that valued spending time outdoors and I know that my experiences will influence the lens with which I approach this research. These identities also place me within dynamics of power that could influence the way that others in this project perceive me: someone who does not experience the world in the same way that they do.

I am also mindful of the importance of consulting diverse voices to understand how social contexts influence perceptions of what it means to access nature. I am aware that I alone cannot generate the knowledge required to change the systems which influence nature-based services in Nova Scotia. I believe that without collaboration, my research would be impossible. I needed to listen to the youth and learn from their experiences and stories to generate meaning from this project. I do believe that all youth, no matter their abilities or experience, should have the opportunity and choice to engage with nature to support their wellbeing. This mindset motivated me to collaborate with youth, to listen and learn more about their experiences with nature.

1.6 Significance of the Study

This study aimed to go beyond simply documenting youth experiences and sought to engage youth as collaborators and generate tangible actions. One of the primary outcomes of this project was to empower youth as co-researchers and equip them with skills and opportunities for meaningful participation. Through workshops, youth engaged in capacity building and skill development, which has

been shown to foster empowerment (McCabe et al., 2023). Research has also shown that engaging youth, especially those from equity-owed communities, helps address health inequities by generating unique solutions tailored to lived experiences (Abraczinskas & Zarrett, 2020). Additionally, photovoice offers young people a platform to engage with their communities and advocate for issues that matter to them (Wang, 2006). This project recognized youth perspectives as valuable and aimed to democratize the research process by shifting power dynamics. Rather than being subjects under observation, youth were positioned as experts.

Beyond individual empowerment, this study also aimed to create community impact through strategic knowledge mobilization. At the end of the photovoice sessions, we prioritized localized knowledge mobilization, guided by the suggestions and ideas of our youth co-researchers. At the end of the larger multiphase research study, we plan to host a Youth, Nature, and Wellbeing Summit to share findings with youth, community leaders, educators, policymakers, and environmental organizations across the province. A key outcome of this photovoice project will be a youth-informed presentation of results, which can be shared at this summit. This event will serve as a bridge between youth, community members, and decision-makers, providing a space for young people to share their stories and speak up to advocate for more accessible and inclusive nature-based services and spaces in Nova Scotia.

1.7 Chapter Summary

In this chapter, I introduced my thesis project and situated it within the larger study. Additionally, I provided an introductory overview of the purpose, methods, and significance of the research. This introduction also defined key terms to help the readers see how I understand and use terms such as nature, equity-owed youth, and barriers to nature throughout the rest of this thesis.

Chapter 2: Literature Review

The objective of this literature review was to examine the research on the benefits of nature for youth, while exploring the barriers faced by youth from equity-owed communities. The review begins with the benefits of nature for youth wellbeing. Next, I explored the literature on equitable access to nature, and barriers to accessing nature for youth from equity-owed communities. Finally, this review highlights the ways that engaging youth in photovoice, a participatory method, can help address these barriers, by enabling researchers to gain perspectives of youth's lived experience. In the final section of the review, I identified current gaps in the literature that we hoped to address throughout our research project.

Literature was retrieved from the following databases: CINAHL, SportDiscus, Psychinfo, ERIC, and Novanet. Google Scholar was used as a final database to capture recent publications and any literature that was not found through the other databases. This literature review was conducted using combinations of the following search terms: (Natur* OR Outdoor* OR "Outdoor Recreation" OR Environment OR Greenspaces OR "Green Space*" OR Park*) (Health OR Wellbeing OR Well-Being Benefit* OR "Mental Health" OR "Positive Youth Development" OR Wellness OR "Psychological Well-being") (Youth OR Teenager* OR adolescent*) (Barrier* OR Limitation* OR Challenge* OR Access OR Inequit*) ("Community-Based Participatory research" OR "Community-Based Research" OR "Action Research" OR Collaboration OR Co-Creation OR Co-Development OR Co-Design OR "Participatory Action Research") (Photovoice OR "Participatory photography" OR

"Photo Elicitation"). Search terms were selected with the help of a Dalhousie librarian and in consultation with my supervisor. Articles that were published within the last 20 years (Since 2005), written in English, and included reference to youth or adolescence in the context of nature and wellbeing, inequities in accessing nature, and community-based research were included. The time frame of 20 years allowed for inclusion of studies that reflect the current social, political, and historical context. An exception to this parameter was for contextually relevant pioneering work in this field of research that may have been published earlier, such as the initial publications of photovoice research by Wang and Burris in the late nineties and other philosophical and methodological literature.

2.1 The Benefits of Nature for Youth

The period of life that we call youth is a transformative and unique phase of human development and is a critical period for laying the foundation of overall health (World Health Organization, 2025). Throughout this time, youth experience rapid physical, cognitive, and social development, which affects how they feel, think, make decisions and interact with their surroundings (World Health Organization, 2025). Healthy emotional and social development throughout this period contributes to mental wellbeing and resilience throughout the lifespan (Mental Health Commission of Canada, 2017). Recent literature shows that participating in nature-based activities supports youth wellbeing, development, and resilience (Bowers et al., 2021; Jimenez et al., 2021; Pretty & Barton, 2020; Zhang et al., 2020). This growing body of research has drawn attention toward nature-based

approaches to support youth wellbeing (Owens & Bunce, 2022) and to promote physical, emotional, mental, and overall health (Sprague & Ekenga, 2022). This section will highlight some recent research that supports the benefits of nature for youth, which sets the foundation for this project.

The benefits of nature have been observed for youth through various activities in nature. These benefits have been recorded through youth participation in activities such as forest bathing (Keller et al., 2024), outdoor adventure education (Down et al., 2024), and nature-based interventions in school (Ly & Vella-Brodrick, 2024; Sprague & Ekenga, 2022). Participating in these structured nature-based experiences can lead to outcomes such as increased scores on health-related quality of life (Sprague & Ekenga, 2022), improved mental wellbeing, reduced stress, and feelings of relaxation (Keller et al., 2024), and improved psychosocial outcomes through fostering opportunities for social connection (Ly & Vella-Brodrick, 2024), responsibility, and empowerment (Down et al., 2024).

Benefits have also been observed through passive nature exposure (Birch et al., 2020; Norwood et al., 2019). A recent study aimed to explore the value of urban nature on the mental health and wellbeing of 24 young people aged 17 to 27, nine of whom had lived experienced of mental health difficulties (Birch et al., 2020). The youth in this study found that natural settings such as trees, water, and open spaces were frequently experienced nature typologies considered to offer benefits (Birch et al., 2020). The young people in this study expressed how regular urban nature encounters resulted in a increased sense of self, feelings of escape,

connection, and care with both the human and non-human world (Birch et al., 2020). After consulting youth directly about their experiences through interviews and art workshops, the authors conclude that urban nature supported the mental health of urban youth from deprived areas (Birch et al., 2020). The youth in this study also highlighted that benefits could arise through everyday moments of noticing nature in the city (Birch et al., 2020).

In recognizing the benefits of nature for youth, some research suggests that access to nature can also be implemented as an upstream factor to support youth wellbeing. A scoping review by Oswald et al. (2020) aimed to collate evidence assessing associations between screen time, green time, and psychological outcomes for young children (<5 years), schoolchildren (5–11 years), early adolescents (12–14 years), and older adolescents (15–18 years). The authors state that preliminary evidence supports the use of green time as a buffer for the consequences of high screen time and that nature may be an underutilized public health resource, as it could function as an upstream preventative intervention (Oswald et al., 2020). Another systemic review conducted by Zhang et al. (2020) summarized and evaluated the evidence for associations between green space and adolescents' mental wellbeing. Fourteen papers were reviewed, and findings suggested that green space exposure was associated with reduced stress, improved emotional wellbeing and mental health, and reduced stress (Zhang et al., 2020). Overall, the review highlights the potential contribution of green space and schoolyards, and suggests that improving the availability, accessibility, and quality

of green space is likely to produce positive impacts on adolescents and mental wellbeing (Zhang et al., 2020). This thesis builds from the research which supports the benefits of nature for healthy development of youth and seeks to explore the barriers that youth face when accessing nature and nature-based services.

2.2 Barriers to Accessing Nature for Equity-Owed Youth

Despite literature suggesting the benefits of nature for youth wellbeing, access to nature and nature-based services and, thereby the associated benefits, is not equitably distributed (Eykelbosh & Chow, 2022; Healthy Populations Institute, 2022; Rigolon & Flohr, 2014). Many studies highlighted above emphasize benefits without exploring barriers, raising the question: What's the point of saying nature is good for you if you can't get out in nature? This question frames the next part of this literature review, which seeks to explore how access to nature has been studied previously, and the common barriers to accessing nature and nature-based services for youth, specifically those from equity-owed communities.

Much of the existing literature on equitable access to nature is based on measures of spatial and physical accessibility. Equitable access to nature and greenspace has been explored through measuring park proximity (Rigolon, 2016), modes of available transportation (Robillard et al., 2023; Zhang et al., 2025), quantity of greenspace (Rigolon, 2016), greenspace distribution (Luo et al., 2025), and park acreage (Maroko et al., 2009; Rigolon, 2016). Measuring access to greenspace using spatial data is important, but it is also critical to incorporate qualitative approaches to better understand the experiences of diverse youth (Strife

& Downey, 2009). Zhang and Tan (2019) also state that perceived accessibility to parks, defined as the subjective evaluation of the route to get to the park, may be a better indicator of park use than physical accessibility. Similarly, Strife and Downey (2009) highlight fears encountered by young people in parks, and therefore the presence of parks alone may not be a true measure of access. The authors suggest that access to nature might be more about access to safe outdoor spaces and community trust, rather than physical distance, thus, access to green space measured by physical distance can be problematic (Strife & Downey, 2009).

Below, I highlight how access to nature is considered an important determinant of youth wellbeing and discuss some common barriers reported in the literature and how they influence access to nature. While I tried to organize common barriers from the literature into sections for clarity, it is important to note that in many cases, those from equity-owed communities report facing multiple concurrent and overlapping barriers (Ho & Chang, 2022; Morris et al., 2011; Waite et al., 2023). It is important to consider that many of the following barriers intersect and accumulate to create substantial obstacles.

2.2.1 Nature and the Environment as a Determinant of Youth Health

Determinants of health are defined as a broad range of personal, social, economic, and environmental (Government of Canada, 2024) factors with important direct or indirect effects on individual and population health (Braveman et al., 2011; Government of Canada, 2024). These factors can have a particularly influential effect on adolescents given the unique period of life, which presents a time of transition

and the development of new behaviours. Determinants of health, such as access to care, economic stability, education, and the physical natural and built environment (Monroe et al., 2023) influence adolescent behaviours and can ultimately result in beneficial or adverse health outcomes that may persist into adulthood (Viner et al., 2012). Relationships with nature (Hatala et al., 2024), as well as neighbourhood and the built environment (Monroe et al., 2023), are commonly accepted determinants of youth health, and developing a deeper understanding of these relationships can inform policies and interventions focused on health equity (Hatala et al., 2024).

2.2.2 Getting There: Transportation, Environment, and Access to Services

Both the physical and built environment and transportation options can serve as major barriers for all people, especially youth, to access nature. A recent scoping review by Monroe et al. (2023) exploring how social determinants impact the wellbeing of diverse youth in the United States highlighted a need for more studies which identify the impact of barriers within the built environment for youth, as these spaces are crucial to addressing positive health outcomes during adolescence (Monroe et al., 2023). In this section, I explore how transportation and the environment contribute to barriers to engaging with nature.

Transportation is commonly considered a significant barrier given that nature-based activities are often located far from urban centers. In a 2023 study that explored how children and youth access nature-based opportunities, young people tended to describe nature as separate and far away from the built environment (Waite et al., 2023). In this study, 60% of respondents noted that cost

of transportation, and the time to “get there” were limiting factors to engaging with nature (Waite et al., 2023). Limited transportation in rural environments can also contribute to long journey times making it challenging to access activities in remote locations such as national parks, forests, and reserves (Waite et al., 2023). Additionally, limited transportation options to far away natural settings make travel to these places prohibitively costly for people with low-income (Strife & Downey, 2009).

Other environmental factors, such as winter conditions and lack of nearby outdoor services have also been found to influence access to nature, and the reliability of transportation itself (Belon et al., 2024). An Alberta-based study highlighted that many youths found it challenging to access outdoor spaces in the winter due to poor maintenance and safety concerns, which contributes to youth feeling less motivated to engage in outdoor spaces in the winter (Belon et al., 2024). Other studies have found that many youth’s experience in nature can be tempered due to bad weather, which leads to unfavourable conditions, that might draw youth outside of their comfort zones (Ibes et al., 2021; Waite et al., 2023).

For youth, transportation may also be limited due to their age. A recent qualitative study conducted in Alberta exploring factors that influence youth participation in leisure-time physical activity noted that youth experience financial, geographic and transportation barriers due to their dependence of family members and friends to engage in recreational activities (Belon et al., 2024). While transportation is a key consideration, literature also highlights financial and

economic constraints as being connected to transportation, and significant obstacles to accessing nature.

2.2.3 Paying the Price: Financial Barriers to Participating in Nature-Based Activities

Many studies highlight financial barriers as a significant obstacle to engage with nature (Birch et al., 2020; Lemieux et al., 2025; Robinson et al., 2023; Waite et al., 2023), especially for youth from communities that experience low socio-economic status (Morris et al., 2011). A study by Lemieux et al. (2025) surveyed over 3000 Canadians about barriers to accessing nature for diverse populations and identified cost, transportation, and equipment as ranked highest among low-income respondents. Another 2015 study aimed to examine differences in park access among US school-age youth found that park access was higher among youth in groups with higher median household income and education (Harris et al., 2015).

In a local example, a study with youth and university students in rural Nova Scotia explored how access to greenspace influences wellbeing (Lavallée & Warner, 2024). Youth respondents from this study expressed concerns that greenspaces were prioritized for those who “already have the resources” to purchase equipment such as bikes (Lavallée & Warner, 2024, p. 160). On top of the more apparent financial constraints to accessing nature, such as paying for programs, transportation, and gear, another study highlighted the hidden additional costs to engaging in nature-based experiences, such as specialized equipment, food, and laundering of clothes that might get dirty in the process (Harris et al., 2015).

Cost is not only a barrier to participants but can also limit service providers in equity-owed communities. The lack of funding for service providers in communities that have been underserved leads to fewer nature-based services in these areas (Waite et al., 2023). Volunteers were noted to be helpful, when possible, to offset the lack of financial support. However, for communities that have been deprived, the authors note that volunteers were less common, as unpaid work was unsustainable (Waite et al., 2023). It is evident that financial barriers can limit opportunities for both youth populations and service providers. In addition to financial barriers, safety is commonly presented as a concern in the literature.

2.2.4 Feeling Safe: Safety Concerns when Accessing Nature-Based Services

The lack of perceived safety is another common barrier experienced by youth and adults in equity-owed communities (Belon et al., 2024). Particularly impactful for youth, as these feelings may transcend into adulthood, and contribute to lasting anxiety about personal safety in woodlands (Morris et al., 2011). This section highlights how both physical and emotional safety influence how individuals from diverse equity-owed communities engage with nature.

Physical safety in the natural environment is a relevant concern. Perceptions of natural environments as being risky, and the lack of support for those with additional needs or disabilities, contribute to feeling unsafe in nature (Waite et al., 2023). In addition, and relevant to Nova Scotia, poor maintenance of spaces in winter leads to safety concerns for travelling to, and participating in, outdoor activities (Belon et al., 2024). In other cases, while nature may be physically safe or

accessible, people may not feel emotionally safe. The National Collaborating Center for Environmental Health reported in 2022, that marginalized or racialized communities may have experienced more barriers to accessing greenspace during the COVID-19 pandemic due to concerns regarding safety and discriminatory public health orders (Eykelbosh & Chow, 2022).

Emotional safety is a relevant concern that may influence how youth engage with nature. Strife and Downey (2009) suggest that accessing nature might be more about safe outdoor spaces and community trust, than physical distance to green space. This perspective is consistent with findings from a 2023 narrative literature review of the psychosocial and economic barriers to greenspace for racialized individuals and families (Robinson et al., 2023). In this study, Robinson et al. (2023) found that environmental barriers to green spaces were less related to location and more influenced by safety concerns and lack of comfort and trust in the community.

Similar trends were noted in a recent Canadian study. In 2022, Nature Canada published the Race and Nature in the City report, aimed at providing recommendations for engaging youth of colour in nature (Scott & Tennesi, 2020). The authors partnered with community organizations working with youth of colour and Indigenous leaders from environmental education programs in Toronto (Scott & Tennesi, 2020). The youth from that study reported fears of encountering white people in wilder natural spaces and expressed concerns of being on the receiving end of the white gaze, racist comments, or physical violence (Scott & Tennesi, 2020). Visibly Muslim youth discussed fears relating to their dress or wearing hijabs,

and Black youth identified fears regarding their skin colour (Scott & Tenneti, 2020). These fears reflect issues of systemic racism in outdoor spaces and contribute to the outdoors being considered a white space (Scott & Tenneti, 2020).

Physical, emotional, and social safety play a role in how youth, access nature-based services. As noted, it is important to look beyond physical measures of distance when exploring access to nature (Strife & Downey, 2009) and consulting people on the social and structural barriers they experience can help develop a more complete understanding of how equity-owed communities access nature (Ho & Chang, 2022).

2.2.5 Feeling (un)Welcome: Social Exclusion for Equity-Owed Youth Populations

Addressing transportation, financial, and safety challenges doesn't guarantee youth will feel welcome or included in nature-based programs. The idea that nature is welcoming and inclusive might not resonate with culturally and racially diverse populations. It is important to recognize that nature can exist as both a space to promote wellbeing and as an elitist place that perpetuates feelings of inadequacy, leading to further marginalization of groups that have been subordinated (Strife & Downey, 2009). The 2020 Race and Nature in the City reported on the lack of representation in environmental groups, nature activities, and nature-related media, reinforcing perceptions that nature is a white space, meant for white people (Scott & Tenneti, 2020). When these perceptions are reinforced by media and the great outdoors are considered a white space, people of colour are seen as out of place or unwelcomed (Scott & Tenneti, 2020).

Other studies have identified interpersonal barriers including feeling unwelcome and cultural-language barriers as factors that inhibited participation in green spaces (Robinson et al., 2023). Interestingly, a 2025 Canadian survey exploring public interest, barriers, and enablers related to nature prescription programming found that cultural barriers were ranked lower than other barriers (Lemieux et al., 2025). However, cultural barriers were rated as significantly higher ($P < 0.01$) among non-Canadian respondents than Canadian citizens (Lemieux et al., 2025). These findings are consistent with literature suggesting newcomers and immigrants who encounter language barriers may experience reduced access to greenspace (Robinson et al., 2023).

In Canada, immigrants and newcomers might not feel comfortable or inclined to integrate into the outdoor sector given that they may need to negotiate a variety of challenges, such as learning a new language, establishing income, navigating a legal bureaucratic system while adjusting to life in a new social context before they can worry about other things such as getting into nature (Ho & Chang, 2022). Ho and Chang (2022) also add that “there is yet not enough active engagement with the voices and experiences of immigrants and people of colour within the ongoing discourse within these fields” (p. 570).

Youth may also feel unwelcomed due to perceived judgment from the community. Research has reported youth expressing hesitation about using certain greenspaces “too early” or “too late”, afraid of being labelled as troublemakers (Lavallée & Warner, 2024; Morris et al., 2011). The youth in the Lavallée and Warner

(2024) study mentioned their negative reputation among the public made them feel unwelcome in local greenspace, and left out of related planning decisions (Lavallée & Warner, 2024). Research exploring youth access to nature can reveal barriers, foster connections, and provide understanding about how access to nature may also contribute to youth wellbeing (Hatala et al., 2020).

2.3 Studies on Youth, Nature, and Wellbeing using Photovoice

Photovoice has been used to explore relationships between youth, nature, and wellbeing through visual methods (Gruno & Gibbons, 2024; Hartley et al., 2023; Hatala et al., 2020; Morton et al., 2020; Stephens et al., 2024). Throughout these studies, it is evident that youth can identify and explain how nature contributes to their wellbeing (Hatala et al., 2020; Stephens et al., 2024) , as well as identify facilitators and barriers to engaging with nature (Gruno & Gibbons, 2024).

Telling stories through photographs allows youth participants to engage in research, share ideas, and begin open dialogue (Hartley et al., 2023). A study with eight youth aged 14 to 17 exploring experiences with nature to relieve stress identified four main themes that highlight how nature represents different aspects of beauty, helps relieve stressful experiences, provides space to find solutions, and the lack of time that youth have to experience nature (Hartley et al., 2023). In this study, youth were able to identify how nature was present or absent from their everyday lives, by including photos of school classrooms with no windows, or pictures taken from inside cars on long daily commutes (Hartley et al., 2023).

Photovoice also allows youth co-researchers to create meaning informed by their unique and diverse perspectives. Morton et al. (2020) evaluated the potential of photovoice to include other-than human voices exploring human nature relationships among Indigenous youth. The youth submitted photos of diverse natural elements, such as plants, animals, birds, and sensory elements (Morton et al., 2020). The authors explained how these photos represented relationships between the youth and other forms of life (Morton et al., 2020). Their findings suggest photovoice has the potential to bring out the voices of non-human life in nature (Morton et al., 2020).

Similarly, Hatala et al. (2020) explored Indigenous youth meaning making and engagement with nature in an urban Canadian context using photovoice. The authors explained that youth connections with nature become a meaning-making process that awakens imaginative stories and creative interplay supporting youth wellbeing in their inner-city environments (Hatala et al., 2020). Photovoice has the capacity to capture diverse youth perspectives and produce stories that are highly informed by unique experiences and cultures, and throughout these stories, youth can represent, advocate, and enhance community health and well-being (Wang, 2006).

While the studies reviewed provide a basis for exploring the relationships between youth, nature, and wellbeing using photovoice methods, it is important to note that some of these were not completed in the Canadian context (see Hartley et al., 2023; Stephens et al., 2024), and those photovoice studies that specifically

explored youth experiences with nature in Canada (see Gruno & Gibbons, 2024; Hatala et al., 2020; Morton et al., 2020), were outside of Nova Scotia. Two Canadian studies focused on specific youth demographics, such as Indigenous Youth, or those already connected to a conservation group (Hatala et al., 2020; Morton et al., 2020) and the third was conducted with a school group (Gruno & Gibbons., 2021). These studies offer valuable perspectives, and our research builds on this work to engage local youth from diverse backgrounds in the Nova Scotian context. To my knowledge, there are no studies in Nova Scotia that have explored access to nature for diverse youth using photovoice methods. Our findings provide insights into youth experiences that can support the development of inclusive and accessible nature-based services within NS.

2.4 Critical Analysis of Existing Research

Although research on the relationship between youth and nature has expanded in recent years, gaps and limitations remain in youth-centered studies (Birch et al., 2020; Lomax et al., 2024; Roberts et al., 2020; Zhang et al., 2020). Very few of these studies explore the relationship between youth and nature among equity-owed populations (Lackey et al., 2021; Lomax et al., 2024). Additionally, there is a need for nuanced qualitative research that is relevant to the local sociopolitical context (Birch et al., 2020) in Nova Scotia. The following provides an analysis of current gaps in the literature, which provide opportunities for our research to address.

There is a noticeable gap in studies that collaborate with youth and explore this population as a heterogeneous group (Birch et al., 2020). Given the critically transformational period of adolescence, it is important that studies on youth, nature, and wellbeing work uniquely with adolescent populations, as opposed to combining studies with or extrapolating findings from adult or child populations (Lomax et al., 2024; Zhang et al., 2020) to develop an understanding of the unique needs of this demographic. Studies with youth as a general population, as opposed to narrowing in on youth with specific diagnoses, conditions, and unique educational needs, could help researchers identify trends that might differ across diverse youth populations (Roberts et al., 2020).

In addition, there is an overwhelming number of studies that do not address the social context in which adolescents from equity-owned communities, including low-income and groups that have been marginalized, are affected by the disproportionate distribution of nature and green spaces (Lackey et al., 2021; Lomax et al., 2024). Zhang et al. (2020), along with others (Birch et al., 2020; Oswald et al., 2020) note that issues of access and equity are a concern when exploring the effects of nature on youth wellbeing, and that researchers must consider how youth from socioeconomic disadvantaged situations are influenced.

Lastly, some researchers have focused efforts on centering youth voices and experiences when exploring access to nature, but many of these studies still highlight that the specific sociopolitical and geographical contexts in which they were conducted were a limiting factor to generalize knowledge to other areas (Birch

et al., 2020; Sprague et al., 2021). As such, there is a need for qualitative studies to explore the nuances of nature-youth-wellbeing interrelationships in other environments and geographies to ensure that findings are relevant to the local context (Birch et al., 2020; Norwood et al., 2019).

It should also be mentioned that ongoing efforts to integrate nature-based interventions into clinical and educational programs have led to a growing demand for more robust, controlled, and longitudinal studies on how nature affects youth well-being (Norwood et al., 2019). However, Birch et al. (2020) reiterate that we must exercise caution when addressing this topic from a strictly experimental perspective to inform a “dose” of nature. There is an equally important need for more nuanced qualitative studies that consider the varying social contexts in which youth can access nature and explore the relationships between youth, nature, and wellbeing (Birch et al., 2020).

This study helped to address the current limitations of research in this field, by centering youth perspectives, and including youth from diverse equity-owed backgrounds (Birch et al., 2020; Norwood et al., 2019; Oswald et al., 2020). To help address this gap, we worked with a local community-based organization that serves youth from diverse racial and ethnic communities, from various socioeconomic backgrounds, with varying sexual identities and orientations, and with varying levels of ability (LOVE NS, 2023). Working with this local organization helps deepen our understanding of the everyday experiences of youth in NS and inform end-users on ways to enhance access to nature-based services and support youth wellbeing.

2.5 Chapter Summary

In this chapter, I reviewed the literature which identified the benefits of nature for youth wellbeing. Many studies, however, discuss benefits without exploring the barriers that youth may experience engaging with nature. This chapter presented an overview of literature which highlights common challenges and barriers experienced by youth from equity-owed communities when engaging with nature. These challenges were broadly divided into four main categories around transportation, cost, safety, and feeling unwelcome. This chapter also highlighted how past research has used photovoice to explore the relationships between youth and nature. Lastly, this chapter concluded with a critical analysis of the current literature and identified gaps that we aimed to address through this research project.

Chapter 3: Methodology

For this project, I used photovoice to explore youth experiences in and with nature through a collaborative process. In this chapter, I will restate my purpose and objectives, and outline my worldview and theoretical framework as they inform the research process. I will then present my study design and the steps taken to collect and analyze data to produce findings which will be outlined in Chapter 4.

3.1 Review of Purpose and Objectives

The purpose of this photovoice study was to examine challenges LOVE youth experience when engaging with nature in Nova Scotia. This purpose was supported by the following objectives, which are aligned with the objectives of photovoice research:

1. To enable youth to reflect on how they view and interact with nature.
2. To engage youth in critical conversations about challenges they may experience accessing nature or nature-based services.
3. To identify youth ideas to promote equitable access to nature and nature-based services.

3.2 Transformative Worldview and PAR Approach

This research is situated within a transformative worldview and a Participatory Action Research (PAR) approach. The transformative paradigm acknowledges that reality is socially constructed and is shaped by the systemic and institutional nature of power dynamics which leads certain individuals to experience a higher likelihood of exclusion (Mertens, 2007). This paradigm leads

researchers to build relationships of trust with participants, and connect findings to social action (Mertens, 2007). My transformative approach emphasizes action-oriented results focused on fostering equitable access to nature for diverse youth. This worldview aligns with photovoice, a PAR method that aims to build capacity for social action (Wang & Burris, 1997). To align my work with this paradigm, I followed a PAR approach using photovoice methods and focused my discussion on results that are relevant and reflective of the needs and issues identified by youth collaborators.

Action research fundamentally aims to examine a problem or issue and build capacity for change (Stringer, 2007). PAR involves the participation and leadership of those experiencing challenges to produce change through engaging in the research process to generate new knowledge (Cornish et al., 2023). Youth PAR encourages young people's socio-political development and empowerment by redefining youth as creators of knowledge (Kornbluh et al., 2015). The PAR approach emphasizes action-oriented meaning making, and positions participants as qualified to explore their lived realities, particularly in research focusing on advocacy for groups that have been underserved (DePoy & Gitlin, 2016). Through the knowledge making process, youth were considered both participants and co-researchers and were encouraged to engage in the participatory action of photography and group discussions to reflect on their own experiences to generate ideas for action-oriented and youth-informed knowledge translation outputs.

3.3 Feminist Theories, Empowerment Education, and Documentary Photography

Photovoice is rooted in critical theory, particularly feminist critical theories, empowerment education, and documentary photography (Wang & Burris, 1994, 1997). This section outlines how these theories inform photovoice. The photovoice study design will be further described below in section 3.4.

Feminist theories generally fall under the umbrella of critical theory (Arinder, 2020) and seek to challenge power structures by positioning individuals as the authorities of their own lived experiences (Wang & Burris, 1994). Arinder (2020) explains that feminist theories consider the lived experiences of people, not just women, with an emphasis on oppression. Central to feminist theory is the concept of disrupting oppression based on intersecting identities that can create discrimination and exclusion (Arinder, 2020). Through knowledge and action, oppressive systems can be disrupted to support change and understanding (Arinder, 2020).

Wang and Burris (1994) also explain that both the practical and theoretical foundations of photovoice are rooted in empowerment education based on Wallerstein and Bernstein's adaptation of Paulo Freire's education for critical consciousness (Wallerstein & Bernstein, 1988). This model of empowerment education suggests that participation in group action and dialogue directed at community enhancement lead to feelings of empowerment and improved health (Wallerstein & Bernstein, 1988). Through this model, photovoice generates the potential for empowerment by moving participants through the Freirean stages of

raising critical consciousness (Strack & Orsini, 2022). Critical consciousness involves the active process of reflecting and deepening our understanding of the social and political forces that shape our world (Freire, 2003). Building on critical consciousness, Freire also explains praxis, which is the combination of reflection and action to develop a plan of social action (Freire, 2003). Both concepts are foundational to photovoice research, which encourages participants to reflect on their realities, identify challenges and barriers, and creating space for discussion about what their photos mean within the communities they live in, and what can be done about it (Wang & Burris, 1994).

Guided by these theories, this project positions youth as experts in their lived experience, and the best people to document their realities through photography. In their original publications on photovoice, Wang and Burris (1994) add that documentary photography plays an important role in the theoretical foundations of this method. Documentary photography has been used to portray the social and mental wellness of research participants and society (Wang and Burris, 1994). However, photovoice research differs from conventional documentary photography and places cameras directly into the hands of people who otherwise may not have access, and recognizes them as recorders, and catalysts for action in their communities (Wang and Burris, 1994). As a result, I recognize youth as the most appropriate people to explore their own realities and as co-creators of knowledge to generate ideas to address the barriers they encounter.

Employing this theoretical approach allows us to see through the lenses of

youth and collaboratively engage in discussions around the factors that influence their lives and identify actions to address identified challenges. Given that photovoice methods published by Wang and Burris are fundamentally rooted in these theories, (Wang & Burris, 1994), I will employ them practically by following Wang and Burris's nine step process to doing photovoice with youth (Wang, 2006), with a strong focus throughout analysis and discussion on centering youth voice to generate action.

3.4 Study Design: Photovoice

This study employed photovoice, a participatory action research method with three goals: 1) to record and reflect community issues, strengths and concerns through photography, 2) to promote critical dialogue and knowledge through discussion of photographs, and 3) to reach decision makers to drive social change (Wang & Burris, 1997). Photovoice enables participants to reflect on their lived experience through photography, creating visual "codes" that mirror the socio-political realities that influence people's lives (Wang & Burris, 1994). Providing participants with cameras facilitates their physical engagement in the research process (Wang & Burris, 1997).

Photovoice was chosen for this project as it is particularly powerful in youth research because it allows for expression beyond traditional verbal or written methods, making it accessible to young people who may not read or write in the dominant language, and those who struggle to communicate complex topics in writing (Wang, 2006). Additionally, photovoice is flexible and adaptable (Wang &

Burris, 1997), which helped us to weave our project into the LOVE Leadership Program structure, allowing youth to engage with the process in a space that was familiar and comfortable. This method also aligns with the principles of transformative and PAR approaches, by placing cameras into the hands of co-researchers to create meaning from their experiences, and to act as catalysts for change in their communities (Wang & Burris, 1997). Based on this foundation, Wang and Burris suggest steps for creating community. The photovoice process can be generally organized into a nine-step strategy for engaging youth in this method (Wang, 2006) which will be outlined below.

3.5 Steps One, Two, and Three: Participants and Recruitment

The first three steps of Wang's (2006) nine-step process are focused on participant recruitment and introducing the photovoice methodology.

3.5.1 Participants and Sample Size

We recruited youth from our community partner organization, LOVE NS. We aimed to recruit 7-10 youth between the ages of 16 and 18. This sample size is standard for photovoice and provides sufficient data for the planned depth of analysis, while maintaining a manageable group size to facilitate rapport, participation, and collaborative analysis (Wang, 2006). The LOVE Leadership Program is intended for ages 16 and older, making it appropriate for our study. At this age, youth could understand the implications and potential risks of this project, meaning they could consent for themselves. Unlike youth programs that impose strict age limits, LOVE NS does not exclude participants from its Leadership

Program after a certain age. As a result, some participants in this study could be above the age of 18. Given that we define youth as individuals aged 15-24 (United Nations, 2025) and to prioritize inclusivity of all LOVE youth, any youth in the Leadership Program over the age of 16 was eligible to participate.

3.5.2 Information Session and Recruitment Presentation

Before starting the photovoice process, I provided a 30-minute presentation to the LOVE youth where I introduced the concept of photovoice and provided details about the process. The presentation described the project purpose, timeline, expectations, and details about the cameras and honorariums. At the end of the presentation, I presented the information and consent forms and explained the principles of confidentiality, acknowledging the risks associated with this type of research, and explained how participants could withdraw at any point. At the end of the presentation, I provided an opportunity for questions and time to complete the consent form (See Appendix A).

3.6 Steps Four to Seven: Data Collection

To complete steps Four through Seven of the process (Wang, 2006), the youth participated in five sessions, that occurred on Wednesdays throughout March, April, and May of 2025. To fit the LOVE Leadership Program structure, each session lasted 90 to 120 minutes and began with a group meal and check-in, followed by the research session. Each session is described below.

3.6.1 Informed Consent

The fourth step of Wang's (2006) nine step process is obtaining informed

consent. All participants from the LOVE Leadership program in attendance completed the informed consent process by signing the forms approved by the Dalhousie Research Ethics Board (REB 2024-7350). Informed consent processes are further discussed in section 3.9 called Ethical Considerations.

3.6.2 Focus Group

In the first session, participants engaged in a focus group to discuss their ideas for photographs reflecting the topic of access to nature for youth in Nova Scotia. This session was facilitated as a semi-structured focus group, following an interview guide (see Appendix B) developed by the research team, and was audio-recorded and transcribed. The focus group guide was organized into four sections; 1) Getting to know the group; 2) Getting into focus – what is nature? 3) Barriers and facilitators; and 4) Becoming a co-researcher. These sections helped us get to know each other and introduce topics that we would later explore through photographs.

3.6.3 Photography Workshop

In the second session, youth were provided with digital cameras and received training from a local professional conservation photographer on both technical camera use and storytelling through photography. The workshop included interactive activities, information about composition, a discussion on ethical photography, and opportunities for the youth to practice using the cameras with the help of the photographer. More details on photography ethics are discussed in Section 3.9.2. In this session, each youth also received a folder containing: Consent forms for anyone who may be identifiable in photos (Appendix C); A study brochure

(Appendix D); A letter to teachers, employers, and others (Appendix E); Instructions for uploading photos (Appendix F); Mental health resources (Appendix G); A photo notes worksheet (Appendix H); Tips for photo taking (Appendix I); and Photography prompts (Appendix J).

Following the workshop, youth were asked to take their cameras home to capture photographs that addressed our discussions from the focus group. Participants were given two weeks to take photos and submit them with time for printing in advance of the following session.

3.7 Step Eight: Analysis and Data Management

In photovoice research, the analytical process is embedded through collaborative analysis (Wang, 2006). The collaborative analysis portion of this project occurred over two sessions, two weeks apart. In this section I explain the collaborative analysis process and data management strategy. I also outline how I used polytextual thematic analysis to further develop themes for final presentation in this thesis.

3.7.1 Collaborative Analysis

The first analysis session introduced the participatory analysis process, which included three phases: selecting, contextualizing, and codifying (Wang & Burris, 1997). In the first step, participants individually selected the photographs they felt best represented their experiences or held the most personal significance. This step ensured that the youth maintained autonomy in shaping which narratives were represented. Following the selection of photos, participants engaged in a

group discussion to assign meaning to their images through storytelling. This process followed the SHOWeD framework (Wang, 2006), prompting reflection on: What do they see in the image? What is really happening in the image? How does this situation relate to their own lives? Why does this situation/issue/problem exist? What can be done about it? The final step is codifying. Codifying involves developing patterns across photographs in order to develop themes (Wang, 2006).

In this participatory approach to thematic analysis, participants identified recurring elements across images to explore commonalities and differences in experiences and organized photos into thematic clusters based on shared meaning (Wang, 2006). The youth were given a whiteboard, tape, sticky notes, and markers to help organize photos into clusters. This process is further discussed in Section 4.2 as it relates to theme generation.

Participants who expressed interest in taking additional photos to further explore themes were invited to engage in a second round of analysis. This iterative process allows for progressively more depth in engagement with the research topic (Wang, 2006). In the second round of photo submission, youth were also given the option to submit photos from their camera roll taken within NS, to permit inclusion of photos that could not be captured in-person during the study. This was a decision made by the research team to allow for youth to include photographs that may not have been captured within the three weeks of this project. This modification allowed for flexibility within the research process, particularly for participants who did not have time or capacity to travel and take photos within in the time window given for

this project (Woodgate et al., 2017). Other qualitative methodologies, such as photo elicitation, have allowed young adults to use their own photographs taken outside of the study period (Loeffler, 2004).

The second collaborative analysis session was structured like the first, using the three-step participatory analysis approach (Wang, 2006). Participants were further encouraged to enter this session with a specific focus on issues and challenges to accessing nature. In photovoice research, it is important to give youth options to engage in different ways (Woodgate et al., 2017). To encourage youth to participate in whatever way they felt most comfortable, we gave them the option to share their responses verbally, or to write their thoughts using markers and sticky notes. To support youth to express themselves in a variety of ways, we also encouraged using colour-coded sticky notes to identify feelings (pink), issues/barriers (orange), and actions (yellow) that applied to the clusters of photos that were being created. Once this step was complete, I asked the youth to walk me through the clusters of photos that they had created and labeled with a central word or topic that served as codes for further analysis.

The clusters created by the youth represent central ideas and challenges to engaging with nature. While we did not have time to develop formal names for the themes in the final session, I told the youth I would take their ideas and develop them into a format that could be communicated to a wider audience. I then engaged in a process of Polytextual Thematic Analysis (PTA) to develop the initial co-created code clusters into final themes for presentation of this thesis, which is further

discussed in section 3.7.2.

At the end of the second collaborative analysis session, participants were invited to complete the Photographers Consent Media Release form (Appendix K) and were also provided with an optional and anonymous demographic questionnaire (Appendix L). This questionnaire will also be discussed in more detail in Section 4.1, where I report on demographics.

3.7.2 Data Management

Photos were uploaded and saved to a password protected OneDrive account. For this process, the youth were given three options to submit photos, including sending them to me via email, requesting a OneDrive link to upload their photos, or attending an in-person session where I could connect their cameras directly to my laptop and upload their photos directly to my files. Photos were organized into folders labeled using alphabetical pseudonyms to maintain confidentiality and printed using a same day online printing service. Audio recordings were transcribed verbatim, and all names and identifying information were replaced with pseudonyms. Recordings were first transcribed using the dictate and transcribe function in Microsoft Word. I removed all identifying information and then made corrections to formatting and text using keyboard shortcuts to pause and play the recording while I listened. I listened to the recording again to double-check transcription and insert the photos youth described as they spoke. All transcripts were saved to a password-protected laptop on a Dalhousie University OneDrive folder that can only be accessed by members of the research

team. Once all the analysis sessions were completed, transcribed, and saved online, I used NVIVO 14 software as an organizational tool to help highlight quotes and organize photos into the groups that the youth had created throughout the collaborative analysis sessions. This allowed me to keep track of the different photos and accompanying stories to inform the theme development process.

3.7.3 Theme Refinement Through Polytextual Thematic Analysis

To refine final themes for this thesis, I engaged in the reflexive process of PTA. PTA is a form of thematic analysis that looks across sets of images and text data to develop recurring patterns (Gleeson, 2021). PTA is thematic in that it results in themes through the identification of patterns (Gleeson, 2021). Gleeson (2021) also adds that the interpretations we make as researchers throughout this process are not contained within specific images or interviews, but that both transcript and photographs are polysemic (having multiple repeated meanings) and polytextual (relies on examining multiple texts in conjunction with one another). This approach allows the researcher to consider how photographs are interpreted by participants and ensures that photos and accompanying textual data are analyzed together (Mooney & Bhui, 2023). Other photovoice literature has included forms of inductive analysis such as interpretative phenomenological analysis, grounded theory, thematic analysis (Mooney & Bhui, 2023) and content analysis (Roberts et al., 2022) to develop findings produced from the collaborative analysis.

I followed the PTA steps outlined by Gleeson (2021). As discussed above, the youth grouped photos representing challenges they experienced engaging with

nature, forming the foundational code clusters for the PTA process. The PTA process of began through that collaborative analysis, by viewing and discussing the photos, while considering the texts that enable their interpretation (Gleeson, 2021) such as accompanying stories and words written on sticky notes. As recommended by Gleeson (2021), I maintained a research journal, where I documented feelings and reflective thoughts that came up during the research process. This process involved taking notes after each research session about how the session went, how I felt during the session, and if there were any interesting or surprising ideas that came up as I facilitated these sessions. I would then bring these notes into discussions with my supervisor and research team during our weekly meetings. These discussions helped me guide my personal understanding of the research process and helped me engage deeper with the photos and stories shared by the LOVE youth.

After the collaborative analysis sessions with the youth, I reviewed images and texts through transcribing the session recordings, re-reading transcripts, and viewing the images repeatedly. I then developed initial themes based on the codes highlighted by youth in the collaborative analysis. These preliminary themes were refined through reflection and discussions with other members of the research team. If one theme contained at least two main components, I developed sub-themes to maintain organization of the different aspects of that theme. Once the themes had been developed, I engaged in a process of reconsidering themes, consulting any contextualizing materials such as transcripts and sticky notes

(Gleeson, 2021). This was a highly iterative process that required me to constantly review the main ideas identified by youth and develop these photos, captions, and conversations into a story that could be communicated to a wider audience.

Resulting themes are discussed in Chapter 4.

3.8 Step Nine: Planning Session on How to Share Photos

In a final session, we addressed the last step of the photovoice process to discuss how participants would like to share their photos and stories resulting from the project (Wang, 2006). I presented some examples from other photovoice projects, and ways others have shared their findings. The outcomes of this conversation will inform future opportunities associated with the broader study and discussed in the below Knowledge Mobilization section. At the end of this session, we completed a short activity to share project takeaways. Last, I shared how I planned to move forward with the results, future opportunities to engage with the broader study, and how honorariums would be distributed. Appendix M describes each photovoice session.

3.9 Ethical Considerations for Research with Youth

We consulted Woodgate's (2021) evidence-based youth engagement in research framework and Wang's (2006) article on engaging youth in photovoice research to develop a meaningful research experience for participants. Ethical approval was achieved through the Dalhousie University Research Ethics Board (REB 2024-7350) prior to beginning the project. In this section, I will discuss common elements of photovoice that require ethical consideration such as

recruitment, data ownership, and confidentiality.

3.9.1 Rapport Building and Recruitm

Leading up to this project, I attended regular LOVE programming, to learn more about their program, and to begin building a relationship with prospective participants. Additionally, youth were given a detailed project explanation and lots of time to ask questions. To facilitate a welcoming and safe environment, we maintained the typical LOVE program structure, and began each session with a meal, an introduction, and a check-in activity. During this check-in, everyone shared their name, age, and pronouns and responded to an icebreaking question. This helped build trust between the youth, program staff, and research team. We also included LOVE program staff (registered social workers and certified youth workers) at each session so they could support youth as needed.

The recruitment presentation included information about the project's goals and the expectations from youth for participation and compensation. Throughout this presentation, youth were encouraged to ask questions. We also went through consent packages to explain to youth what they were signing, as well as re-iterated that they could withdraw at any point. We explained how if they decided to withdraw from the project, their photos or quotes would not be used, but that we could not remove their voices from the audio files after a session had been recorded.

3.9.2 Informed Consent, Ethical Photography, and Data Ownership

Following the recruitment presentation, youth who were interested in continuing with the project were asked to complete a consent form. I encouraged

the youth to share information regarding the study details with their parents, guardians, or others as needed. Consent materials were approved by Dalhousie's Research Ethics Board and written at a reading level appropriate for youth. After the first analysis session, youth were asked to sign an additional consent form to give the research team permission for publication and use of their photos. At this time, the youth could decide if, and which, photos were acceptable for public dissemination. Throughout the informed consent process, we reminded youth that their choice to participate was fully voluntary and we discussed key points around confidentiality in this project.

Another important ethical consideration when working with youth in a photovoice project is the discussion of ethical photography and data ownership. In the photography workshop, the photographer discussed ethical photo taking, such as not taking photos of people without consent, and how to ask someone to take their photos. Youth were also given a consent form for people that were identifiable in photos. Given that the focus of this project was on the environment, youth were not required to take photos with identifying information. In this project, youth own their photos and signed an additional consent form to provide us with permission to use their images for dissemination and sharing purposes.

3.9.3 Confidentiality

Confidentiality is important in research with youth to protect the identity of participants. Confidentiality was maintained whenever possible; however, given that research sessions occurred in group settings, complete confidentiality could

not be guaranteed from other group members. Additionally, because photographs may contain visual identifiers, participants who take images of themselves and decide to include these images may not remain anonymous. Individuals appearing in photographs would remain unnamed, unless they explicitly asked to be identified. Quotes were only used if participants provided consent, and all identifying details were removed from transcripts. While individual identifying information was removed from the transcripts, the LOVE program staff agreed to keep the name of the LOVE program identified in this thesis.

To thank youth for participating, we provided each participant with a camera, an honorarium of \$25 per session, and a printed copy of all the photos they submitted, as well as one frame containing a thank you card, so that they could frame their favourite photo from the project.

3.10 Chapter Summary

In this chapter, I provided an overview of the methodology used for this project. This section included an overview of my worldview and theoretical framework. This chapter also provided an overview of the study design (Wang, 2006; Wang & Burris, 1997) and ethical considerations taken during the research process (Woodgate, 2021). The data collected and analyzed will be presented as project findings in the following chapter.

Chapter 4: Findings

Chapter 4 presents my findings, beginning with participant demographics, followed by the initial codes from the collaborative analysis with youth, and further development of final themes using the PTA approach. This process resulted in the generation of four themes, which highlight challenges experienced by LOVE youth when engaging with nature in Nova Scotia and sheds light on actions needed to address them to enhance access to nature for youth in the province. In this chapter, findings are discussed and supported by photos, youth quotations, and written notes from our sessions. The findings draw primarily upon the focus group discussion about challenges to accessing nature and the final collaborative analysis session. The themes will be further discussed in relation to broader literature and practical implications in Chapter 5.

4.1 Participant Demographics

In the final session, youth were provided a demographics questionnaire. I explained that each youth has unique experiences and reporting on demographics allows us to be transparent about the perspectives we represent in this research. I informed the youth that the information would be anonymous, and they were asked to not put their name on the sheet. All questions were open-ended, which allowed youth to identify how they felt was most appropriate.

For this project, we had 12 youth sign the consent forms, and 11 submit photos. The participants were between 17 and 22 years of age. This range is slightly higher than our intended age range of 16-18, but falls within our definition of youth

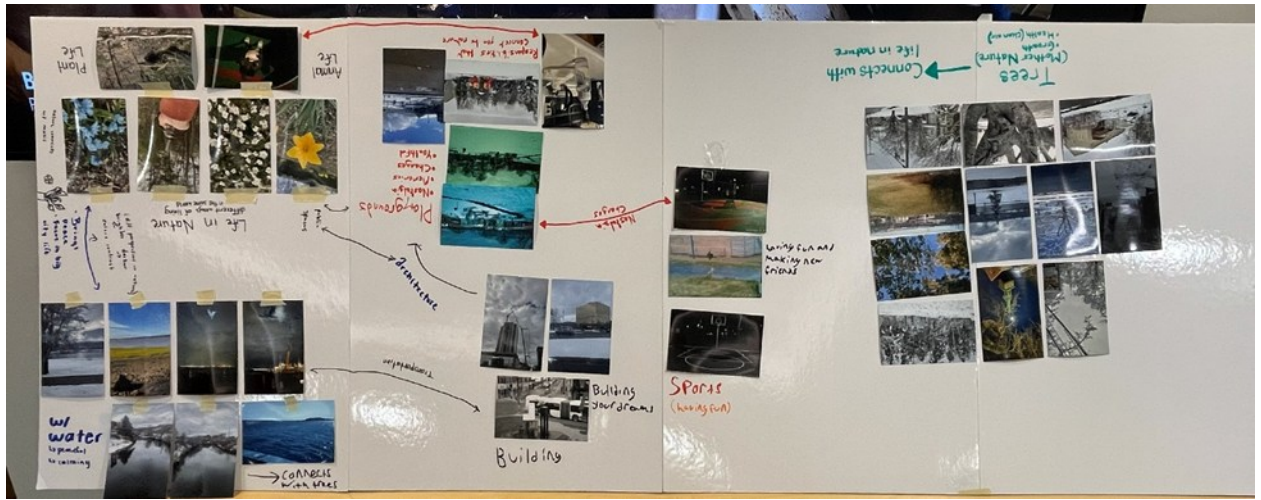
and ensured participation was inclusive for all youth in the LOVE Leadership Program. This age range was also expected as LOVE does not have a strict age cut-off for their programs, and youth are invited to continue with their services as long as they need. Of the 12 youth, six identified as girls/women and six identified as boys/men; one of the boys expressed identifying as a transgender male.

We also provided youth with the opportunity to self-identify as belonging to an equity-owed or equity-deserving group(s). We asked this question in the format of “Examples include, but are not limited to Indigenous Peoples, women, people with disabilities, visible minority/racialized, and 2SLGBTQIA+ individuals.” Eight of twelve youth self-identified with the following terms as belonging to one or more of the following groups: 2SLGBTQIA+, Visible minority, Indigenous, Black/African Nova Scotian, Woman, Black/Indigenous, and those with learning disabilities. Reporting on these identities allows us as the research team to be transparent about the perspectives and identities that are being represented in our research findings.

4.2 Collaborative Analysis to Develop Initial Codes and Theme Development

The process of codifying allowed youth to engage in the analytic process and critically reflect on their photos and experiences (Wang, 2006). Through codifying, youth identified common trends and elements of their photos and grouped images into clusters that represented main ideas, or codes. The first collaborative analysis session resulted in groupings of photos primarily based on physical attributes of the photos. As shown in Figure 1, the participants identified codes, including ‘water,’ ‘life in nature,’ trees,’ ‘playgrounds,’ ‘sports/having fun,’ and ‘buildings.’

Figure 1. Photo of preliminary groupings after first round of collaborative analysis.



Multiple rounds of analysis in photovoice facilitate participants' engagement in the analytical process (Wang, 2006). For the second round of analysis, we asked the youth to identify a challenge or barrier they experience when accessing nature in NS. In this session, it was evident that youth engaged in more critical reflection and focused on grouping photos together based on meaning, rather than visual elements. In this second round of analysis, the youth had the option to provide context for the codes by using different colour sticky notes to identify corresponding emotions (pink), barriers (orange), and actions (yellow). The youth identified four main clusters of photos and named them using codes that represent challenges to engaging with nature in NS: 1) Urban vs Rural; 2) Parks and Public Spaces; 3) Transportation; and 4) Weather. The discussions around these code clusters set the foundation to develop action-oriented themes.

During the second collaborative analysis session, we discussed the codes

(Figure 2). During discussions about the “urban vs rural” code, the youth contrasted photos of urban and rural spaces and spoke about the need to protect natural spaces, especially those threatened by urban development. In relation to the code “parks and public spaces,” youth grouped photos of urban parks, sport fields, and playgrounds to represent spaces in which they commonly connect with nature. The youth talked about how these areas felt designed for younger children and expressed a desire for more nearby places that felt designed for them. The “transportation” code was represented by photos of buses, roads, and signage. Youth spoke about public transportation and the need for safe transportation to facilitate connecting with nature. The code “weather” contained images of snowy and cold environments. The youth spoke about how challenging weather (e.g. rain, snow, extreme heat) was unpleasant and served as a barrier to connecting with nature in NS. In our final discussions, I told the youth I would use these codes to develop themes to share with practitioners and inform actions to address these challenges.

Figure 2. Photo of final groupings after the second collaborative analysis session.



4.3 Applying PTA to Develop Codes into Themes

As outlined in Chapter 3, I supported the development of photo clusters and initial themes during collaborative analysis, and following the sessions with youth, refined the themes for presentation in this thesis. Through this process, I recognize that I am extending the youths' collaborative analysis to present my interpretations. Throughout this analysis, I am drawing on the participatory nature of photovoice research (Wang & Burris, 1997) and the polytextual nature of PTA (Gleeson, 2021) to highlight youth voices, perspectives, and photos, and to present an analysis which identifies potential strategies to enhance access to nature for youth in Nova Scotia. Through this process, I have generated the following themes, which build upon the codes identified by the LOVE youth:

1. Preserving Urban Nature
2. Lack of Spaces and Services that Promote Nature Engagement as Youth Age
3. The Importance of Safe Public Transportation that Connects Youth to Nature
4. Addressing the Challenges of Nova Scotia's Complex Climate to Facilitate Engagement with Nature

4.4 Theme 1: Preserving Urban Nature

Having nature nearby was important factor for the LOVE youth to feel connected to it. This theme explores the finding that while youth conceptualize nature in diverse and unique ways, youth in this project generally relied on urban and nearby greenspaces to connect with nature on a regular basis, which emphasizes the importance of preserving urban nature for it to feel accessible. This

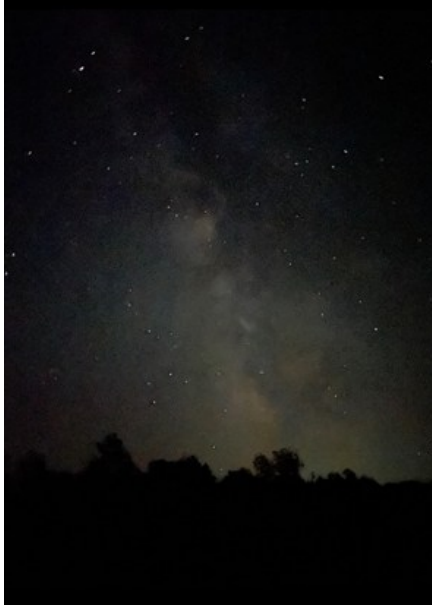
theme describes how youth in this project conceptualize nature, and what kinds of spaces LOVE youth are using to connect with nature. This theme includes discussion about how youth conceptualize nature in diverse ways, however many of them rely more on urban spaces to connect with nature, and as a result, youth want to protect urban forms of nature.

The youth from this project conceptualize and engage with nature in unique ways, from rural environments to the urban parks, playgrounds, and sports fields near their homes. One youth summarized this by stating, *“Everyone has their own different version of nature” (Participant G, Session 1)*. Some youth described their experiences in nature in distant places, such as the land by their grandparent’s house in rural Nova Scotia. For example, one youth shared the following about experiences outside of the city:

I took that [photo] up at my grandpa's house, but it's up in like New Glasgow, Pictou area. So, it's like, very secluded area like country type of thing [...] in the city, you could never get a picture like that because of the light pollution. (Participant H, Session 4, Figure 3).

Here we can begin to see the diversity of places that youth consider to be nature.

Figure 3. *Photo of the night sky representing nature as being rural and far away*
(Participant H).



Youth also spoke about how in Nova Scotia, nature can feel out of the way. One youth described that being in the city, they did not feel like they were in contact with true nature *“I like going on walks around my house but that's just houses, like I wanna be in the woods and stuff, so being able to have like **nature nature** [emphasis added] close to me” (Participant C, Session 1)*. Similarly, Participant A explained that since moving to Halifax, nature felt out of the way, *“Back home, I feel like I'm basically surrounded by nature, there's no way I wouldn't have time to spend in nature. But here [Halifax] I feel like I have to go out of my way to find some time” (Participant A, Session 4, Figure 4)*. Throughout our discussions, youth made it clear that these distant forms of nature were challenging to access.

Youth also submitted photos of urban spaces, such as parks and

playgrounds to represent their experiences in nature. Interestingly, some highlighted urban sports fields as places to connect with nature; for example, Participant D shared: *“For me, I connect with nature more at baseball fields.” (Participant D, Session 1)*. These examples highlight that youth connect with nature in their everyday environments. Similarly, a couple youth described connecting with nature through activities such as gardening and bird watching, that did not require them to leave the house at all, such as Participant I, who shared: *“I found that I try to almost like bring nature to me through gardening. (Participant I, Session 1)”*. In these quotes, we can see how youth conceptualize nature in unique ways, based on their experiences, with many frequently highlighting urban encounters with nature.

Youth also highlighted how living close to nature, for example having a park near their home, made it easier to connect with. Since many LOVE youth lived in the city, they relied on public and urban green spaces to connect with nature on a regular basis. In our discussions, Participant G said, *“The shelter I live in, it's only two blocks away from Point Pleasant so it's very easy for to just, if we wanna go, it's like oh let's just walk” (Participant G, Session 4)*.” This idea of connection to nature through urban and nearby spaces was also very clear through visual examination of the photos submitted, most of which were taken in urban settings (Figure 4). As we continued to discuss urban forms of nature, the youth noted that these spaces were under threat from development and construction in the city.

Figure 4. Photos that represented urban encounters with nature.



Youth recognize the need for protecting and preserving nature spaces, especially in urban environments. When talking about how youth rely on urban spaces to connect with nature, one youth said, *“It’s just we’re cutting out too many places trying to put up too many buildings.”* (Participant A, Session 4). During collaborative analysis, one youth shared *“We need to focus more on how we treat the earth, especially focus on this in urban areas ex: Air pollution,”* (Written comment from collaborative analysis). Additionally, another youth highlighted *“We all live in the city with little to no access to rural areas or national/provincial parks, so we need to stop cutting what we have down”* (Written comment from

collaborative analysis). Here we can see how youth appreciate spaces to connect with nature in the city and emphasize the need to protect these areas against rapid development. These quotes transmit a message about how losing nature to development could be limiting for youth who rely on these nearby spaces to connect with nature.

4.5 Theme 2: Lack of Spaces and Services that Promote Nature Engagement as Youth Age

The participants in this project expressed that as they grow older, they change, and so do their experiences in nature. In this next theme, we explore how LOVE youth feel that there are less spaces and services that support them to engage with nature as they grow older. This theme is divided into two sub-themes, which highlight two different factors that contributed to this feeling. The first sub-theme highlights that youth often seek nature encounters that feel within reach, such as the nearby parks and places close to their homes. However, some of these spaces, specifically those with playgrounds, feel designed for younger children, leaving youth feeling like the space is not for them. The second sub-theme generally explores the trend that as youth age, their time in nature decreases as a result from increase time demands to work, study, and support themselves. As a result, youth may rely on other responsibilities to keep them engaged with nature as they grow older.

4.5.1 Sub-theme: Lack of Youth Representation in Nearby Parks and Playgrounds

The youth highlighted that as they grow up, they feel excluded from the parks and playgrounds where they live and played in as children. In the final analysis session, one youth submitted a photo of the playground near their house and spoke about how it was recently renovated to provide a more safe and engaging space; however, it now felt designed for younger children, excluding older youth:

The old playground where I grew up was completely torn out, like which was reasonable, that thing was not [safe]... But [...], there is a part of me where I feel like the [new] playground [...] is a lot more focused on like 10 and under a lot of, it's just, I don't feel like it's really meant for me anymore (Participant I, Session 4, Figure 5).

Figure 5. "...I don't feel like it's really meant for me anymore" (Participant I).



This feeling was echoed by others, as they assembled photos of playgrounds (Figure 6) with a sticky note saying, *“Phased out/poor planning, a combination of no longer feeling like this public space is meant for me(teens) [...] I no longer feel inclined to be in this area.”* Beside photos of playgrounds, youth also wrote *“We need more public spaces and programs specifically for teens, young adults”*. These images and quotes tell us that as youth age, they feel like some of the local infrastructure is no longer designed for them. If nearby parks and greenspaces no longer feel welcoming for youth, then it makes sense that they will spend less time there.

Figure 6. Photo of the code *“Parks/Public Spaces”* where youth grouped together photographs of parks and playgrounds that felt designed for younger audiences.



4.5.2 Sub-theme: Balancing Time Demands and Time in Nature as Youth Age

Throughout our discussions, youth noted that as they have gotten older, their time in nature had decreased, *“I definitely find that like as I got older, I spend less time outside, like when I was little I would go outside everyday all day like 24/7”* (Participant C, Session 1). The youth also spoke about how responsibilities from school, work, and life has impacted their time in nature, *“Ever since junior high it's like my time in nature has gradually been going down and I will say that it does kind of connect to the time I have to spend studying, completing assignments, you know school stuff.”* (Participant I, Session 1). One youth noted how these responsibilities can make connecting with nature feel difficult:

So I currently coach, babysit, at school, and I'm starting to like work soon. So, balancing all of those and still trying to make time for like studying, and eating, and sleeping, and also going out in nature is like a lot, so I feel like it can be difficult. (Participant H, Session 1).

We can see how the participants expressed spending less time in nature as they age. In some cases, going into nature felt like an extra task on top of everything else they must navigate. While the youth reported spending less time in nature as they age, there were contradictory examples as well, highlighted by responsibilities that required them to get outside and connect with nature.

Many youth also highlighted experiences and responsibilities that encouraged them to be outdoors. One spoke specifically about how the responsibility of owning a pet facilitated connecting with nature *“As someone who*

does not get outside as much as they should, he's definitely one of my biggest reasons to actually connect more with nature because you can't keep them cooped up in the house all day” (Participant I, Session 3, Figure 7). Another spoke about how having a group of friends to be outside with facilitated getting outside:

I would say spending time with my best friends makes it a lot easier to spend more time in nature, cuz it makes you feel happy when you get your friends all outside having fun, laughing, goofin off, like old times and enjoying life pretty much (Participant D, Session 1).

This participant mentions “old times” in a way that portrays playing outside as an activity more commonly accepted when they were younger. However, both quotes highlight that having some sort of responsibility or accountability that requires youth to be outdoors can be a motivating factor for youth to connect with nature.

Figure 7. *“...he's definitely one of my biggest reasons to actually connect more with nature” (Participant I).*



4.6 Theme 3: The Importance of Safe Public Transportation that Connects Youth to Nature

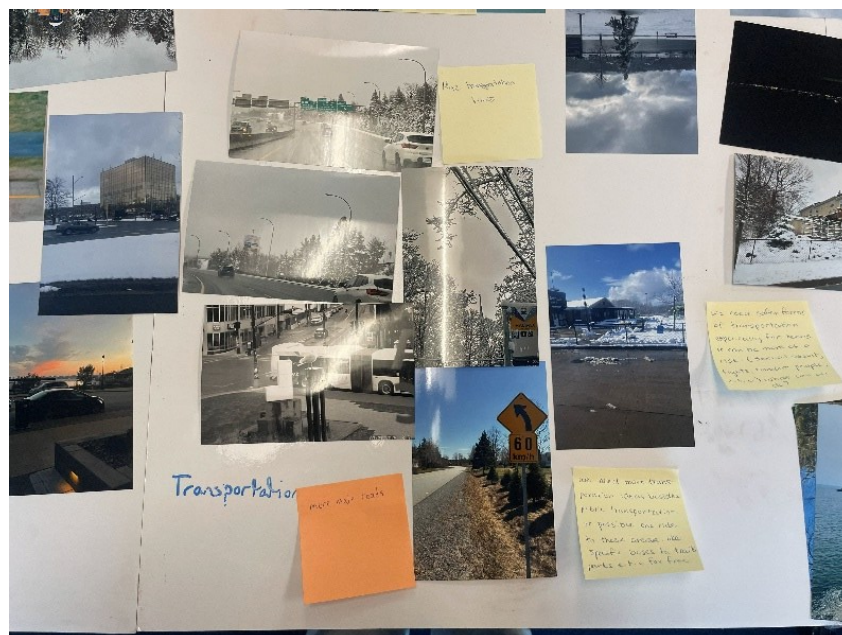
When discussing challenges to accessing nature in NS, the LOVE youth identified transportation, specifically public transit, as a significant barrier. This theme explores two main aspects of public transportation that serve as challenges for youth to connect with nature. Throughout our discussions, youth explained how transportation to nature should be efficient and should feel safe to help youth connect with nature. The first sub-theme explores how youth from this project often depend on public transit to connect with nature, and youth identify the need to increase frequency and availability of public transit options to nature in NS. The second sub-theme highlights how current transportation options are considered unpleasant and potentially unsafe. This theme centers the importance of addressing transportation as a barrier to engaging with nature to develop solutions that facilitate youth connecting with nature.

4.6.1 Sub-theme: The Need for Efficient and Extended Transportation to Nature

Many youth rely on public transit; however, they consider current options to be inefficient for accessing natural spaces. One participant said, for example, *“There's a certain bus that I can only get to go where I need to go and it comes every hour, and so that's not very time efficient” (Participant J, Session 4, Figure 8)*. Another mentioned how current public transit options make nature feel even farther away, given the time it takes to leave the city on a bus, *“I don't have a car [...] I'm probably getting on three busses to go be in nature for an hour or the bus back is*

another three hours” (Participant C, Session 4, Figure 8). Having access to reliable transportation, such as a car, was necessary to bypass the inefficiency of transit. One youth said, “I feel like now that I have a car, it’s a lot easier to get where I need to be [...] I don’t have to worry about waiting now I missed my bus and I’m pissed off and it just ruined my whole mood of going there” (Participant H, Session 1). It was evident that transportation options felt limited for participants who relied on public transit, and only those who owned cars felt they could overcome that. In addition to the availability of public transit, the youth also raised concern about its safety.

Figure 8. Photos that represent transportation as a barrier to connecting with nature.



4.6.2 Sub-theme: The Need for Safe Public Transportation Options

This second sub-theme highlights another dimension of public transportation identified by the youth impacting their experiences connecting with nature. In addition to inefficiency, current public transportation options are sometimes considered unpleasant, and potentially unsafe, by the youth in our project. In our conversations about transportation, the youth highlighted comfort and safety concerns when using public transit. The following quotes demonstrate an exchange between youth when talking about the public transit system:

“Police stopped someone today because they had a bulletproof vest and a gun on one of the transit buses today, yeah.” (Participant G)

“Are you serious?” (Participant D)

“Yeah...” (Participant G)

“It's just unpleasant.” (Participant I)

“And it's becoming more of a safety hazard” (Participant G)

It is important to note that if many youth in this project rely on public transit to access nature, then factors that make transportation less desirable may influence whether, and how, they feel safe doing so. As our conversation continued, the youth identified transportation as an area for potential action to address access to nature.

Youth emphasized the importance of providing efficient, accessible, and safe transportation options for them to connect with nature. In our final collaborative analysis session, youth noted that increasing the frequency and addressing the cost of public transit routes, specifically those that service trails and

parks should be explored, *“We need more transportation ideas besides public transportation or possible one ride to these areas. Like specific busses to trails, parks, etc. for free”* (written comment from collaborative analysis). Youth also emphasized the importance of transit feeling safe, in addition to being available *“We need safer forms of transportation, especially for teens it can be more of a risk (Sexual assault, fights, random people etc.)”* (written comment from collaborative analysis). These perspectives point to the need for increased transit options that service nature within Nova Scotia, and highlight the need for service providers, policymakers, and transit staff to work towards making these transit options safe for the youth in our province.

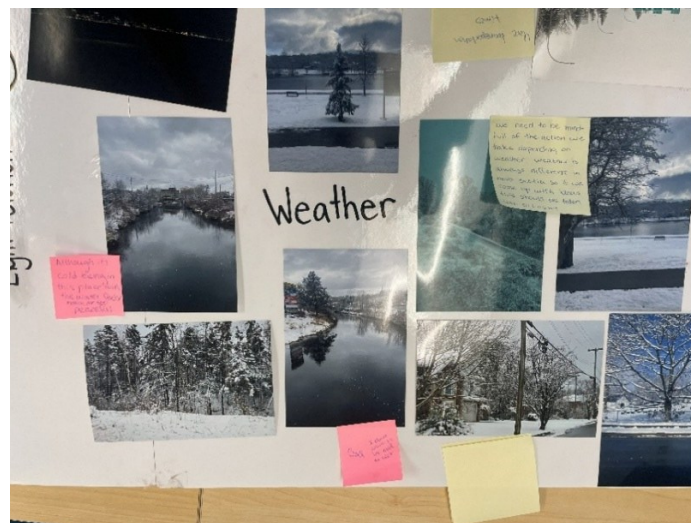
4.7 Theme 4: Addressing the Challenges of Nova Scotia’s Complex Climate to Facilitate Engagement with Nature

In addition to transportation, the weather was discussed as a significant challenge for youth to connecting with nature in Nova Scotia. In this theme, we explore how unpleasant weather influences youth experiences with nature, and how sometimes, youth do not want to be outside. When describing the NS climate as complex, I am referring to our four distinct seasons and long periods of unpredictability that may include extreme weather such as hurricanes, hail, snow, and heat. Despite this variable weather, youth still recognize the benefits of nature and highlight that it is important for service providers to acknowledge the impact of weather on the accessibility of their services. Understanding the influence of weather on youth experiences in nature can help inform service providers about

how to adapt services to ensure youth have positive experiences in nature.

The weather in NS impacts how youth engage with nature. Generally, poor weather was associated with negative experiences in nature by the LOVE youth. One highlighted how poor weather makes nature a less desirable place to be: *“I would say rain cuz no one wants to go outside in the rain and get potentially get sick in the rain” (Participant D, Session 1)*. Some youth expressed that in cases of extreme weather, they do not consider the idea of going out into nature: *“I feel like another thing like specifically in Canada and Nova Scotia is the winters. Like who is trying to go out when there's two inches of ice like I am not. Not I” (Participant H, Session 1)*. In our analysis, the youth grouped photos that represented the weather as a significant obstacle to connecting with nature (see Figure 9), and spoke about how extreme heat, rain, cold, and snow made being in nature unpleasant and uncomfortable. Interestingly, even in poor weather, the youth in this project recognized the value of nature.

Figure 9. *The weather as a final grouping from collaborative analysis.*



In our discussions, the youth recognized the benefits of nature, even in poor conditions, and urged service providers to consider the ways that weather affects the accessibility of their programs. In our analysis, youth identified weather as a barrier; however, they also wrote *“Although it’s cold, being in this place with the water makes me feel peaceful”* (Written comment from collaborative analysis). This quote highlights how regardless of weather, youth still value nature, however sometimes it is too much of a barrier to participate.

The weather may also act to compound other barriers. Some youth highlighted that poor weather conditions impact transit options, which have previously been regarded as a barrier on its own, *“Yeah, and the worse the weather, the more people on the bus everyone’s trying to take the bus to get out of the weather.”* (Participant 1, Session 4). Similarly, another youth noted that if transit is impacted by poor weather, service providers should get creative and consider other ways to get youth involved with nature: *“We need to be mindful of the weather, especially in Nova Scotia [...] maybe have more transportation like the buses aren’t always open, just different ideas that can get like teens involved”* (From collaborative analysis). This comment urges service providers to get creative about the ways that they can engage youth with nature, especially when the weather is bad.

4.8 Chapter Summary

The findings presented in this chapter discuss the four themes developed from a collaborative analysis process, where youth shared their personal

experiences engaging with nature in NS. As part of this process, youth shared stories and identified challenges they experience when accessing nature. This analysis resulted in the creation of four themes, two of which contain sub-themes, and point to ways that access to nature in NS may be enhanced to support equitable access for youth. In the following chapter, these themes will be discussed in relation to existing literature to inform practical implications, knowledge mobilization efforts, and future research.

Chapter 5: Discussion and Conclusion

This chapter provides a critical evaluation and discussion of the themes presented in the previous chapter and a conclusion for the thesis. As a nature-based service provider myself, I approach this discussion from a lens of equitable access, which recognizes access to nature beyond physical measures of distance and accessibility (Strife & Downey, 2009) and considers the lived experience and social dimensions that influence how youth engage with nature and green spaces in their everyday lives (Noel et al., 2021). In this chapter, I discuss the project findings in relation to broader literature to highlight knowledge contributions from this study. Additionally, I will discuss practical implications for practitioners and service providers that work with youth and nature in NS. This chapter concludes with a discussion of strengths and limitations of this project, followed by suggestions for future research, a conclusion to summarize the thesis, and my final thoughts after completing this project.

5.1 Youth Want Nature to Feel Within Reach

The first theme revealed that while youth conceptualize nature in many ways, those in this project relied primarily on urban and nearby green spaces to connect with nature. The youth in this project emphasized the importance of protecting urban-based natural environments to keep nature within reach for regular access. The focus on urban nature is not all that surprising, as we worked with the LOVE NS chapter based in the urban centre of Halifax. LOVE NS offers other chapters across the province in rural areas as well (LOVE NS, 2026), and

future work could expand this exploration to specifically highlight the perspectives of rurally-based youth. The idea of preserving urban natural spaces to facilitate connection to nature was not a singular topic highlighted in the literature review; however, it does connect to broader discussions around how the built environment (Monroe et al., 2023), and youth perceptions of “getting to” nature (Strife & Downey, 2009; Zhang & Tan, 2019), intersect and influence access to nature for diverse youth populations.

The idea that youth recognize a difference between far away and urban nature is consistent with that of Waite et al., (2023) who reported that youth described nature as separate and far away from humans and the built environment. However, in our project, youth more consistently described nature in their everyday lives using public green spaces and urban nature. The youth in our project noted that these spaces were particularly valuable in a time when our city is facing rapid development and densification. These trends have been noted to contribute to decreased time spent in nature for young people (Barron & Rugel, 2023).

Urban parks and green spaces located nearby, or within urban neighbourhoods, play a role in supporting youth wellbeing (Birch et al., 2020; Lloyd et al., 2008) and also have the potential to reinforce social justice and promote health equity through enhancing the physical and social environment (Jennings et al., 2017). However, spatial disparities exist in access to quality green spaces for members of urban-based equity-owed communities (Eykelbosh & Chow, 2022; Xing et al., 2020). It has been suggested that moderate exposure to local neighbourhood

nature may be more beneficial than wooded areas further away, as they may be more approachable (Birch et al., 2020), well-maintained, and conducive to activities that foster overall wellbeing (Huynh et al., 2013). In a rapidly developing city, small and dispersed green spaces, such as pocket parks in residential neighbourhoods, may be more easily integrated into dense urban environments (Faivre et al., 2017). Additionally, it is important that future efforts to protect and promote urban nature recognize the spatial disparities that those from equity-owed communities face (Aery, 2019) to support youth to access the benefits of these spaces.

Cities such as Halifax are experiencing intensified growth, placing urban natural environments at increased risk of removal to accommodate new developments (Government of Canada, 2021). The HRM protects nature-spaces through the Urban Forest Master Plan (HRM, 2013) and other initiatives geared at protecting nature in the municipality through conservation efforts and projects that promote active transportation (HRM, 2026). Other examples such as the Parks Canada National Urban Parks Program (Government of Canada, 2025), and the Nature Canada 30 x 30 conservation target (Nature Canada, n.d.) are national examples aimed at protecting and developing urban spaces to facilitate nature engagement. While these demonstrate the how various levels of government are supporting urban nature, more work needs to be done. There is limited discussion in these documents that addresses access to urban nature for youth. It is important for practitioners to understand the potential for urban nature to promote wellbeing, address spatial disparities, and promote health equity among youth. Supporting the

development and preservation of urban nature alongside rapid urban development may support diverse youth having equitable opportunities to engage with nature in urban environments.

5.2 Youth Want to Belong in Nature-Based Spaces

The second theme from this study identified a need for spaces and services that encourage youth to connect with nature as they navigate competing priorities in this transitional period of life. This finding provides valuable insight into how local youth perceive parks, especially those with playgrounds, as not intended for them, reinforcing the need for services that support youth feeling welcome to engage with nature as they age. Additionally, this theme revealed a trend that youth experience competing priorities that draw them away from nature as they age, except for some responsibilities that supported youth to get outside and connect with nature.

Participants indicated that the physical design of parks and playgrounds contribute to youth's decreased sense of belonging in nature. In examining the lack of youth-specific spaces, I discovered some literature challenging the idea of child-friendly playground design, as it can limit spaces to specific age groups (Kaplan, 2024). In response, authors advocate for a shift toward public spaces designed for multigenerational use to promote social connection across ages (Kaplan, 2024; Pitsikali & Parnell, 2020). Waite et al. (2023) note that outdoor activities being perceived as “uncool”, particularly if peers are not participating, may inhibit youth participation (Waite et al., 2023). While the LOVE youth did not describe the parks and playgrounds as “uncool” they did suggest the lack of other youth made it feel

like it was not meant for them. This concept reveals a pathway for future development and planning to consider multigenerational design in parks and playgrounds, to support youth engagement with natural spaces.

Additionally, the idea of designing youth-friendly spaces is aligned with the concept of “tolerant greenspaces” for youth (Barron & Rugel, 2023). Barron and Rugel (2023) acknowledged the voices of youth and young adults are missing in research on nature-based solutions, and that densification of urban areas means this age group is spending less time in nature (Barron & Rugel, 2023). The authors proposed a greenspace appraisal framework made up of three dimensions (order, cohesion, seclusion and retreat) to help policymakers and planners advance distributive justice by expanding the notion of accessibility to greenspace for young adults (Barron & Rugel, 2023). This work suggests designing and maintaining urban green spaces that rank highly across all three attributes would result in these spaces being more tolerant to support the wellbeing of 15–24-year-olds (Barron & Rugel, 2023). While this framework provides an interesting avenue to explore the state of nature spaces, it is important to maintain engagement with the voices of youth. Future research should consider factors in addition to design, such as transportation, weather, environmental conditions, and safety, as they have also been identified in our project as challenges experienced by local youth.

The findings of this project also indicated that as youth age, they face competing time demands which draw them away from nature. Yet purposeful activities in nature may offer a way for youth to overcome this challenge. Examples

such as school and work (Hartley et al., 2023) as well as caring for younger siblings or working part time jobs (Ibes et al., 2021) may suggest why youth feel that their time in nature is limited. Similarly, prior research has found that in Canada, self-reported connectedness with nature decreases as youth age (Krettenauer et al., 2020). This finding is consistent with another photovoice study exploring youth experiences with nature to relieve stress, where the participants highlighted schoolwork and lack of available time to connect with nature (Hartley et al., 2023). This emphasizes that, while youth may want to be in nature, they often experience competing pressures they feel must be prioritized.

Conversely, the LOVE youth also highlighted how spending time in nature with siblings or friends could also serve as a priority which facilitates connection to nature. This brings up an interesting point about the role of responsibility in helping connect youth with nature. In the Hartley et al., (2023) photovoice study, the authors highlight that youth may benefit from consistent reminders of the benefits of connecting with nature to encourage them to prioritize it. Taken together, this theme points to the importance of framing nature engagement not as an added task for youth, but as a place where they belong, and something that can be meaningfully embedded within youths' existing obligations and social relationships to facilitate nature engagement as they age.

5.3 Providing Safe and Accessible Public Transportation to Support Equitable Access to Nature for Youth

Our study also revealed that transportation plays a significant role in shaping youth experiences in nature in NS. The youth specifically highlighted the lack of efficient routes that service parks, trails, and greenspaces, as well as the need for transportation to feel safe for youth to use it to get to nature. This finding emphasizes that providing safe and reliable public transportation is critical to facilitate equitable access to nature and nature-based services in Nova Scotia.

This finding adds to the overwhelming data that transportation to nature is a significant barrier (Belon et al., 2024; Ibes et al., 2021; Lemieux et al., 2025; Strife & Downey, 2009; Waite et al., 2023) and highlights why transportation must be addressed to promote equitable access to nature. Specifically, many youth spoke about their dependence on public transportation to connect with nature because of not having access to their own vehicle. However, many youth noted that the current public transportation options were inefficient and unpleasant.

Public transport has potential to support accessibility, health, and environmental benefits for youth, but efforts to promote public transit must proactively address inequities, especially for youth from equity-owed communities (Hawley et al., 2020). A recent scoping review highlighted that without financial means or appropriate transportation, access to safe green spaces may be challenging, and further exacerbate issues of health inequity (Paquet et al., 2025). In a related study, authors explored nature engagement for youth of colour and

highlighted often cited barriers to nature including lack of accessible, reliable, and affordable transportation (Ibes et al., 2021). While we did not ask the youth to rank the challenges they faced, this finding echoes existing research highlighting the need for improved public transit to connect youth with nature. Additionally, our study adds to the literature by highlighting that transportation to nature impacts youth in NS and must be addressed to promote equitable access among local youth populations.

The youth in this study also made it clear that safety impacts their desire to take public transportation to nature. In the literature review, the idea of safety was discussed in terms nature itself, and the people in nature spaces (Scott & Tenneti, 2020); however, most articles limited their descriptions of safety in nature to the physical spaces themselves. This finding urges practitioners to consider safety in nature to extend beyond just the natural space itself, and is consistent with literature that highlights safety concerns as a significant challenge for equity-owed youth communities on public transportation (Aery, 2019; Linovski et al., 2021).

Actions must be taken to support youth safety on public transportation. In 2021, the Halifax Regional Municipality launched a campaign to address passenger safety and respect, called the Halifax Transit Code (HRM, 2021). This code outlines services available for passengers, such as the “request a stop” service, available to those traveling alone on transit routes after dusk who wish to get off somewhere without a bus stop for safety reasons (HRM, 2021). Local examples such as this one may support safety of passengers, however current experiences of youth feeling

unsafe on transit suggests that more work needs to be done in this area to increase youth safety on public transportation. Others have suggested increasing lighting at bus stops, conducting awareness campaigns, including equity-owed community members in planning and design, increased training for drivers, and developing more efficient reporting systems as ways to support safety of equity-owed communities on public transit (Chiu & Palm, 2022).

This finding adds to the data which highlights transportation as a significant barrier to nature. However, this research also contributes to the notion that access to nature for youth may be more about safe spaces and community trust, rather than just having nature nearby (Strife & Downey, 2009). To support youth equitable engagement with nature, practitioners must extend the concept of safety beyond nature spaces to support the safety of participants along the journey to get there.

5.4 Supporting Youth Engagement with Nature Across the Seasons in Nova Scotia

It is not surprising that youth in this study found poor weather conditions a deterrent to spending time outside. Previous research demonstrates that variable weather could limit youth engagement with nature and outdoor recreation services, particularly in Canadian winters (Belon et al., 2024). Our study adds to this by noting that this trend rings true in NS as well, and that challenging weather limits local youth's ability and desire to connect with nature.

Some research has explored why poor weather may limit youth engagement with nature. Ibes et al. (2021) highlight how adverse conditions may draw youth out of their comfort zones, and lead to feeling an aversion toward nature. Birch et al.,

(2020) also suggest that aspects of the environment which produce poor quality nature experiences can weaken possibilities for gaining benefits from nature. I believe the final theme of this thesis aligns with this concept; if poor weather produces negative experiences in nature for youth, then youth might not seek out those experiences again in the future. As a result, service providers may need to consider providing activities and services that promote positive experiences in nature, and support participation from different levels of experience in various weather conditions.

While I recognize that poor weather may turn youth away from nature, this finding raises an interesting point as many of us working in outdoor recreation have often heard the saying *there's no such thing as bad weather, only unsuitable clothing*. As someone who has worked in outdoor recreation for a long time, I feel like I have, to a certain extent, adopted this mentality and prioritized purchasing gear to support my engagement with nature across the various seasons in NS. In doing this research I feel as though I gained a deeper understanding of the lived experiences of youth who engage with nature in different ways than I do. I now understand that “only unsuitable clothing” might not tell the full story. Outdoor clothing and gear is expensive, and many studies have identified cost of equipment, clothes, and resources as a barrier to engaging with nature (Ibes et al., 2021; Lavallée & Warner, 2024; Waite et al., 2023) especially for those who face socioeconomic barriers (Birch et al., 2020; Robinson et al., 2023).

Interestingly, during our sessions with the LOVE youth, there was very little discussion around the cost of outdoor activities, or cost of outdoor equipment as a barrier to engaging with nature in NS. Although this topic was not explicitly raised during our discussions, it would be inaccurate to suggest that cost is not a barrier to engaging with nature for equity-owed youth in Nova Scotia.

There are a few reasons why cost may not have come up in our conversations. A possible explanation for the lack of discussion around cost is that many of the youth in our project described free or low-cost experiences in nature, with a focus on everyday experiences with nature. Examples included visiting family, spending time in local parks, gardening at home, and going to nearby sports fields. As highlighted by *Theme 1: Preserving Urban Nature*, the youth emphasized the importance of public and urban spaces in fostering their connections with nature. Because most of these activities require little or no financial investment, participants may not have perceived cost as a barrier to engaging with these spaces. In a study exploring the experiences of youth of colour in nature, Ibes et al., (2023) mentioned that childhood experiences impact how older youth of colour engage with nature.

The influence of childhood experiences as well as intersecting barriers may also explain the tendency of LOVE youth to connect with nearby and free nature spaces. If youth grew up connecting with nature through public parks and spaces, it would make sense that they would continue to seek out these familiar places to connect with nature as they grow older. Alternatively, others have noted that those

from equity-owed communities may already face existing challenges which accumulate to create overlapping barriers that often make it more challenging, and take precedence over getting into nature (Ho & Chang, 2022). In their paper, Ho and Chang (2022) provide the example of newcomers who may need to establish financial stability while also navigating a new legal systems, routines, and trying to maintain cultural traditions before prioritizing nature. This may also relate to how cost was not discussed by the LOVE youth, as they might need to prioritize essential expenses, over seeking out nature experiences that require an upfront cost.

While we cannot control the weather, practitioners can consider ways to reduce barriers associated with the cost of engaging with nature (Lemieux et al., 2025) in cases of challenging weather. Examples such as implementing gear libraries or equipment loan programs (Högman et al., 2024) have been used to support youth participation in outdoor recreation across weather conditions. These initiatives have demonstrated success in enabling youth from low socioeconomic communities to engage in outdoor play (Högman et al., 2024). Similarly, programs such as the Canada Strong Pass (Government of Canada, 2026), promoted by Parks Canada, have offered free admission to national parks. While this temporary pass helps in the short term, it does not permanently make national parks accessible without cost. Expanding efforts to support publicly available and low-cost nature-based experiences may support the perception of nature as an inclusive, affordable, and welcoming space for youth across the variable weather conditions we experience here in Nova Scotia.

5.5 Practical Implications

This research provides valuable perspectives of local youth on how they engage with nature in their everyday lives and environments. The findings of this thesis suggests avenues for multisectoral practitioners to support access to nature for diverse youth communities in Nova Scotia. This section builds on the findings and discussion and brings the implications of this research into the real world.

5.5.1 Informing an Outdoor Health NS Youth Action Plan

The findings of this research will inform future work carried out by the Outdoor Health NS team. As a part of the Outdoor Health NS research, we completed similar photovoice projects with two additional groups of youth. As part of the larger project, we are planning a knowledge mobilization event, the Youth, Nature and Wellbeing Summit, that will bring together youth from across NS to continue the conversation on youth access to nature and develop a youth-informed action plan. This plan will highlight actions that can support the development of inclusive, accessible, and welcoming nature-based spaces and services for diverse youth in NS. Results from this thesis will help inform the development of this plan, and broader project findings will be shared with policy and planning, education, recreation, and other end users seeking to facilitate youth engagement with nature.

5.5.2 Implications for Space and Infrastructure

This project shared first-hand experiences of youth in NS that may be of value to the policy and planning sector. From a planning and development perspective, the findings support how the development of pocket parks and green

infrastructure, in a rapidly developing city such as Halifax, can contribute to facilitating nature engagement for youth (Barron & Rugel, 2023; Faivre et al., 2017). Practitioners involved in policy and planning development should continue to recognize, support, and work to protect urban nature and advocate for green infrastructure to help youth more easily integrate nature into their everyday lives.

Future work in planning and development should also focus on including youth, especially those from equity-owed communities in the development and planning of future parks and greenspaces (Barron & Rugel, 2023; Birch et al., 2020; Norwood et al., 2019; Oswald et al., 2020). Including youth in conversations around the development of programs and services may help to promote multigenerational use (Kaplan, 2024), identify current disparities (Aery, 2019), and support youth to engage with nature as they age (Barron & Rugel, 2023).

Another important implication of this research draws from the fact that many youths in NS rely on public transportation to connect with nature. In practice, this finding suggests that the development of transit routes that service parks and trails within the province have the potential to enhance equitable access to nature. Additionally, existing transit routes that service natural spaces should be advertised in ways that are accessible to youth. When exploring ways to improve public transportation options that connect youth with nature, practitioners must also maintain a focus on supporting equitable participation, so not to further magnify issues of health inequity (Paquet et al., 2025). Additionally, our research emphasizes the need to increase safety on public transportation for youth,

specifically considering the experiences of equity-owed youth (Aery, 2019; Chiu & Palm, 2022; Linovski et al., 2021). By extending the notion of safety in nature beyond physical space, to include safety on transportation, we can support youth along the entire process of the nature experience.

5.5.3 Implications for Service Providers

The findings of this project also provide those working with youth in recreation, education, and community-based programming, valuable knowledge to understand how youth typically engage with nature. These findings point to ways in which service providers can identify gaps in their own services and take steps to support youth engagement with nature.

Service providers seeking to engage youth in nature should understand that while many youth recognize nature as far away from the city (Waite et al., 2023), youth in this study engaged with nature in simple and low-cost activities such as gardening, going to an outdoor sports field, and bird-watching from home. The emphasis on free, urban, and low-cost activities in this study suggests that for some youth, getting into nature isn't about extreme, far away experiences, but through simple daily activities (Birch et al., 2020).

Practically, service providers should consult youth in program development, to create opportunities rooted in activities youth want to do and can readily access. LOVE Youth programs (LOVE, 2026) provide an example of a local organization working with youth to develop inclusive and welcoming programming, by including youth voice and consultation into program development. In addition to consulting

youth about their programs, LOVE also does a great job hiring staff who were once participants in their programs. This system allows the staff group to be made up of individuals who have lived experience which resonates with the lives of participants. It is additionally important to consider the importance of an equity-lens in the hiring practices within outdoor recreation organizations. Hiring more culturally and racially diverse staff can support representation within the outdoor recreation sector and support youth participants to see themselves reflected in their leadership teams (Scott & Tenneti, 2020).

Another practical implication relates to transportation to and from nature and nature-based services. From this research, I suggest that service providers include transportation as an essential component to supporting access to their services. For example, service providers may explore the current public transit routes that connect youth with their programs and spaces and to identify if and which transit routes are available. Scheduling programs around existing routes could support youth engagement. Additionally, it could be valuable to include information about “getting there” in communications to participants to raise awareness about public transit routes, or alternative transportation options, that connect youth with existing services.

Practical implications may also be implemented to support youth engagement with nature across variable weather. Those seeking to connect youth with nature should understand the role of weather and how it may deter youth from wanting to engage with nature. Additionally, practitioners may support the

development and implementation of programs that provide equipment (Högman et al., 2024) or subsidized services (Government of Canada, 2026) to support youth engagement with nature across variable seasons. If there are current services and programs that exist to provide equipment and reduce costs to engaging with nature, service providers may also focus on promoting existing opportunities more broadly to spread the word among youth from equity-owed communities.

5.6 Knowledge Mobilization

Knowledge mobilization is another key focus of this project. In mobilizing this knowledge, we want to reach a broad audience and promote community-level discussions on how we can support more equitable opportunities for youth to engage with nature. Ultimately, we hope that these discussions will result in community action that promotes more equitable access to nature for youth. After data analysis, the youth participated in the final step of photovoice, where we brainstormed ways to share our results with the community (Wang, 2006). This session focused on identifying knowledge-sharing formats that aligned with how the youth wanted to share their stories, photos, and experiences. During this session, the youth decided on two outputs for their projects: creating zines and a photo exhibit.

Zines are defined as self-published booklets or magazines, sold inexpensively or traded for other zines (Thomas, 2009). In the fall of 2025, I collaborated with two local artists and a community makerspace to host a zine workshop focused on youth, nature, and wellbeing (See Appendix N). In this

session, youth from the photovoice project and youth from the wider community, were invited to a free workshop to create zines that creatively expressed their experiences in, and challenges accessing or connecting with, nature. Some youth shared their zines with us so that we could include them in future presentations.

The youth also suggested developing a photo-sharing exhibit and hosting it in an outdoor space. We are planning to host an outdoor photo exhibit in the Spring of 2026, where we will invite the youth to speak on behalf of their photos. In addition, the youth will be invited to present their photo exhibit at the Youth, Nature, and Wellbeing Summit in the fall of 2026. The summit will also serve as an opportunity to bring together youth from across the province to continue the conversations we started throughout this project and inform the development of a youth action plan focused on enhancing access to nature for diverse youth in NS.

Over the last two years, I have also presented this research at local community, provincial, and national events, conferences, and symposia. These events have served as an opportunity to connect project findings with community members, researchers, municipal, provincial, and federal staff. By focusing efforts on sharing these findings more publicly, I hope the knowledge generated throughout this project will reach a broad and diverse audience and be of use to those who want to support youth engagement with nature.

5.7 Strengths and Limitations

The photovoice methodology provides many advantages for engaging youth in research (Wang, 2006). These include being adaptable to diverse groups (Wang &

Burris, 1997), providing practitioners with direct insights into youth lived experience (Wang, 2006), and affirming community voice (Wang & Burris, 1997). Additionally, photovoice research includes training and capacity building, which helps engage youth in the process of democratizing research, and realizes potential to catalyze social action (Wang, 2006).

Another strength of using photovoice was that we were able to adapt it to fit the LOVE Leadership program structure (Wang, 2006). Recruiting youth through LOVE programming allowed us to engage youth in research, without taking additional time in their schedules (Woodgate, 2017). Additionally, having LOVE staff, who are all youth workers and registered social workers, at every research session helped ensure youth had access to support throughout the whole research process.

Additionally, this project helped fill gaps in the literature such as being relevant to local socio-political context of NS (Birch et al., 2020), and exploring the perspectives of youth separate from children and older adults (Lomax et al., 2024; Zhang et al., 2020). Working with an organization that supports youth from diverse equity-owed youth populations provided us with unique insights, and allowed us to explore the perspectives of youth as a heterogeneous group (Roberts et al., 2020) and contributes their perspectives to research on youth and nature (Lackey et al., 2021; Lomax et al., 2024).

In community-based and participatory work such as this project, it is important to build trusting relationships with participants (Wallerstein et al., 2017;

Woodgate, 2021). Leading up to the photovoice sessions, I attended regular LOVE programming to get to know the youth and build trust before starting the research process. Upon reflection, this was a valuable part of the process and strengthened the research. Attending LOVE sessions helped me understand the program and get to know the youth as well as the LOVE staff on a more personal level.

It is also important to address the limitations of this project, as they may inform how future research can address them. Given that the LOVE leadership youth I worked with attended the Halifax location, it was likely that most youth in this project were urban-based youth, and so the voices of rurally based youth may not have been expressed in the findings.

Photovoice projects such as this one, with a focus on space and place, also face limits of timing and seasonality. In our project youth were given a limited time to take photos, as we needed to complete the process before the end of the leadership program in May. To address this, we allowed youth to submit photos taken in NS at other times and places during our second round of photo taking. Allowing the youth to draw from photos they already had also allowed them to contribute without asking them to take too much time out of their daily lives. This modification made this project accessible to youth who were unable to travel to certain natural spaces within the time given for this project.

In addition, photovoice projects tend to encounter analytical challenges due to the volume and complexity of photographic data (Wang and Burris, 1997), which require interpretation through contextualization and thematic organization. To

navigate this, we followed a structured SHOWeD method (Wang, 2006) to guide the participatory analysis process. We also completed two rounds of analysis, to allow youth to develop their understanding of the process, take new photos, respond to questions in different ways, and to support youth who were unable to attend every session. In the future, completing more rounds of analysis may have also given us a bit more time to develop themes together. The limitations outlined in this section also highlight avenues for future research.

5.8 Recommendations for Future Research

This project identified several avenues for future research to further examine youth experiences and support efforts to promote equitable access to nature within NS. The greenspace appraisal framework proposed by Barron & Rugel (2023) presents an interesting avenue for future research to identify how parks and green spaces in Nova Scotia are perceived by, and could be made more inviting for, youth. While this tool may be helpful to assess parks, my definition of equitable access also considers the perspectives of community members and how they perceive access to nature. As a result, this tool should not replace the voices of local youth in research. Future research should continue including voices of youth from diverse communities when developing and designing green spaces (Lyons et al., 2022), and this framework may be used in addition to consultation (Barron & Rugel, 2023).

Interestingly, this study identified accountability and responsibility as facilitating youth connecting with nature as they age. Examples like spending time with friends, pets, or siblings that required youth to be outdoors were described as

facilitating their connection with nature. Future work may explore opportunities for programs and services that combine youth employment, social, or education opportunities, with nature experiences (Hartley et al., 2023; Ibes et al., 2021).

Building on the existing research which promotes the use of nature as an upstream and preventative support for youth wellbeing (Oswald et al., 2020; Zhang et al., 2020), future research may continue to explore the public health implications of developing more accessible and inclusive nature-based services for youth. This may include an exploration or development of, interventions, programs, or services that address the challenges highlighted in this thesis. Future research could evaluate the outcome of these interventions and how they may contribute to broader public health outcomes for youth.

Future work should continue to engage youth meaningfully in consultation around the topics highlighted in this study (Woodgate, 2021). Researchers could work with youth to assess current equity gaps in our local transit services (Linovski et al., 2021) and consult local youth to identify ways to improve local transit services and enhance safety on public transit. Additionally, it would be valuable to explore the perspectives of rurally based youth, as they may differ from urban-based youth populations. By engaging youth meaningfully (Woodgate, 2021) in the research process and valuing lived experience, future work may help provide a deeper and more nuanced understanding of the reality of youth in our province, and tailor results to local needs.

5.9 Conclusion

Existing research highlights how nature-based experiences support youth wellbeing (Bowers et al., 2021; Jimenez et al., 2021; Pretty & Barton, 2020; Zhang et al., 2020), especially in a an increasingly digital era (Oswald et al., 2020). However, youth in NS experience barriers to accessing nature (Healthy Populations Institute, 2022) and I recognize that access to nature is not equitably distributed (Eykelbosh & Chow, 2022; Rigolon & Flohr, 2014). Limited research explores access to nature by consulting the voices of youth as a unique group distinct from children and adults (Birch et al., 2020; Lomax et al., 2024; Roberts et al., 2020; Zhang et al., 2020), and even less research includes the voices and perspectives of those from equity-owned communities (Lackey et al., 2021; Lomax et al., 2024).

To address these gaps, we partnered with a local community-based organization called LOVE NS, which supports youth from various equity-owned communities, who are often underserved by current systems and navigate increased risk due to systemic barriers (LOVE NS, 2026). Through this partnership and photovoice methodology, this study aimed to explore the experiences of youth from the LOVE Leadership program on the challenges they face when engaging with nature in NS.

Using a participatory approach and following a collaborative thematic analysis process (Wang, 2006, Wang & Burris 1997, Gleeson, 2021), we engaged youth in the research process (Wang, 2006). This process generated four themes: 1) Preserving Urban Nature; 2) Lack of Spaces and Services that Promote Nature

Engagement as Youth Age; 3) The Importance of Safe Public Transportation that Connects Youth to Nature; and 4) Addressing Nova Scotia's Complex Climate to Facilitate Engagement with Nature. These four themes informed discussion topics which aimed to generate meaning and inform practical implications to facilitate youth engagement with nature for multisectoral practitioners.

The main messages of this thesis can be drawn from each of the themes that were identified by the LOVE youth in our collaborative analysis. First, it is important for experiences in nature to be understood as unique and subjective for youth from diverse backgrounds. These experiences shed light on the value of public urban nature as important in fostering accessible and affordable nature experiences. Additionally, the youth expressed the conditions that make them feel unwelcome and pulled away from nature, suggesting that we must create spaces and opportunities that support youth to engage with nature as they age. Transportation to nature, as well as safety on transportation are also important factors that influence how youth engage with nature and must be addressed to promote equitable access. And finally, the variable weather in NS may turn youth away from nature, suggesting that we must come up with creative ways to support youth to connect with nature in times when they might not have the resources to participate. Considering all findings, this project highlights valuable youth perspectives which reveal avenues for service providers and practitioners to take action aimed at enhancing equitable opportunities for youth to engage with nature in Nova Scotia.

5.10 Final Thoughts

It has been an absolute privilege being able to work alongside the Outdoor Health Research team as part of my graduate studies. Throughout this process, I have learned so much about the power of photovoice in sparking discussion around important community matters and about myself as a researcher. I also feel an immense gratitude to have been invited into the LOVE community and learn from youth in a space where I felt supported to show up as my most authentic self. The LOVE youth and staff were so welcoming from the start, which instantly showed me what it feels like to be a part the LOVE family.

Throughout this process, I have also learned so much about myself, and how I want to move forward in my career. After this thesis, I feel a sense of newfound appreciation for Nova Scotia's natural beauty, and I would love to continue supporting others to connect with nature in ways that are meaningful and accessible to them. Ultimately, I hope that this thesis encourages practitioners working with youth to hand the mic over, and learn from the passionate, funny, smart, and profoundly wise young people in our communities. Finally, I would like to dedicate this thesis to the youth who participated in all our photovoice projects, thank you for sharing your stories with us.

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Appendix A: Participant Consent Form



CONSENT FORM

Project title: Mobilizing the health benefits of being in nature through community-based participatory research and youth engagement

Lead researchers: Drs. Son Truong (son.truong@dal.ca; 902-494-7061 and Michelle Stone (michelle.stone@dal.ca; 902-494-1167, School of Health and Human Performance, Dalhousie University

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Introduction

We invite you to take part in a study being conducted by Drs. Son Truong and Michelle Stone, Researchers in the School of Health and Human Performance at Dalhousie University. Choosing whether or not to take part in the study is entirely your choice. There will be no negative impact if you decide not to take part. The below tells you what is involved in the study, what you will be asked to do and about any benefit or risk you might experience. You should discuss any questions you have about this study with the researchers. Please ask as many questions as you like, and contact us anytime.

Purpose and Outline of the Research Study

Time in nature is especially important for youth and has been shown to improve health and wellbeing, as well as social connections and sense of belonging, place, and community. However, young people's time spent in nature is in decline, and efforts are needed to explore integration of recreation and health sectors. Our project aims to explore how we can develop a multisector approach to nature-based recreation and mental health services to support youth wellbeing in Nova Scotia. As part of our project, we'll engage youth through photo taking. With a small group of participants, we'll use photovoice, a method of engaged photo-taking. Photovoice is often used to enable

reflection, promote dialogue, and reach decision makers (like teachers, policymakers, or group leaders).

Who Can Take Part in the Research Study

You may take part in this study if you are a participant in the LOVE Leadership Program, and are interested in engaging in the data collection and analysis plans described below.

What You Will Be Asked to Do

If you decide to take part in this study, you will be asked to take part in a workshop of 3-4 hours with other participants from your program. At the workshop, you will learn more about the study, taking photos for its purpose, and brainstorm themes for taking photos. You will then be asked to take photos for 1-2 weeks, using your own camera or one from the study. You will be asked to seek consent, where needed, to take someone's photo.

After taking photos, you will be asked to turn them in to the researcher by electronically transferring them using a Dalhousie system that the researcher will provide you instructions for. The original group will then meet again for 1-2 hours to discuss the photos as a group. We may decide to repeat the process of taking photos and getting together to discuss another time. Group discussions will be audio-recorded. The total estimated time commitment will be approximately up to 15 hours, over a period of approximately 2-3 months. When this process is finished, you may be asked to engage in activities or events to share your photos, though these activities will be optional.

Possible Benefits, Risks and Discomforts

Participating in the study might not benefit you, but we might learn things that will benefit others related to youth wellbeing and nature. Photovoice studies sometimes result in advocacy and action, and participants have the chance to work with people in their communities and enhance self-esteem.

The risks associated with this study are minimal. Photos, however, can be seen as political, personal, or private, and you may feel uncomfortable in taking them, seeking consent when needed, or discussing them in a group. You can choose the photos you take, and do not have to take any photos which would make you uncomfortable. You can also choose to not respond to any question you wish not to during group discussion of photos.

Incentives / Reimbursement

To thank you for your time, we will give you a \$25 honorarium each time you take part in an analysis or planning session, to a maximum of \$100. You will also be given a copy of all photos you take (for which consent has been established).

How your information will be protected:

Given the nature of the study (group discussions), other participants will know that you

are taking part, and we cannot guarantee confidentiality. Given that the data will be photos, if you choose to take photos of yourself, your image cannot be kept confidential, though we will not publish names of people in photos. We will also not report or publish photographer's names, though you may be offered the opportunity to engage in sharing your photos publicly, and you could be identified in that process. We will use a made-up name, which you may choose if you like.

Participants who take photos will have the opportunity to decide which photos are shared publicly, and give their permission for sharing photos after analysis has taken place. Direct quotes from group discussions may be used, but will not be associated with individual names. We will not disclose any information about your participation in this research to anyone unless compelled to do so by law. That is, in the unlikely event that we witness child abuse, or suspect it, we are required to contact authorities.

Only the research team will have access to study data. Electronic files will be password protected, and paper data will be stored in a locked cabinet in a locked office at Dalhousie University. All data will be kept for 10 years following study completion, after which time it will be destroyed.

If You Decide to Stop Participating

You are free to leave the study at any time. If you decide to stop participating at any point in the study, you can also decide whether you want any of the photos you've taken to that point removed. As group discussions will be audio-recorded, it will not be possible to remove your individual comments from the group data. After analysis is complete, you will be offered another opportunity to consent to the use of your photos for knowledge sharing and translation. If you decide to consent to the use of your photos at that point, it will no longer be possible to remove them at a later date. Your participation in this study will not influence your ability to take part in the LOVE Leadership Program

How to Obtain Results

We can provide you with a short summary of results when the study is finished, or include you on future updates regarding publications, etc. You can obtain these results or sign up for updates by including your contact information at the end of the signature page.

Questions

We are happy to talk with you about any questions or concerns you may have about your participation in this research study. Please contact Son Truong (son.truong@dal.ca; 902-494-7061) or Michelle Stone (michelle.stone@dal.ca; 902-494-1167), at any time with questions, comments, or concerns about the research study. We will also tell you if any new information comes up that could affect your decision to participate. If you have any ethical concerns about your participation in this research, you may also contact Research Ethics, Dalhousie University at (902) 494-3423, or email: ethics@dal.ca (and reference REB file # 2024-7350).

Signature Page

Project Title: Mobilizing the health benefits of being in nature through community-based participatory research and youth engagement

Lead researchers: Dr. Son Truong (son.truong@dal.ca; 902-494-7061) and Dr. Michelle Stone (michelle.stone@dal.ca; 902-494-1167), School of Health and Human Performance, Dalhousie University

I have read the explanation about this study. I have been given the opportunity to discuss it and my questions have been answered to my satisfaction. I understand that I have been asked to take part in a workshop, take photos, and engage in group discussion of those photos. I understand that group discussion will be audio recorded, and direct quotes of things I say may be used without identifying me. I agree to take part in this study. My participation is voluntary and I understand that I am free to withdraw from the study at any time, but that my individual voice cannot be removed from audio-recorded group discussion. I understand that I will be given another opportunity in the future to consent to the use of my photos publicly.

Name _____ Signature _____ Date _____

I am 16 years old or older.

Date of Birth (yyyy/mm/dd)

Provision of Results

I would like to receive a copy of a summary of this study's results.

I would like to be updated (via email) regarding publications, events, or presentations associated with this study.

If you checked either of the above boxes, please complete:

Name: _____

Email address: _____

Please return this completed form to your program leader or by email to outdoorhealth@dal.ca

Appendix B: Session 1 Focus Group Questions

Photovoice Focus Group Guide

Equipment / Set-Up: Nature photos, laptop, back-up recorder, post-its, pens/markers, questions printed on paper, slide show with questions, name tags, nature/arts-based materials

Reminders: No right or wrong answer, can pass, conversational/discussion format, but can indicate if you'd like to share, can write answers as well. First few questions we would like to hear from everyone; however, you can still pass if you'd like to.

Start Recording and Transcription

Section One: Getting to Know the Group:

1. As you know, we're trying to share diverse youth experiences of nature and nature-based programming. **To start, can we go around and share a little about ourselves, including name, age, pronouns, ethnicity, and your city?**
 - a. Do you live in an urban, suburban, or rural area?

Section Two: Getting into Focus: What is Nature?

2. **What do you think about when you hear the word nature? What does nature mean to you?**
3. **How much time do you spend engaging with nature?**
 - a. **Possible prompts:** Do you wish you spent more or less time outdoors? Has the amount of time you spent outside changed through your life?
4. **Can you tell us about how you connect with or engage with nature?**
 - a. **Possible prompts:** What do you like to do outside...why? Where? When? With who? What programs or services help you engage with nature? What is your favourite thing about nature? What is your least favourite thing about nature?
5. **How does being in or connecting with nature make you feel?**
 - a. **Possible prompts:** What motivates you to spend time in nature? What do you think are the benefits of being in nature? How might nature impact physical, mental, emotional, or spiritual wellbeing?

Section Three: Facilitators and Barriers:

6. What helps you (and other youth) to spend more time in nature? (i.e., what makes it easier?)

- **Possible prompts:** geography, location, transportation, cost, weather, peers/friends, parents/caregivers, time/scheduling, school, work, community organizations or programming, extra-curricular activities, sports, health service providers, media, social media, other priorities

7. What makes it difficult for you (and other youth) to spend time in nature?

- a. **Possible prompts:** What might prevent other youth from engaging in nature or nature-based programming?

Section Four: Reflection with Action: Becoming a Co-researcher *with us*.

8. Do you think there is anything unique about spending time in nature for people your age/in this period of life?

- a. Perhaps reflect on your own experiences, and social identities.

Interviewer:

- Bring this back to the photovoice process to share their stories by capturing community issues, taking photographs that will foster reflection and dialogue, and advocate for change to policy makers.

9. What are some of the issues you heard that were shared amongst the group?

- a. E.g., Access, diversity, services

10. What were some of the changes that are needed to address these concerns?

- a. Or now that we have had this discussion, do you have any new ideas for what changes are needed or you would like to see?

Closing:

- We'll continue to reflect and discuss these issues, especially on these last two questions, when we meet next week, and think about how we can tell these stories through photographs.
- Does anyone have any questions or anything else they would like to add?

Thank you so much for your participation and sharing your expertise!

Appendix C: Consent for Taking and Using my Photo



Consent for Taking and Using My Photo

Project title: Mobilizing the health benefits of being in nature through community-based participatory research and youth engagement

Lead researchers: Drs. Son Truong (son.truong@dal.ca; 902-494-7061) and Michelle Stone (michelle.stone@dal.ca; 902-494-1167), Dalhousie University

Time in nature is important for youth wellbeing, however, their time spent in nature is in decline, and efforts are needed to explore integration of recreation and health sectors. Our project aims to develop a multisector approach to nature-based recreation and mental health services for youth in Nova Scotia. As part of our project, we'll engage youth through photo taking.

You have been asked by a study participant to have your photo taken. Having your photo taken and used as part of this project is all you will be asked to do. If your photo is taken, it may become part of a group discussion and analysis, and may be used publicly in sharing the results of the study. Choosing whether or not to have your photo taken is entirely your choice. There will be no negative impact if you decide not to take part. You should discuss any questions you have with the researchers noted above. Please ask as many questions as you like, and contact us anytime.

Your name will not be printed or published in association with your photo, but your photo will be used in the study's group discussion analysis process and potentially in publication and knowledge sharing activities, so confidentiality is not possible. We will not be able to prevent others from knowing you took part in the study by having your photo taken, as you could be identified by your image or likeness.

Signature

I consent to have my photograph taken as part of this photovoice project on youth nature and health. I know that means my picture may be used to help with data analyses and show the results of the study. For instance, my picture may be used:





- In a thesis, conference and research presentations, and scientific journals.
- In photo galleries/exhibitions, meetings, or other non-profit public events relating to the study.

Name

Signature

Date

Appendix D: Study Brochure

 <p>A study by Drs. Son Truong and Michelle Stone at the School of Health and Human Performance, Dalhousie University.</p>	 	<h3>Nature in Focus: Youth Photovoice Project</h3> <p>Mobilizing the health benefits of being in nature through community-based participatory research and youth engagement</p> 
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 <h3>Background & Purpose</h3> <p>Time in nature is especially important for youth and has been shown to improve health and wellbeing, as well as social connections and sense of belonging, place, and community. However, young people's time spent in nature is in decline, and efforts are needed to explore integration of recreation and health sectors.</p> <p>Our project aims to explore how we can develop a multisector approach to nature-based recreation and mental health services to support youth wellbeing in Nova Scotia. As part of our project, we'll engage youth through photo taking. With a small group of participants, we'll use photovoice, a method of engaged photo-taking. Photovoice is often used to enable reflection, promote dialogue, and reach decision makers (like teachers, policymakers, or group leaders).</p>	<h3>Methods</h3> <p>If you decide to take part in this study, you will be asked to take part in a 3-4 hour workshop to brainstorm ideas about nature and youth health, wellbeing, social connection, and sense of belonging.</p> <p>You will also be asked to take photos over 1-2 weeks before getting back together to discuss them. This is an ongoing and participatory process where you will critically consider the photos as part of the larger group.</p> <p>You will then be asked help create themes from the photos, and we will decide together how and where the findings and photos will be shared with decision makers (such as teachers, policymakers, or group leaders) and the public.</p> <p>*Please note: choosing to take part (or not take part), in this project will not impact your ability to take part in your regular programming.</p> 	<h3>Significance</h3> <p>This study will contribute to the current literature on youth engagement, nature, and health. I</p> <p>Photovoice studies also often result in action and advocacy, so there is opportunity for you to make change in your community. Photovoice studies also often lead to improved community engagement, leadership, and increased self-esteem.</p> <h3>Contact</h3> <p>To learn more about this study, please contact us:</p> <p>Dr. Son Truong son.truong@dal.ca (902)494-7061</p> <p>Dr. Michelle Stone michelle.stone@dal.ca (902)494-1167</p>
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Appendix E: Letter to Teachers, Employers, and Others



Info for Teachers, Employers, and Others

Project title: Mobilizing the health benefits of being in nature through community-based participatory research and youth engagement

Lead researchers: Drs. Son Truong (son.truong@dal.ca; 902-494-7061) and Michelle Stone (michelle.stone@dal.ca; 902-494-1167), School of Health and Human Performance, Dalhousie University

Dear teachers, employers, or whom it may concern:

Your student, employee, colleague, or peer is taking part in a research study, named above, with the researchers above, at Dalhousie University.

Time in nature is especially important for youth and has been shown to improve health and wellbeing, as well as social connections and sense of belonging, place, and community. However, young people's time spent in nature is in decline, and efforts are needed to explore integration of recreation and health sectors. Our project aims to explore how we can develop a multisector approach to nature-based recreation and mental health services to support youth wellbeing in Nova Scotia.

As part of our project, we'll engage youth through photo taking. With a small group of participants, we'll use photovoice, a method of engaged photo-taking. Photovoice is often used to enable reflection, promote dialogue, and reach decision makers (like teachers, policymakers, or group leaders).

As part of the study, the participants are asked to take photos of their every lives, and the people and things that are part of them, based on themes that we will brainstorm together. As such, you can expect that the participant will be carrying and using a camera regularly for 1-2 week intervals, up to 3 times. We appreciate if you are able to accommodate their taking photos, but understand that it may be inappropriate or inconvenient at times, and have asked the participants to respect the wishes of teachers, employers, etc.

When taking photos of identifiable people, informed consent must be established, and the participants have been provided with the materials to do so. They will only use photos with permission and where consent has been established.

No specific action is required of you; we are just informing you of their participation. We are happy to discuss this study with you at any time, please feel free to reach me at the contact details above.

Thank you in advance for your understanding!

Appendix F: Instructions for How to Upload Photos

Options for submitting your photos

For this project, you will need to upload your photos from the camera to a computer and submit them to us **by Wednesday, April 9th** so that they can be printed in time for analysis. There are a few options to submit photos. If you need help uploading photos from your camera to a computer, take a look at the detailed steps below.

Option 1: Email

- Send the photos to **Agustina.Cohen@dal.ca**
- Email may limit you to sending 1-2 photos at a time, so you might need to send multiple emails.
- **Important:** Make sure you get a confirmation email from us to ensure we receive your photos.

Option 2: Upload to OneDrive

- We will send you a link to a **password-protected OneDrive folder**.
- Click the link, enter the password, and upload your photos directly to the folder.

Option 3: In-Person Upload

- Bring your camera to **LOVE Leadership at NSCC on Wednesday, April 9th 2025**.
- We will bring our laptops and help you upload the photos directly.
- Before coming, review your pictures and decide which ones you want to upload.

Uploading Photos From Your Camera to a Computer

Step 1: Connect Your Camera

1. Plug your camera into your computer using the black USB to USB-C cable.
2. Turn on your camera. When you do, three options will appear on the screen:
 - a. MSDC
 - b. PC Camera
 - c. Charge
3. Select "MSDC" by pressing the **OK** button on your camera.

Step 2: Find Your Photos on Your Computer

4. Open your computer's file explorer (This is usually called **File Explorer** on Windows or **Finder** on Mac).

5. Look for a new drive labeled "**USB Drive**" and click on it.
6. Inside this drive, find and open the "**DCIM**" folder.
7. Inside "DCIM," find and open the "**100MEDIA**" folder.
8. Your pictures will now appear as a list. To make them easier to see:
 - **Windows Users:** Right-click anywhere in the folder, select "**View**", then choose "**Extra Large Icons**".
 - **Mac Users:** Click the "**View**" button at the top and select "**Icons**".

Step 3: Upload Photos to Your Computer

9. Select the pictures you want to upload:
 - To select all: Press **Ctrl + A** (Windows) or **Cmd + A** (Mac).
 - To select specific photos: Hold **Ctrl** (Windows) or **Cmd** (Mac) and click each picture you want.
10. Right-click on the selected pictures and choose "**Copy**".
11. Navigate to your own computer folders (such as "Pictures" or "Desktop").
12. Right-click in your chosen folder and select "**Paste**".
13. Your pictures are now saved on your computer!

Step 4: Disconnect Your Camera

14. Turn off your camera and unplug the USB cable. Your "USB Drive" will disappear from your computer files, but your photos will remain saved on your computer.

All photos must be submitted to Agustina by **Wednesday April 9th, 2025** to be printed for our first session back together. If you have any questions at all, please send us an email!

Appendix G: Mental Health Resources

Additional Resources

The risks associated with this study are minimal. It is possible that you might feel uncomfortable answering questions in the focus group. You may skip any questions/not reply at any time during the focus group, and you may also end your participation at any time during the focus group.

If at any time you experience distress and/or need to seek additional supports, you can access any of the following services:

Kids Help Phone (24 hour support)

Text CONNECT to 686868 or call 1-800-668-6868

Mental Health Mobile Crisis

call (902) 429-8167 or 1-888-429-8167

IWK Children's Emergency Room

Youth under the age of 19 can receive mental health support by presenting at the IWK Children's Emergency Room and asking to speak to the mental health team.

Nova Scotia Health Emergency Department

Adults 19 years and over can do the same at any other Nova Scotia Health Emergency Department.

The Mental Health Foundations of Nova Scotia website

Has a list of Mental Health Resources and phone numbers, which may be accessed at the following link: <https://www.mentalhealthns.ca/find-support>

If you are experiencing a **mental health emergency**, and you do not feel safe or have transport to your nearest hospital, **please dial 911**

Appendix H: Photo Notes Worksheet

Nature in Focus: A Youth Photovoice Project - Photo Notes Worksheet

Use this to document the photos you take! Remember, you may take many photos, and it may become difficult to remember when or why you took them. Filling out this sheet will be helpful for our discussions.

Remember – we’re going to use the SHOWeD acronym when we discuss photos: What do you **S**ee? What is really **H**appening? How does it relate to **O**ur lives? **W**hy does it exist? What can be **D**one about it?

Date: _____

Briefly describe the photo:

Why did you take the photo?

Critical or reflective thoughts:

Consent: Required ___ N/A___ Youth Consent ___ Parent/Guardian Consent ___
N/A___

Appendix I: Tips for Photo Taking

Use these tips and tricks to take photos that capture what you're intending!

- Try to get active rather than static photos.
- Try to focus on the environment and natural features:
 - Capture people engaged in doing something rather than stopping what they are doing to pose unnaturally for a photo.
- Try to be candid or real with your photos, rather than staging them.

Avoid dark, blurry, or overexposed photos:

- Use different angles to see how the light influences your photo.
- Play with shadows and light.

Make sure the photo has a focal point to draw the viewer's eye:

- Remember the key element does not need to be in the centre of the shot, and may be more interesting if off-centered.

Try different camera angles:

- Consider how to best capture whatever it is you are trying to capture.
- Is a photo more interesting if shot from above or below?
- Remember photos of individual people are best when shot from their eye-level.

Look for ways to show results or impact:

- What is the impact of what is happening? Can you capture that impact?
- Consider why the photo is important or how it helps to tell a **story** or may have an emotional impact

When you have to stage a photo, don't completely pose it:

- Allow the subject(s) to become immersed in their action first, then take the photo.

Do try:

- To take action shots
- To take photos of places and people as they naturally are; focus on the environment.
- To find unexpected or surprising angles.

Try to avoid:

- Taking static group shots
- Zooming in on only people without a purpose – capture background for context.
- Forcing posed, unnatural photos.

Appendix J: Photography Prompts

Prompts for Photographs!

- **What does nature mean to you and what are your experiences in nature?**
 - Can you capture what represents what nature means to you and your meaningful experiences in nature?
- **How does being in nature make you feel?**
 - Can you take a photo that expresses how you feel when you're in nature?
 - Can you show what nature feels like? Consider colors, textures, or movement
- **How do you connect with nature?**
 - Consider a photo of a place, object, or activity that represents your connection to nature.
- **What makes it easier to spend time with nature?**
 - Capture something that helps you or other young people access nature
- **What makes it harder to spend time with nature?**
 - Think about a photo that represents a challenge or obstacle to getting into nature for young people
- **What can be done to help more young people spend time with nature?**
 - Think about how an idea, place, or actions could make nature more welcoming and accessible for youth.

Remember: You can interpret these guiding questions in the way that makes most sense to you. We invite you to tell your story in your own way. The goal of photovoice is for you to:

- 1) capture community issues through photography;
- 2) choose photos that will create reflection and dialogue; and
- 3) identify actions that can be shared with decision makers.



Appendix K: Photographers Consent Media Release



Photographer's Consent and Media Release

Project title: Mobilizing the health benefits of being in nature through community-based participatory research and youth engagement

Lead researchers: Drs. Son Truong (son.truong@dal.ca; 902-494-7061) and Michelle Stone (michelle.stone@dal.ca; 902-494-1167), School of Health and Human Performance, Dalhousie University

I have taken part in the photovoice study, taken and selected photos, and taken part in their analysis. I have been given the opportunity to discuss the use of the photos I have taken and my questions have been answered to my satisfaction. I understand that the photos I have taken may be used in a variety of formats for publication and presentations to share knowledge gained in this study with academic and non-academic audiences, including but not limited to in publications, presentations, social media, public events, and webinars.

My participation is voluntary and I understand that once I have signed below I will no longer be able to have the photos I have taken removed from the research study or the presentation of its results. I give permission to the research team and Dalhousie University to use my photographs for the purpose of sharing the results of this study with project partners and the public. I grant the research team and Dalhousie University rights to use my photo without compensation.

Name

Signature

Date

Appendix L: Demographic Questionnaire

For this research project, we want to represent your voices and stories. When it comes to sharing this research, we want to share some information on the background, diversity, and lived experiences of the youth in our group. Your name will not be attached to any of this information, and you do not need to include your name on this piece of paper. Please ask us if you have any questions.

Please indicate how you identify with the following demographic criteria:

1. Gender

Prefer not to answer

2. Pronouns

Prefer not to answer

3. Ethnicity/Cultural background

Prefer not to answer

4. Do you identify as belonging to an equity-deserving or equity-owed group(s). Examples include, but are not limited to Indigenous peoples, women, people with disabilities, members of visible minorities/racialized, and 2SLGBTQIA+ individuals.

Yes, please share as much as you feel comfortable with in the space below

No

Prefer not to answer

(more on the back!)

5. Please select how you would describe your everyday environment/neighborhood:

Urban

Semi-urban

Suburban

Rural

Other, please share in the space below

Prefer not to answer

Appendix M: Detailed Outline of Photovoice Sessions

Week 1: Project introduction (during LOVE session)

Time	Purpose	Activity	Notes
4:00 – 4:30	Eat dinner	Love activity	
4:30 – 5:20	Hangout and get to know the youth	Love activity	
5:20-5:30	Break	Set up PowerPoint	
5:30 – 6:00	Intro project + Answer questions	Slideshow Ask for their favourite snacks	Hand out consent forms Brochure Bring cameras for a visual

Week 2: Photovoice #1

Time	Purpose	Activity	Notes
4:00 – 4:30	Eat Welcome and get settled	Check in question, icebreaker	<ul style="list-style-type: none"> • Need individual consent forms • Nametags • markers
4:30 – 5:50	Brainstorm Focus Group	*Need to record this part* Discuss the following: <ul style="list-style-type: none"> • questions from Appendix O • Get youth thinking about what they want to take photos of 	*Need to record this part* <ul style="list-style-type: none"> • Print questions on coloured paper • Post its • Poster paper • Magazines • Markers • Fidget toys
5:50 – 6:00	Wrap up	Slideshow Next week, photography ethics and skills!	Slideshow on the TVs

Week 3: Photovoice #2 (Photo ethics and photography skills)

Time	Purpose	Activity	Notes
4:00 – 4:30	Eat, get settled, check in Review plan for today	Eat dinner Check in	Hand out <u>duotangs</u> <ul style="list-style-type: none"> • Photo consent form • Photo taking tips • Uploading tips • Photo notes worksheet • Additional supports (mental health) • Project explanation letter • Stickers
4:15 -4:30	Photo Ethics	Talk about photo ethics, revise informed consent	
4:30-5:45	Photography Skills	<ul style="list-style-type: none"> • Presentation (led by photographer) • Hand out Cameras • Practice skills 	<ul style="list-style-type: none"> • Cameras
5:45 – 6:00	Wrap up sessions	Talk about next steps: take photos! Contact me if you have any questions	

Week 4: BREAK for youth taking photos

Week 5: Optional session for youth uploading photos

Time	Purpose	Activity	Notes
4:00-6:00	Upload photos	Agustina goes to LOVE meeting and offers to help upload photos	<ul style="list-style-type: none"> • Micro-SD card reader • Laptop

Week 6: Participatory Analysis Focus Group

Time	Purpose	Activity	Notes
4:00-4:15	Eat, get settled, check in Review plan for today		<ul style="list-style-type: none"> Photovoice bin
4:15 – 4:30	Selecting	Have everyone look at the photos (study copy) and select 2-3 that are the most meaningful to them: <ul style="list-style-type: none"> Ones that you like the most <u>Think</u> are most representative of the youth experiences Or are most important 	Printed photos (2 copies of each) <ul style="list-style-type: none"> Label one copy Other copy for youth
4:30 – 5:30	Contextualizing * Recording*	* <u>turn</u> on recorder* Thinking about our photos critically using <u>SHOWeD</u> method	<ul style="list-style-type: none"> Recoding device <u>SHOWeD</u> questions printed on colourful paper (and on the slideshow) Printed OG workshop questions E in <u>SHOWeD</u> can also stand for education. What can we teach others about with this photo?
5:30 – 6:00	Codifying	Teamwork to do thematic analysis Looking for patterns, themes, trends in our photos Grouping them together Looking for similarities	
6:00	Wrap up	Do you want to take more photos? If so, we will discuss them next week as well (need to be uploaded to the drive BY the weekend! <u>So</u> we can print before our meeting next weekend)	

Week 7: Continued analysis and begin final project planning

Time	Purpose	Activity	Notes
4:00-4:15	Eat, get settled, check in Review plan for today		Bring new photos that have been taken Photovoice bin
4:15 – 4:30	Selecting	Have everyone look at the photos (study copy) and select 2-3 that are the most meaningful to them: <ul style="list-style-type: none"> Ones that you like the most <u>Think</u> are most representative of the youth experiences Or are most important 	Printed photos (2 copies of each) <ul style="list-style-type: none"> Label one copy Other copy for youth
4:30 – 5:30	Contextualizing * Recording*	* <u>turn</u> on recorder* Thinking about our photos critically using <u>SHOWeD</u> method	<ul style="list-style-type: none"> Recoding device <u>SHOWeD</u> questions printed on colourful paper (and on the slideshow) Printed OG workshop questions
5:30 – 6:00	Codifying	Teamwork to do thematic analysis Looking for patterns, themes, trends in our photos Grouping them together Looking for similarities	
6:00	Wrap up	Next week will be our last session, think about how you want to share this project with the public!	

Week 8: Final presentation planning

Time	Purpose	Activity	Notes
4:00 – 4:30	Eat, get settled, check in Review plan for today		<ul style="list-style-type: none"> • Photovoice bin
4:30 – 5:30	Brainstorming and planning KT	Get the youth to think about: <ul style="list-style-type: none"> • HOW do they want to present their findings? • WHAT message do they want to share? • WHO do they want to share with/invite? • WHAT do they need from us? • WHEN do they want to do it? • WHERE do they want to do it? • WHO wants to be there? 	
5:30 – 6:00	Final <u>project</u> wrap up	Appreciation activity to debrief the project, thank the participants, celebrate together! Compliment activity?	Cake? Thank you notes for youth

Appendix N: Photos of Zines from Community Zine Workshop

