The 2012 Wildfire Evacuation Experiences of

Dene Tha' First Nation

by

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Abstract

Almost every year, First Nations are evacuated in Canada due to wildfire proximity and smoke. The remote locations, unique sociocultural characteristics, and limited emergency management resources and infrastructure of many First Nations can present challenges for residents and evacuation organizers. In addition, the evacuation process itself is administratively and operationally complex and can result in social, psychological, health, and economic implications for First Nations and their individual members. However, little research has sought to examine how these communities are affected by wildfire evacuations. No research has examined how a First Nations community experiences a community-wide mandatory evacuation due entirely to wildfire smoke, despite a large proportion of smoke evacuations involving First Nations. This study addresses this gap in the hazards literature and provides improved understanding of the entire evacuation process from the perspective of community members.

Specifically, this study explores how residents of a northern Alberta First Nation were affected by a community-wide evacuation in July 2012 due to wildfire smoke. Using a community-based qualitative methodology and framed from a postcolonial theoretical position, interviews with 31 residents were completed to document how the evacuation was carried out. Several factors influenced how participants were positively and/ or negatively affected by the evacuation including community preparedness; limited wildfire information; wildfire smoke exposure; compromised sense of moral order; local leadership; family support; and the use of familiar host communities. Measures to improve evacuations and emergency management in the community are also identified and discussed.

Keywords: evacuation; wildfire; wildfire smoke; First Nations; emergency management; resilience; vulnerability; coping

Dedication

In loving memory of my Mom, Deborah-Ann Jewett.

March 14, 1960 – February 6, 2015.

Preface

As a student of social sciences, I have been influenced by postcolonial and critical social theories. I believe that globally, Indigenous peoples share a common history of oppression which has radically disrupted the socio-cultural and economic activities that tie Indigenous peoples to their physical environments and has significantly shifted patterns of health. The repercussions of colonialism's legacy has contributed, in large part, to social inequalities experienced by Indigenous communities, including lowered life expectancies, elevated infant mortality, increased occurrence of chronic health issues, accidents, violence, and suicide (Richmond, 2007). As a qualitative researcher influenced by post-colonial theory, I believe that studies should aim to be emancipatory and culturally sensitive, requiring acknowledgment that unequal power relations exist between Indigenous peoples and researchers. I am also influenced by social constructivism which acknowledges the existence of multiple realties and ways of knowing. Thus, I do not prescribe to the idea of 'objectivity' in the social or physical sciences. Instead, I believe that our worldviews are socially constructed from birth and that this, along with a myriad of influences shape the way we engage with research, making it an inherently subjective process. For instance, my life experiences, disciplinary affiliations, university, and funding body requirements all contribute to my biases and how this research was designed, implemented, and written about. I believe that my positionality as non-Indigenous researcher conducting a cross-cultural study must be considered throughout every aspect of this study. In writing this preface with the following autobiographical statement, my hope is to make my positionality explicit.

Several factors motivated me to pursue the research in this study. First, the thesis subject area aligned well with my interest in northern development studies and human geography; the major and minor of the Bachelor of Arts degree I obtained from the University of Calgary in 2010. Many of the courses I took during my program glossed over issues related to First Nations communities in Canada and I was keenly interested in developing a deeper understanding of this subject matter. My motivation to learn more was partly driven by discovering in my early twenties that I have Indigenous heritage (a combination of Métis, Sioux, and Algonquin) and my desire to develop a more robust understanding of how First Nations issues have shaped Canada's past and present.

I was raised by middle-class parents; my father was a Royal Canadian Mounted Police (RCMP) officer and my mother, a homemaker who occasionally worked. I moved houses and communities regularly due in part to RCMP imposed transfers and my parents' strange hobby of buying and selling houses. A large portion of my childhood was spent in Prince George and Hudson's Hope, located in the northern part of British Columbia. Both communities were surrounded by forest where wildfire was the most prominent hazard. I remember choosing to do a science project in high school on the use of prescribed fire to reduce wildfires risk to communities and being fascinated by what I learned. It seems somewhat fateful that I've had the opportunity 15 years later to study a related issue for my Master's thesis.

Another factor that motivated my interest in this subject area was hearing about the experiences of my extended family in New Zealand following the Christchurch earthquakes in 2010 and 2011. About one year after the last major earthquake, I visited a museum exhibit in Christchurch that documented the experiences of people affected by the disaster. It was both tragic and interesting to see the quotes and the photos used to describe their experiences with loss and resilience. This added to my interest in the social dimensions of hazards.

The opportunity to further pursue these subject areas in the form of a post-graduate degree presented itself in 2013. Sadly, my mom had been diagnosed with terminal colorectal cancer. My husband and I decided to relocate from our home on Vancouver Island to Edmonton, Alberta so that our then two-year-old son could get to know his nana. I decided that there was no better time to start a Master's degree because it would allow me the flexibility to spend time with my mom and my young son. When I came across the First Nations Wildfire Evacuation Partnership it seemed to align perfectly with my interests outlined above.

Completing this master's program and thesis as a mature student with a young family was challenging. I also faced many personal hardships including the death of my mother from cancer and one year later, the birth of my daughter with life-threatening congenital heart disease. These events added several extra semesters to my program. I was also constantly confronted by my privileged background. Although I am proud to have discovered my Indigenous heritage, that part of my family tree was not spoken about while I was growing up. Thus, I do not claim to understand what it means to live as or identify as an Indigenous person in Canada. Furthermore, conducting

research with a First Nation with whom I had no prior relationship required very deep reflection about my motivations and subsequent actions. Therefore, I approached both my fieldwork and relationships with Dene Tha' First Nation in the humblest way possible. I wanted to learn from their experiences and not vice versa. I was, and continue to be, grateful for the stories shared with me to help make this research possible and to give me a small window into life in Meander River. I hope I have done their stories justice and provide insight toward better understanding how participants in this research experienced their evacuation.

Acknowledgements

First, thank-you to my family. To Tony, I never would have begun or finished this journey if it weren't for your support. Thank-you for motivating me, for listening to me, for insisting on balance, and for taking the kids on adventures to give me time to write. Your patience has been stretched to its limit on more than one occasion and I am so grateful that we finally got this done together! Graysen, you had just turned three years old when I began this Masters so you hardly remember a time when I haven't been sitting beside you tapping away on my computer. I've often wondered if the time away from you was worth it. I hope one day you will appreciate my efforts and understand the importance of hard work and perseverance. Thank-you for always providing such a wonderful excuse to take a break and just play. You are such an amazing son and wise beyond your years. To my little girl Rhenna, my little heart warrior. Your strength and exuberance amaze me. Being by your side through four heart surgeries during your first 14 months taught me a lot about my own personal resilience. Getting this thesis done seemed like a piece of cake after what we went through together. Thanks to my sister Sherene and her family for your love, support, and playdates. Dad, thank-you for making me write all those essays growing up and instilling in me a love for learning. To my Mom – the strongest, most kind, and loving person I've ever known. Losing you was so unfair because you still had so much life to live and love to give. Being on this 'grief journey' for the last two years hasn't been easy and has tested me many ways. I will always be grateful for your belief in me, for your friendship, and for your love. I'll miss you forever.

I am most grateful to my supervisor Dr. Tara McGee. Thank-you for the timely and invaluable feedback on the many drafts of my thesis outside your work hours. Thank-you for your advice throughout all the stages of the research and for the opportunities to work as a research assistant on other projects. I also wouldn't have made it through this program without your support and understanding of the unforeseen events taking place in my personal life that often took over my focus for periods of time. You were much more than I had ever hoped for in a supervisor and I will be forever grateful for that. Also, thank-you to Dr. Damian Collins and Dr. Amy Christianson for your valuable feedback and support.

To the Dene Tha' First Nation community advisory committee – Linda and Sid. I appreciated the time you took from your busy schedules to assist with this research and for

patiently waiting through the delay in getting it completed. I am also grateful for the help, advice and openness provided by my two research assistants, Tina and Cameron. You made me feel very welcome in Meander River. Thank-you to my research participants who shared their personal experiences and stories with me – without them this thesis would not have been possible. Also, thank-you to Chief Joe Pastion and Councilors for allowing this research to take place and for welcoming me into your communities, in a very beautiful part of the world.

The last three and a half years would not have been possible without the funding I received from the Social Sciences and Humanities Research Council of Canada in the form of the Joseph-Armand Bombardier Canada Graduate Scholarship. I also received financial support through several scholarships and research grants including: The Queen Elizabeth II Graduate Scholarship, the Walter H. Johns Graduate Scholarship, the Alberta Graduate Student Scholarship, the Northern Scientific Training Program Grant, the Canadian Circumpolar Institute CBAR Grant, and the Eugene Brody Graduate Scholarship. This funding enabled me to focus on my thesis and worry less about money and for this I am truly grateful.

-Kyla Mottershead-

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List of Acronyms

AANDC	Aboriginal Affairs and Northern Development Canada (now INAC)
AEMA	Alberta Emergency Management Agency
AAF	Alberta Agriculture and Forestry (formerly Alberta Environment and Sustainable Resource Development)
AESRD	Alberta Environment and Sustainable Resource Development
AHS	Alberta Health Services
CBR	Community Based Research
DEM	Director of Emergency Management
EMAP	Emergency Management Assistance Program
FNWEP	First Nations Wildfire Evacuation Partnership
INAC	Indigenous and Northern Affairs Canada
NPTC	North Peace Tribal Council
PAR	Participatory Action Research
PTSD	Post Traumatic Stress Disorder
RCMP	Royal Canadian Mounted Police
SSHRC	Social Sciences and Humanities Research Council
TCPS2	Tri-Council Policy Statement 2

Chapter 1 - Introduction

1.1. The issue

Wildfires are responsible for burning an average of 2 million hectares of forest, shrub and grassland each year in Canada (Beverly & Bothwell, 2011). They can endanger communities by isolating them from outside access; causing health and safety concerns; and damaging vital infrastructure and property (Beverly & Bothwell, 2011; Natural Resources Canada, 2016). As a result, all Canadian fire management agencies recommend the evacuation of a community when residents are at risk (Beverly & Bothwell, 2011). Although evacuation is used to protect the health and safety of communities, the process itself is one of the most socially disruptive consequences of wildfire (Cohn, Carroll, & Kumagai, 2006; Paveglio, Carroll, & Jakes, 2008; Taylor, Gillette, Hodgson, & Downing, 2005). Wildfire evacuations are an inherently disordering experience because they frequently occur with little or no warning, at any time of the day or night, and can occur more than once in a fire season (Cohn et al., 2006; McCool, Burchfield, Williams, & Carroll, 2006; Paveglio et al., 2008; Taylor et al., 2005). In addition, evacuees can experience a disruption in their normal routines because periods of displacement can last anywhere from a few days, to several months depending on the damage incurred by the fire (Cohn et al., 2006; Hodgson, 2007; Tally, Levack, Sarkin, Gilmer, & Groessl, 2012). Evacuees may experience high levels of stress and anxiety both in the short and long term as a result of the disordering experience (Kent et al., 2003; Tally et al., 2012). Community social dynamics may also be affected by wildfire evacuations. Previous research has found that wildfire evacuations can lead to an increase in community cohesion and resilience while other research has found that conflict, blaming, and disagreements may occur between residents, fire management agencies, and organizations who provide support during evacuations (Carroll, Cohn, Seesholtz, & Higgins, 2005a; Carroll, Higgins, Cohn, & Burchfield, 2006; Kent et al., 2003).

Canada's Indigenous[1] communities are at a high risk of being evacuated due to wildfire. For instance, although they make up less than four percent of the Canadian population, almost one-third of all evacuees and evacuation events from 1980-2007 involved Indigenous communities (Beverly & Bothwell, 2011). Additionally, 75 percent of evacuations due to wildfire smoke in Canada during this time period involved First Nations (Beverly & Bothwell, 2011). However, limited research has investigated how they experience wildfire evacuations, including the factors that contribute to both positive and negative experiences.

The purpose of this study is to address this gap in the literature by exploring how a wildfire evacuation was experienced by a First Nation in Canada.

First Nations are considered to be especially at risk of wildfire and subsequent evacuation due to their isolated locations in forested areas (Christianson, McGee, & L'Hirondelle, 2012; Wotton & Stocks, 2006). This can present operational and logistical challenges, especially when access to the community is restricted (Scarbach, 2014). For example, fly-in only communities require extensive external assistance to evacuate. First Nations may also be vulnerable to the social disturbance caused by evacuations due to ineffective community preparedness measures which can limit their capacity to respond to wildfires (Epp, Haque, Peers, & Annis, 1998; Office of the Auditor General of Canada, 2013; Scarbach, 2014). According to Whittaker et al. (2012), preparedness measures aim to reduce vulnerability to a potential threat and to increase resilience. Readiness of up-to-date emergency plans, an example of a preparedness measure, enables effective hazard response such as evacuation. However, many First Nations communities do not have emergency plans, and of those that do have plans, many are incomplete or out-of-date (Office of the Auditor General of Canada, 2013). Other studies have shown that the knowledge and training of emergency personnel in First Nations is inadequate and can cause stress and confusion during emergencies such as evacuations (Epp et al., 1998; Office of the Auditor General of Canada, 2013). A better understanding of how First Nations navigate these capacity deficits and challenges is required so that practical and policy recommendations can be made to enhance overall community resilience.

[1] Indigenous People in Canada are comprised of First Nations, Inuit and Métis, as defined in the Constitution of Canada (Department of Justice Canada, 1982).

Importantly, First Nations continue to deal with the ongoing effects of colonialism's legacy. Indigenous peoples in Canada have endured difficult conditions associated with colonial policies and practices enacted by the Canadian government to intentionally enforce assimilation and to dismantle Indigenous social, cultural, political, economic institutions (Battiste & Youngblood, 2000). The formidable individual, family, and community-wide challenges have contributed to their vulnerability. When coupled with the inherently disordering and disruptive experience of evacuations, this poses unique challenges for community members, leaders and external agencies who provide support (Alfred, 2009; Coulthard, 2014; Furgal & Seguin, 2006). For example, the movement of residents from their homes to host communities can be a confusing and chaotic experience because evacuees may have to travel long distances to reach unfamiliar host communities. First Nations may be particularly affected by displacement due to traumatic experiences of being forcibly removed from their homes as children and sent to residential schools where many experienced mental and physical abuse (J. R. Miller, 1996; Scarbach, 2014). First Nations also tend to have a strong attachment to their communities and environment. Strong place attachment "can provide feelings of security, belonging and stability" (Hay, 1998, p. 25). Being in an unfamiliar town or city where one's language and culture are not understood may significantly influence how First Nations cope with evacuation (Epp et al., 1998; Newton, 1995; Scarbach, 2014). Wildfire evacuations may also result in the separation of family members. Studies have indicated that this can be particularly difficult for First Nations communities who rely on family and community members for social support (Epp et al., 1998; Scarbach, 2014). The period of displacement can also be a highly stressful and emotional time as evacuees attempt to obtain accurate and timely information about their homes, communities, traditional lands, family members, and pets (Epp et al., 1998; Scarbach, 2014). Thus, the socially disruptive nature of wildfire evacuations may be particularly difficult for First Nations already coping with chronic vulnerabilities.

First Nations also represent an important context for studying how emergency management policies are interpreted and implemented given differences in jurisdictional accountabilities and responsibilities. In Canada, First Nations living on reserve and their lands fall under federal government jurisdiction. This legislative authority over First Nations on reserve is exercised primarily in relation to a range of federal programs and services delivered by a variety of federal

government departments and agencies, instead of by the province in which they reside. However, one exception to this general rule applies to emergency management. In several provinces, including Alberta, agreements between Indigenous and Northern Affairs Canada (INAC) and the province have taken place which make emergency management of First Nations a provincial responsibility (Aboriginal Affairs and Northern Development & Minister of Public Works and Government Services Canada, 2011). The Alberta Emergency Management Agency (AEMA) is the provincial agency that oversees all aspects of hazard mitigation, preparedness, response and recovery for everyone in the province, including First Nations on reserve (Alberta Emergency Management Agency, 2008). This means that First Nations in Alberta are entitled to the same emergency management services as all other Albertans. They also have the same authority and responsibilities as a municipality in the event of an emergency. For example, they have the authority to declare a state of emergency and call and carry out a subsequent evacuation (Alberta Emergency Management Agency, 2008). The extent to which external organizations such as the AEMA become directly involved in the actual evacuation is largely at the discretion of the First Nation and depends on their need for additional resources (Alberta Emergency Management Agency, 2008). Given that the needs of a population during an evacuation may exceed the capacity of the AEMA (or fall outside its jurisdictional responsibility), federal agencies such as Health Canada, other provincial agencies such as Alberta Health Services (AHS) or Alberta Agriculture and Forestry (AAF), and non-profit agencies such as the Red Cross may become involved. This creates a situation in which multiple agencies with differences in jurisdiction may become simultaneously involved in a single emergency event. Documenting how a First Nation experiences a wildfire evacuation within this complex context represents a way to connect broader emergency management policies and processes implemented by various jurisdictions to a specific setting and case.

Finally, factors such as mountain pine beetle (Canadian Forest Service, Natural Resources Canada, & Pacific Forestry Centre, 2005), climate change (Flannigan, Amiro, Logan, Stocks, & Wotton, 2006), and a build-up of fuel due in part to Canada's past fire suppression activities (Pyne, 2007) will likely increase the frequency and intensity of wildfires and subsequent community evacuations in years to come (Canadian Forest Service, 2013). Therefore, there is a need to understand how organizing and participating in evacuations affects a First Nation's resilience.

Resilience theory is used in social science research to understand how communities are affected by, respond to, and recover from hazard events (Berkes, 2007; Cutter, 1996; Johnston & Paton, 2006). Johnston and Paton (2006, p. 8) define resilience as: "a measure of how people and societies adapt to a changed reality and capitalize on the new possibilities offered." It involves the planned preparation and the ability to respond to and adapt to hazard incidents (Gaillard, 2007; Johnston & Paton, 2006). Thus, effective hazard preparedness and response may strengthen resilience over time (Douglas Paton, 2003). For example, Epp et al.'s (1998) study concluded that past experience with emergencies including wildfire evacuations among the First Nations communities who participated in their research led to better understanding of the risk and resulted in better preparedness. However, a recent report from the Auditor General of Canada concluded that "the safety and well-being of First Nations communities on reserve are being adversely affected in significant ways because of their vulnerability to emergencies and to the cumulative effects of these emergency events". (2013, p. 2). There is a need to understand how communities are adversely affected and if there are positive outcomes from experiencing emergencies such as wildfire evacuations.

1.2. **Research Aim and Objectives**

This research aims to understand how a First Nation community experienced a wildfire evacuation and how the context of the community and the evacuation contributed to both positive and negative experiences. To achieve this, three research objectives are addressed:

1.) To document and describe how a wildfire evacuation was carried out and how evacuees define and frame their evacuation experiences using a case study of a community wide wildfire evacuation.

2.) To investigate factors that influence how First Nations and individual members are positively and negatively affected by wildfire evacuations.

3.) To recommend ways in which the First Nation, other First Nations, and organizations who provide support during evacuations can work to improve wildfire evacuations.

The case study selected for investigation was an evacuation of the Dene Tha' First Nation community of Meander River, Alberta in July 2012. Using a community-based qualitative methodology and framed from a postcolonial theoretical position, interviews with 31 residents were completed to document how the evacuation was carried out. The evacuation was initiated by the First Nation due to heavy smoke caused by the Lutose Complex wildfires burning northwest of the community. It was the first wildfire evacuation carried out by Dene Tha' First Nation and was initially managed with little external intervention. The entire community was evacuated late at night to the nearby town of High Level where evacuees stayed in motels, at the homes of extended family, or in tents set up in the neighbouring Dene Tha' community of Bushe River for seven days.

1.3. **Significance of this Research**

This research investigates the social impacts of wildfire evacuations coupled with the postcolonial context of First Nations, topics yet to receive attention in the literature. Even more significant is that no studies have examined how a First Nation experiences evacuation due to wildfire smoke despite the disproportionate occurrence of this type of evacuation amongst Indigenous communities in Canada (Beverly & Bothwell, 2011). This study addresses this gap in the hazards literature and provides an improved understanding of the entire evacuation process from the perspective of community members in a First Nation.

This research also broadens the horizons of current research on wildfire evacuations by focusing on the factors that influence both negative and positive experiences during and after evacuation. While the vulnerability of First Nations to hazard events and emergencies has been identified by previous of studies (Epp et al., 1998; Office of the Auditor General of Canada, 2013; Scarbach, 2014), there is limited research that concentrates on how the idea of resilience is operationalized or demonstrated by First Nations during an evacuation. Indigenous peoples in

Canada have experienced difficult conditions associated with colonial policies and assimilation practices enacted by the Canadian government (Battiste & Youngblood, 2000). Despite the formidable challenges left by colonialism's legacy, many Indigenous peoples and communities have or are beginning to recover (LaFromboise, Hoyt, Oliver, & Whitbeck, 2006). This study, will contribute a case study and specific knowledge regarding the geographical and contextual issues surrounding the interaction of both vulnerability and resilience to wildfire evacuations. In doing so, it seeks to improve academic understandings, and assist future policy-making regarding emergency management involving First Nations. Policies and practices informed by this research may help improve future evacuation experiences by considering important yet possibly overlooked contextual factors, including factors which support the resilience of First Nations.

This thesis also documents the impacts of wildfire evacuations on members of Dene Tha' First Nation, which is significant at the local level. This information may assist Dene Tha' First Nation to understand the impacts experienced by their community members and will assist them in future planning for emergencies. The results may also serve as a benchmark for gauging the effectiveness of their current emergency management measures and plans.

1.4. **Organization of Thesis**

This thesis is organized as follows. Chapter 2 discusses the history and current context of the case study community, Meander River, Dene Tha' First Nation. It then describes a framework for understanding emergency management and related concepts and models that are relevant to this research. Details about emergency management policies and how they apply to wildfire evacuations and First Nations in Alberta are also provided. Chapter 3 describes the theoretical framework and key concepts used in this research. It then surveys recent literature pertaining to the human dimensions of wildfire before focusing on evacuations and factors that may influence evacuation experiences. The fourth chapter explains the research strategy and methodology used in collecting, analyzing, and disseminating the findings. The analysis and synthesis of the findings are in Chapter 5. This includes a description of the July 2012 wildfire evacuation of Meander River followed by the identification and discussion of key factors that emerged as significant from qualitative interviews. The sixth and final chapter discusses the significant findings and

implications for evacuation planning, recommendations for further research, and limitations of this study.

Chapter 2. Context and Background

2.1. Introduction

The purpose of this chapter is to describe the context in which this research was undertaken. It begins by describing the history and current context of Dene Tha' First Nation followed by a description of the community of Meander River where the wildfire evacuation took place in July 2012. The chapter then shifts to provide information about policies related to the management of emergencies involving First Nations in Canada and specifically, in the province of Alberta. It also describes how emergency management activities were handled with Dene Tha' First Nation at the time of the evacuation under study. Last, it explores challenges related to emergency management involving First Nations in the recent past.

2.2. The Case Study Community: Dene Tha' First Nation

The Dene Tha', which in Dene Dhah language means the *people common to the territory*, or *common peoples*, are a First Nation people who live in northwestern Alberta (Goulet, 1998). They are also more generally known as the Dene, which is used for referring to northern Athapaskan-speaking people (P. Moore & Wheelock, 1990). The semi-nomadic ancestors of the Dene Tha' lived in small family units throughout their traditional territory for over 10,000 years (Berry & Brink, 2004; Dickason & McNab, 2009). They have relied on hunting, trapping, and fishing and have developed their cultural, social, and economic traditions based on the availability of the natural resources in the boreal forest region (Wetherell & Kmet, 2000). The declared Dene Tha' Traditional Territory covers the northwestern section of Alberta, the northeastern part of British Columbia, and the southern sections of the Northwest Territories (Dene Tha' First Nation & Arctic Institute of North America, 1997; Goulet, 1998). The Dene Tha' were able to continue semi-nomadic patterns until the 1950s and were able to preserve much of their traditional culture due to the relative isolation of the region (P. Moore & Wheelock, 1990). For example, the Alexandra and Louise Falls on the Hay River blocked transport to important trading posts upstream and since their nomadic lifestyle contributed to the fur trade, there was little interest on the

government's part to alter this situation (Helm, Rogers, & Smith, 1981; P. Moore & Wheelock, 1990). In the early 1900s the Dene Tha' still inhabited scattered semi-permanent camps along water sources such as lakes and rivers including the areas of Hay Lakes, Zama Lake, Duck House, Bitscho Lake, Rainbow Lake, Rabbit River, and Amber River where they conducted their year-round subsistence activities (P. Moore & Wheelock, 1990). Trade of furs for items such as flour, lard, tea, sugar, guns, and other hunting equipment took place in Fort Vermillion, Fort Liard, Fort Nelson, and Peace River which were accessible to trappers by dogsled or horse (P. Moore & Wheelock, 1990). While the fur trade did not result in the permanent settlement of the Dene Tha', it introduced trade items and Christian beliefs which were gradually incorporated into Dene Tha' way of life (P. Moore & Wheelock, 1990).

In 1900 *Treaty 8* was signed. At the time, the Dene Tha' believed it constituted a peace treaty to share their traditional territory with Euro-Canadians rather than an agreement to give it up to the Canadian government (Goulet, 1998). As a result of signing the treaty, the Dene Tha' were allocated seven parcels of land as reserve areas and simultaneously became subject to the *Indian Act*. The Department of Indian Affairs which was responsible for implementing the *Indian Act*, had the mandate to look after their welfare, promote their assimilation into Canadian society, and to open up their former territory to peaceful settlement and development by Europeans and Euro-Canadians (Goulet, 1998). Missionaries also began arriving in Dene Tha' First Nations around the same time to build churches with goals of converting them to Roman Catholicism (Goulet, 1998).

Several decades later, in 1930, the responsibility for land use planning and management along with the rights to revenue from the region's natural resources outside the seven reserve areas was transferred to the Province of Alberta when the *Natural Resources Transfer Act* (1930) was signed (Canada, 1930). Thus, Dene Tha' First Nation ceased to benefit from any industrial development or natural resource exploitation on their traditional territory which intensified several decades later and continues today. Also, during the 1930s, Dene Tha' families began to establish themselves more permanently by building log houses while continuing to engage in traditional subsistence activities. In the 1940s and 1950s the fur trade collapsed, and the Canadian government became increasingly involved in the lives of First Nations people by introducing welfare, residential schools, community health stations, and housing programs (Honigmann, 1980). For

instance, in partnership with the government, missionaries built a residential school in Chateh (one of the reserves) in 1951 to instruct children of the Dene Tha' in Euro-Canadian ways and to hasten the assimilation process. As a result, families gradually began settling permanently in Chateh to be closer to their children (Goulet, 1998). Later, in 1965, oil and natural gas were discovered in the area around Chateh, which resulted in a road being constructed from High Level to Rainbow Lake (Goulet, 1998). Shortly after, in 1969, the Dene Tha' began to demand better living conditions in light of the surging economic development taking place around them. Consequently, a day school was built to replace the residential school and newly constructed houses became available. New services were also introduced including a police station, a nursing station, a courthouse, a gas station, and a grocery store (Goulet, 1998). Gradually, wage work and government aid began to replace hunting and trapping as important sources of subsistence (Honigmann, 1980).

Today, many of the Dene Tha' inhabit three of the seven reserves located in northwestern Alberta near the town of High Level. They maintain their livelihood off a combination of wage work, government subsidies, and traditional subsistence activities. The First Nation has a total registered population of 2971 members with approximately 2000 people living in three communities (Aboriginal Affairs and Northern Development Canada, 2011). As displayed in Figure 1, the inhabited communities are Bushe River (Bushe River 207), Meander River (Upper Hay River 212), and Chateh (formerly known as Assumption or Hay Lake 209). Also displayed on Figure 1 are two other reserves, Amber River 211 and Zama Lake 210 which are not permanently occupied. Not displayed on the map are two additional reserves called Bitscho Lake 213 and Jackfish Point 214 which are located several hundred kilometers to the northwest of High Level near the border of the Northwest Territories and British Columbia.

The population is young with a median age of 26 years compared to 36 years for the rest of Alberta (Aboriginal Affairs and Northern Development Canada, 2011). Current on-reserve facilities vary between the three communities but include First Nation offices, public works buildings, and schools. Dene Tha' First Nation also provides municipal services, including water and sewer systems, a fire truck, a water truck, and a sewer truck. They are affiliated with the North Peace Tribal Council (NPTC) which administers post-secondary education resources in Chateh as well as health and nursing services in Meander River and Chateh. Despite ongoing exploitation of the region's natural resources such as oil, gas, and timber products, Dene Tha' First Nation

continues to suffer high levels of poverty and unemployment and has not experienced marked improvements in their social or economic conditions (Ross, 2001). For example, the median individual income as of 2011 was $17,282 compared to $50,956 for the rest of Alberta. Likewise, the unemployment rate of 40 percent in 2011 is substantially higher than the rate of 5 percent for the rest of Alberta (Aboriginal Affairs and Northern Development Canada, 2011). Economic activities within the three communities include a gas station and food store, other stores, a laundromat, a post office, a bottle depot, a coffee shop, Dene Tha' construction, and natural gas distribution. There are also member-owned businesses that provide a taxi service, home building, electrical services, and small engine repair.

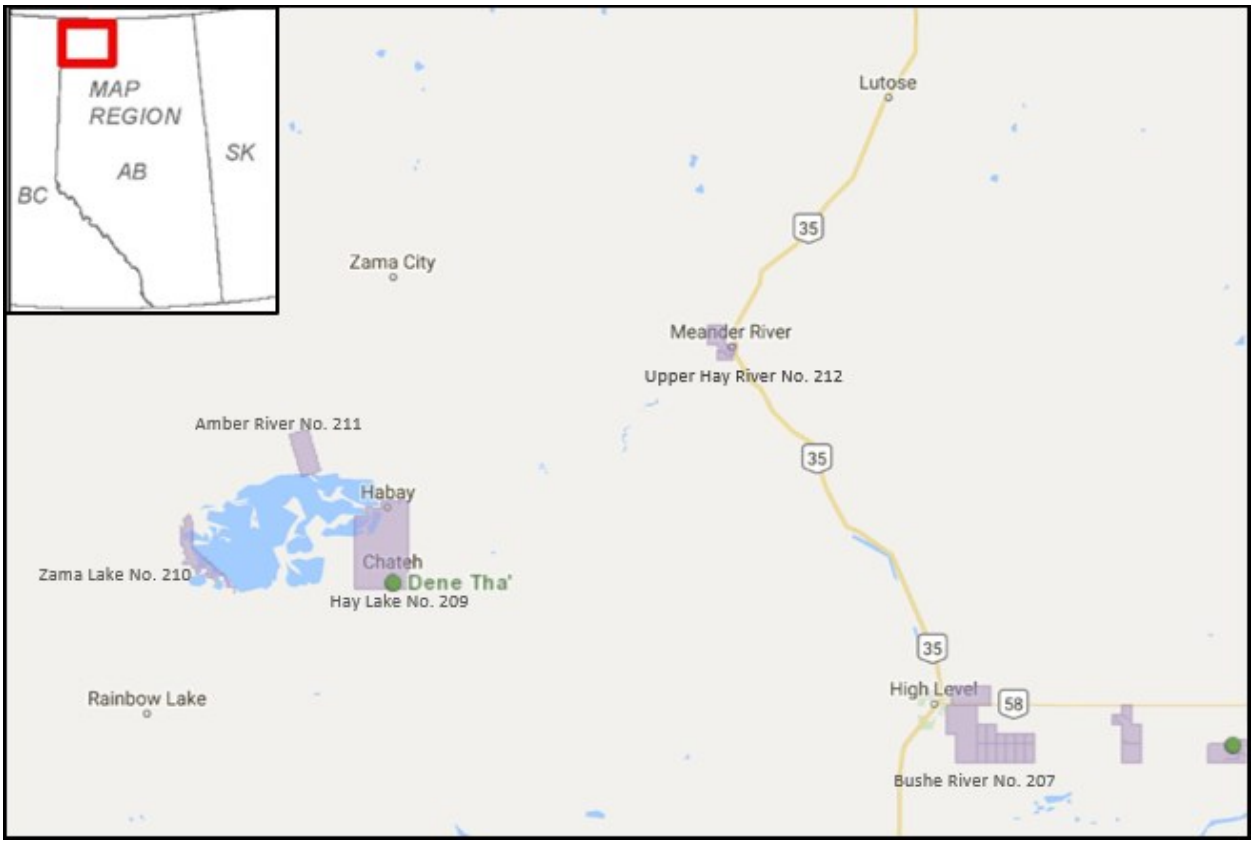

Figure 1: Location of Dene Tha' First Nation communities and reserves in Alberta

2.2.1. Meander River

Meander River, also known as Taché, is the smallest of three occupied reserve settlements of Dene Tha' First Nation. It is located 75 km north of the town of High Level on the west side of

Highway 35, the main route from Alberta to the Northwest Territories. It is also situated beside the confluence of the Meander and Hay Rivers and is surrounded by boreal forest, oil and gas projects, clear-cuts, and a gravel mine. The community has a population of approximately 400 people. The population of the small community exceeds the available number of houses so many homes are occupied by multiple generations of family. Aside from homes, the community has a band complex which is a community building that houses community services such as counseling, social work, and the local radio station. Community activities such as training workshops, band council meetings and other community gatherings also take place at the band complex. The reserve has a small volunteer fire department, a community health centre operated by the North Peace Tribal Council and a primary school (kindergarten to grade 9) operated by Fort Vermillion School District. Children must relocate to High Level or other larger municipalities in northern Alberta if they continue school past grade 9 because grades 10 to 12 are not available in the community. Employment opportunities in Meander River are scarce with only a small number of residents employed at the services mentioned. Some residents also work as seasonal wildland firefighters and others seek work in High Level and beyond. Some members still take part in fishing, trapping, and hunting but increasingly fewer young people participate in these traditional activities (Spyce, 2009). Like other First Nations in Canada, Meander River is subject to challenges associated with postcolonialism including poverty, high unemployment rates, low education attainment, social and chronic health problems.

2.3. **The Emergency Management Cycle**

In Canada, a process known as emergency management is used to cope with emergencies and hazard events affecting communities. Four discrete yet interconnected phases make up the emergency management cycle: mitigation, preparedness, response, and recovery (Perry, 1985). Mitigation and preparedness activities generally take place before the impact of any given hazard event, while response and recovery activities take place during and post-impact (Perry, 1985). Although the four phases are distinguished by time phase relative to disaster impact, they overlap because there is no clearly defined boundary where one phase ends and another begins. Successful emergency management holistically coordinates activities across all four phases.

The primary focus of the research presented in this thesis is how Dene Tha' First Nation experienced an evacuation, which belongs in the response phase. However, it is necessary to develop an understanding of the interconnected nature of emergency management so that one can understand how evacuation experiences are influenced by factors originating from the other three phases of the emergency management cycle. An explanation of these phases also provides necessary context for discussing how federal and provincial policies apply to the management of emergencies involving First Nations which will be explained later in this chapter.

Mitigation is the first phase of the emergency management cycle. Activities in this phase are aimed at eliminating or significantly reducing the causes of disasters and the chances that they will occur (Perry, 1985). Ideally, preventative actions are taken well in advance of a potential hazard event in order to ensure the future protection and reduction of risk to lives, property, and the environment (Government of Canada, 2011b). At the community level, examples of mitigation include structural measures such as the creation of fire breaks around a community and non-structural measures such as building codes, land use planning, and insurance incentives. At the individual level, examples of mitigation include the maintenance of vegetation around one's home, building or renovating using fire resistant materials, and obtaining property insurance.

The second phase of the emergency management cycle is preparedness which can be described as the extent to which individuals, communities or organizations are equipped and ready to respond to hazard events and manage the consequences through efforts made before an event (Government of Canada, 2011b; Lindell & Perry, 1992). The goals of preparedness efforts are to reduce vulnerability, enable a timely and effective response to a disaster event, shorten the recovery phase of a disaster, and increase community resilience (Ejeta, Ardalan, & Paton, 2015). Therefore, factors related to a community's preparedness will directly influence both positive and negative evacuation experiences. At the community level, examples of preparedness activities include public education, community emergency response plans, mutual assistance agreements, resource inventories, training, equipment, and exercise programs. At the individual or household level, examples of preparedness measures include the preparation and regular maintenance of an emergency kit and preparing a household emergency plan (Douglas Paton, 2003).

The response phase can be defined as activities which take place during or immediately before or after a hazard event to manage its consequences through, for example, emergency public communication, search and rescue, emergency medical assistance, and evacuation to minimize suffering and losses associated with disasters (Perry, 1985). During the response phase, emergency managers assess damages, care for victims, coordinate resources, and anticipate any other short term threats related to the hazard. These activities are generally made possible through the coordinated efforts of many groups including the community itself, government agencies, and non-governmental organizations.

Recovery includes the repair or restoration of conditions to an acceptable level through measures taken after a disaster and may take place over long periods of time. Recovery activities can include the repatriation of evacuees, trauma counselling, reconstruction, impact studies, and financial assistance. While the objective of recovery is to restore the physical infrastructure of a community, it also aims to restore the quality of life to at least the minimum pre-hazard event state or to make improvements.

2.4. Emergency Management of First Nations in Alberta: Governance, Roles and Responsibilities

To understand the governance, roles and responsibilities related to emergency management involving First Nations it is first necessary to provide some historical context about the political jurisdiction under which First Nations are governed in Canada. Under section 91 of the *Constitution Act, 1867*, the Canadian Parliament has legislative authority over "Indians and Lands reserved for the Indians" (Aboriginal Affairs and Northern Development & Minister of Public Works and Government Services Canada, 2011). The *Indian Act*, which Parliament passed under this authority, has set out a complex legal regime that applies to First Nations and their reserves. Indigenous and Northern Affairs Canada[2] (INAC) is the main federal department responsible for First Nations (Aboriginal Affairs and Northern Development & Minister of Public Works and

[2] Following the 2015 Canadian federal election, Aboriginal Affairs and Northern Development Canada was re-named Indigenous and Northern Affairs Canada (INAC).

Government Services Canada, 2011). Thus, INAC is responsible for emergency management of First Nations reserves in Canada.

INAC's responsibility for emergency management of First Nations is assigned in Section 6 of the *Emergency Management Act 2007*, which declares that all federal departments have the responsibility to identify risks within their areas of responsibility, prepare emergency management plans, and train, test and conduct exercises with respect to those risks (Government of Canada, 2007). In most cases, INAC carries out this responsibility by working directly with provincial and territorial governments through the Emergency Management Assistance Program (EMAP). The aim of EMAP is to ensure that agreements are in place so that First Nation people on reserves have access to comparable emergency assistance services available to other non-First Nations communities in their respective province or territory (Aboriginal Affairs and Northern Development, 2013; Office of the Auditor General of Canada, 2013, p. 1).

In the province of Alberta, the Alberta Emergency Management Agency (AEMA) has an agreement with INAC to provide emergency management support to its 45 First Nations (Aboriginal Affairs and Northern Development Canada, 2015). The specific roles and responsibilities as well as general procedures for coordination of provincial emergencies between AEMA and First Nations communities are outlined in the *Alberta Emergency Plan* (Alberta Emergency Management Agency, 2008). According to this plan, emergency management on a First Nation reserve in Alberta is managed in much the same way as other local authorities in Alberta. For instance, band Chief and Council members are responsible for appointing a director of emergency management who is mandated with preparing emergency plans and programs[3]. In the event of an emergency, the director of emergency management, along with leadership members of the First Nation respond using their integral first responder resources such as volunteer fire fighters. They then obtain additional resources and response through their mutual aid agreements with neighbouring jurisdictions and as necessary, seek assistance from the AEMA. This assistance is coordinated by AEMA First Nations field officers who are the main points of contact for delivering this support between the AEMA and First Nations. At the time of the Meander River

[3] However, unlike most municipalities, the position is commonly performed on a volunteer basis with no formal compensation. Thus, the position is usually performed in addition to the individual's regular employment.

evacuation in 2012, there were two AEMA field officers for the 45 First Nations in Alberta. However, starting in 2014 the number of AEMA field officers was increased to four, plus one manager. In addition to the coordination of assistance during emergencies, the AEMA field officers also help with emergency planning, and beginning in 2015, they also began to provide on-reserve preparedness training (Aboriginal Affairs and Northern Development Canada, 2015).

Unlike Alberta, some provinces and territories lack formal agreements with INAC regarding the emergency management of First Nations (Office of the Auditor General of Canada, 2013). Thus, INAC also created the *Emergency Management Plan* which is primarily designed to present the necessary framework for aiding and supporting First Nations in areas where these gaps exist. Importantly, INAC's *Emergency Management Plan* does not replace any event specific or regional plans such as the *Alberta Emergency Plan*. However, it does set out expectations in regards to the roles and responsibilities of actors who may be involved during an emergency with First Nations if emergency support requirements exceed the assistance and resources available at the local and regional level. For example, First Nations may require federal government assistance when provincial government capacity is strained during large scale disasters. Also, many geographically remote First Nations require military assistance to airlift residents to safety in the event of an evacuation. Therefore, the INAC *Emergency Management Plan* provides the necessary framework to guide emergency management in such situations.

In regards to funding, the INAC's Emergency Management Assistance Program reimburses provincial and territorial governments, First Nations, and non-government organizations for eligible costs[4] sustained during the delivery of emergency assistance activities carried out exclusively in First Nations communities[5]. However, if the activities address situations

[4] According to INAC, in order for First Nations impacted by an emergency to be eligible for funding from the Emergency Management Assistance Program the emergency event must be of such proportions or nature as to exceed the capacity, including financial capacity, or authority of a First Nation to address it. It is usually caused by a real or imminent wildland fire, flood, storm, earthquake or other natural hazard, or by accident or pollution. An emergency event can include any event that endangers life or property, causes social disruption or a breakdown in the flow of community goods, services or resources. A complete breakdown of eligible costs related to mitigation, preparedness, response and recovery are available at: https://www.aadnc-aandc.gc.ca/eng/1386012167936/1386012273685.

[5] At the time of the Meander River evacuation in 2012, the costs were eligible for reimbursement under Public Safety Canada's Disaster Financial Assistance Arrangements (Government of Canada, 2011a).

that are not restricted to First Nations communities (as is often the case for wildfires), INAC only assumes responsibility for a pro-rated portion of the expense (Government of Canada, 2011a).

External agencies may also provide support at the request of a First Nation community. They may include neighbouring jurisdictions (i.e. counties, regional districts, or municipalities), non-government organizations (i.e. the Red Cross), other government departments or agencies (i.e. Alberta Health Services, the RCMP, Health Canada, or the Canadian Armed Forces), and Indigenous organizations (i.e. tribal councils). These agencies may assist by offering support services like security or by providing basic services and shelter to evacuated First Nations. Indigenous organizations such as tribal councils may also contribute to the development of First Nation emergency management plans if requested. INAC's Emergency Management Plan recommends that provincial authorities (i.e. AEMA in Alberta's case) and First Nations should identify and communicate with various actors located within their area to prepare mutual assistance agreements as part of their preparedness strategies. Once identified, the plan recommends that these mutual assistance agreements and available resources should be grouped and documented within regional emergency management plans for practical and reference purposes, along with contact information (Aboriginal Affairs and Northern Development & Minister of Public Works and Government Services Canada, 2011).

INAC's *Emergency Management Plan* also sets out expectations regarding the roles and responsibilities of individual First Nations and band members. The recommendations set out in this plan are the same as to those prescribed to non-Indigenous communities in Canada. For instance, First Nation band members are expected to make efforts to protect personal property from the effects of emergencies (Aboriginal Affairs and Northern Development & Minister of Public Works and Government Services Canada, 2011). In addition, band members are expected to be prepared to look after themselves and their families for a minimum of 72 hours during an emergency such as evacuation. At the community level, the plan states that First Nations are expected to develop emergency management plans by conducting a hazard, risk and vulnerability assessment of their community. They are also responsible for ensuring the plan is maintained, exercised, and modified annually; for conducting public emergency management training, awareness, and education programs; and providing leadership and direction during an emergency.

In Alberta, the first response is almost always by the First Nation. The band chief has the authority, for example, to declare a state of emergency and subsequently to call a mandatory evacuation.

2.5. Emergency Management at Meander River, Dene Tha' First Nation

At the time of the Meander River evacuation in July 2012, Dene Tha' First Nation had a Director of Emergency Management (DEM) who was responsible for all hazard-related emergencies in the three Dene Tha' First Nation reserves. Like most First Nations in the province of Alberta, this position is a voluntary role, usually carried out in addition to one's regular employment. Regular training and attendance at annual provincial conferences on emergency management is coordinated by the AEMA. Assistance with preparedness and during response is also provided by an AEMA regional First Nation field officers. In addition to coordinating and making decisions during the response phase of an emergency, the DEM is also responsible for familiarizing band leadership and community members with emergency procedures as part of a preparedness strategy. For instance, pamphlets and information about emergency preparedness and response are distributed by the DEM to community members during annual assemblies (when all three reserves come together for a cultural gathering). However, the DEM expressed concern that adequately familiarising community members had been challenging in the past due to a perceived lack of interest.

Since the DEM for Dene Tha' First Nation resides in Chateh (located approximately 100 km from Meander River), the Volunteer Fire Chief in Meander River is an unofficial assistant during evacuations and other emergencies. Acting on the advice of the DEM or by an outside agency such as the AEMA or Alberta Agriculture and Forestry (AAF), the Chief of the First Nation can call a voluntary evacuation. If the situation is deemed serious and risking the health and safety of residents, a state of emergency can be declared by the Chief. At this point in time, the evacuation order can become mandatory. A mandatory evacuation means that everyone must leave the community and may not re-enter without permission from the Chief and other authorities. In addition to the day to day coordination and organization of logistics for evacuations and other emergency procedures, the DEM is responsible for overseeing the administration of cost

recuperation from evacuations and other damage incurred to property and infrastructure following a hazard incident. They must work together with other band staff and community members to ensure that paperwork is submitted. In short, the demands of the unpaid role are substantial, especially during evacuations.

2.6. Challenges for Emergency Management in the First Nations Context

While the AEMA and INAC emergency management plans outlined in section 2.4 provide the necessary framework for planning and responding to emergencies involving First Nations, numerous challenges exist in their practical application. First, the emergency management framework does not account for local nuances in available resources and the priority assigned to emergency management vis-à-vis other local challenges. For instance, many First Nations experience poor socio-economic conditions which may influence the preparedness resources that are locally available, the level of priority members give to emergency management, and their ability to cope with emergencies when they do occur (Aboriginal Affairs and Northern Development & Minister of Public Works and Government Services Canada, 2011; Office of the Auditor General of Canada, 2013). In many First Nations, emergency management planning and preparedness may have to compete with more salient social and economic concerns. The urgency associated with other social issues results in inadequate planning and preparedness and difficulties coping with emergencies when they do occur (Office of the Auditor General of Canada, 2013). As mentioned above, INAC's *Emergency Management Plan* recommends individual members of First Nations to be prepared to look after themselves and their families for a minimum of 72 hours during an emergency. Individuals who rely on government financial assistance may be unable to cope with the unexpected financial strain caused by evacuation of their family.

Another factor which creates challenges for emergency management is that not all communities have plans for managing emergencies. This can be due to various reasons including a lack of capacity and resources or more latent social problems including community-level politics which can make collaborating on and formalizing plans challenging (Epp et al., 1998; Office of the Auditor General of Canada, 2013). For communities that do have plans, they are often outdated

and incomplete (Office of the Auditor General of Canada, 2013). This increases their risk of being unprepared to deal with emergencies and the resulting impacts (Office of the Auditor General of Canada, 2013).

Another factor which poses challenges for effective emergency management is that funding allocated by the federal government for mitigation and preparedness activities for First Nations in Canada is insufficient with most funding focused on response and recovery (Office of the Auditor General of Canada, 2013). Not only are First Nations communities unable to adequately fund important infrastructure and other activities related to mitigation and preparedness, but many do not receive full compensation to cover costs when emergencies do occur (Office of the Auditor General of Canada, 2013). This can have detrimental consequences on local programs and services when already strained budgets are required to compensate for insufficient reimbursements. Last, due to differences in jurisdiction, emergency management on First Nations reserves requires separate agreements through various provincial and federal agencies in order to provide services to communities (Aboriginal Affairs and Northern Development & Minister of Public Works and Government Services Canada, 2011). While Alberta has an agreement in place with the AEMA, mutual aid agreements and communication plans with neighbouring local authorities are often absent or unclear which can make it difficult to deliver and coordinate emergency management in the midst of an emergency (Epp et al., 1998; Office of the Auditor General of Canada, 2013).

2.7. **Chapter Summary**

This chapter provided background and context for the study of the Dene Tha' First Nation wildfire evacuation by first, presenting a brief discussion of the history and current context of Dene Tha' First Nation and Meander River. It then provided background information on emergency management followed by a discussion of the governance, roles and responsibilities applicable to the emergency management of First Nations in Alberta. This provided the necessary context for presenting the emergency management context of Meander River followed by challenges for emergency management of First nations in Canada. The following chapter presents the theoretical framework for this research followed by a review of relevant literature.

Chapter 3. Literature Review

3.1. Introduction

This chapter begins by providing a description of the theoretical framework and key concepts that guided this research. It then briefly discusses the human dimensions of wildfire literature before turning to the hazard evacuation literature. The review of evacuation literature includes a description of the factors that may influence how wildfire and other hazard evacuations are experienced by both the general population and Indigenous Peoples, including First Nations.

3.2. Theoretical Framework

This research examines the wildfire evacuation experiences of a First Nation in Canada. The study considers how the context of the community and the evacuation positively and negatively influenced experiences. Given the limited research on this topic, the exploration of these social factors requires a theoretical framework and conceptual model.

First, this research is situated within the academic discipline of human geography, a field of study which explores the relationship between humans and their surroundings (Winchester & Rofe, 2010). One focus of human geography is to understand the interaction between humans and environmental hazards (Burton, Kates, & White, 1993; O'Riordan, 1986). Specifically, hazards researchers examine topics such as coping, decision making, behaviour, risk perception, and social impacts in order to explore practical means and appropriate public policy to reduce hazard risk (S. McCaffrey, Kumagai, & Daniel, 2007).

The study of the human dimensions of hazards can be traced to earlier studies of the geophysical and biophysical processes of naturally occurring hazards such as earthquakes, tornadoes, hurricanes, and volcanoes (K. Smith, 2004). Early analysis of these hazards concentrated on measuring physical characteristics such as frequency, magnitude, duration, and scope (Newton, 1995; Perry, 1985). This approach assumed that disasters were the product of

physical processes or in some cases 'Acts of God,' and thus led to a general acceptance of disasters as inevitable and indiscriminate in who they affected (K. Smith, 2004). In other words, hazards could only be controlled by better understanding and intervening in the biophysical processes through technocratic means. They were assumed to be external to the social, economic and cultural conditions in which people lived their lives prior to a hazard event.

The work of Gilbert White (1936, 1945) questioned the predominant focus on the physical processes of hazards and criticized it for yielding an incomplete understanding of the root causes of large-scale disasters caused by hazards. White (1936, 1945) argued that the physical approach to hazards failed to acknowledge that without humans, hazards are simply natural events, and thus, become irrelevant (Haque & Etkin, 2006; Hewitt, 2012). In other words, separating hazards from the social factors that influence how people cope with them places too much emphasis on mitigating the physical processes while neglecting the underlying social structures which create disasters in the first place.

The research presented in this thesis follows the line of scholarship in hazards geography by acknowledging that hazard experiences are socially constructed. They also vary amongst and within different segments of society based on personal experiences and local context. In other words, it adopts a social constructivist approach to explore the interaction between people and wildfire to understand how they cope with one aspect of a hazard event (the evacuation) and what influenced their experiences and perspectives. According to Creswell (2013, p. 24) researchers using a social constructivist approach rely as much as possible on the participants' meaning of the situation and then attempt to make sense of them. Moreover, social constructivists look for the complexity of views rather than trying to find universal truths about reality. Social constructivists believe that the meanings drawn from experiences are subjective, multiple, and constructed through lived experiences and social interaction with others. These interactions are placed in the context of historical and cultural norms that operate in a particular setting. This is important for this research because First Nations have different lived experiences and cultural norms than non-Indigenous Peoples which may influence how they experience and assign meaning to wildfire evacuations.

Focusing on the lived experience in research is often motivated by attempts to give voice to or transform the conditions of those who are otherwise silenced or excluded (Winchester & Rofe, 2010). Postcolonial theory, which guides the theoretical framework for this study, is a research tradition, an approach, and a paradigm in the social sciences and human geography that highlights the historical and enduring imbalance of power between colonizing and colonized peoples (Ashcroft, Griffiths, & Tiffin, 2007; Loomba, 2015; Warf, 2010). At its core, it contests dominant, western discourses and introduces alternative perspectives and knowledge systems to the mainstream (Ashcroft et al., 2007; Loomba, 2015; Young, 2003). Like social constructivism, it acknowledges that there are multiple realties and ways of knowing and uses the research process as a way of contributing to the self-determination and empowerment of 'others' through methodologies which value their insights, knowledge, perspectives, experiences, and concerns (Howitt, Havnen, & Veland, 2012; Howitt & Stevens, 2010).

In the most literal sense, postcolonialism refers to the period following colonialism. However, this highly simplistic way of defining postcolonialism neglects the ongoing connections, dependencies, exploitations, and forms of neo-colonialism that continue to shape relationships and experiences between the 'formerly' colonized and their colonizers (Warf, 2010; Young, 2003). Thus, while the "post" in "postcolonialism" suggests that colonialism has ended, most scholars have pointed out that postcolonialism is more appropriately viewed as a spectrum of change in which the colonized have achieved differing levels of liberation (Ashcroft, Griffiths, & Tiffin, 2002; Warf, 2010; Young, 2003).

In human geography, one the greatest impacts of post-colonialism has been acknowledging the complicity of geographers in the colonial project (Warf, 2010). For instance, geographers and other scholars were actively involved in the process of establishing, maintaining, and defending colonial and postcolonial power relations (Warf, 2006, 2010). Geographer's 'scientific' work and exploration served, for example, to emphasize the cultural and racial differences between colonists in power and their colonial subjects. This work created stereotypes of entire continents of colonized peoples that persist today. Key postcolonial theorists such as Edward Said, Homi Bhabha, and Gayatri Spivak, among others, have been particularly influential in developing the field. For instance, Edward Said's *Orientalism* (1978) is frequently cited as the most significant work in the development of postcolonial theory. Drawing on Foucault, Said (1978) critiqued

Orientalist discourse to draw attention to the ways in which "the West" represented "the Orient" as barbaric, irrational, and "Other." Said's work on postcolonial theory has encouraged the contestation of dominant discourses and the introduction of alternative perspectives to the mainstream (Ashcroft et al., 2007; Loomba, 2015; Young, 2003). Other postcolonial scholars have employed a more critical, Marxist framework to expose inequalities in political and economic power and resources within the 'postcolonial world', highlighting the historical and continued imbalance of power between colonizing and colonized peoples (Anderson, Domosh, Pile, & Thrift, 2003; Ashcroft et al., 2000). In doing so, postcolonial scholars examine the socially constructed roles of these groups, exposing the underlying drivers of inequality thereby purposely politicizing it (Chambers & Curti, 1996; L. T. Smith, 1999; Young, 2003).

Postcolonialism also serves as a methodological critique of research practices which have contributed to naturalizing and justifying the exploitation and subordination of colonized peoples (Howitt & Stevens, 2010; L. T. Smith, 1999; Warf, 2006). According to Howitt and Stevens:

> "Colonial research reflects and reinforces domination and exploitation through the attitudes and differential power embodied in its research relationships with 'others', its dismissal of their rights and knowledge, its intrusive and non-participatory methodologies, and often also its goals and its use of research findings" (2010, p. 42).

Postcolonial research challenges colonial research methods by rejecting traditional objective researcher/ passive research subject attitudes, assumptions and methodologies in favour of methods that are egalitarian and participatory. Postcolonial research methods value the rights, knowledge, perspectives, concerns, and desires of the communities the research serves and uses the research process as means of empowerment (Howitt & Stevens, 2010; L. T. Smith, 1999).

Critics of postcolonial theory have questioned whether it actually reflect the desires of colonized/ formerly colonized peoples or if they simply serve to alleviate the self-consciousness of academics doing cross-cultural work (L. T. Smith, 1999; Warf, 2006). For instance, the majority of postcolonial writing is in English rather than in the languages of the colonized people it represents. Maori scholar Linda Tuhiwai Smith argues that word 'research' is probably one of the

dirtiest words in the Indigenous world's vocabulary, calling for research to be 'decolonized' (L. T. Smith, 1999). By this she means that Indigenous peoples must become the researchers and not merely the researched in order to transform the way questions are framed, priorities ranked, and problems defined (L. T. Smith, 1999, p. 193).

In this study, postcolonial theory is used as an overall research paradigm. This means that postcolonial theory provides structure to the entire thesis. It provides a common world view or lens from which to support my thinking on the problem, my methods, and analysis of data (Grant & Osanloo, 2014). For example, postcolonial theory is used to draw attention to and acknowledge how the large scale can interact with the everyday community context to shape evacuation experiences. When considering this study's investigation of wildfire evacuation within the specific context of Canada's First Nations, the use of postcolonial theory illuminates how vulnerability to disasters is linked to decades of oppression imposed by colonialism (Epp et al., 1998; Goodchild, 2003; Newton, 1995; Scarbach, 2014). Postcolonial scholars also attempt to contest dominant, western discourses and introduces alternative perspectives and knowledge systems to the mainstream (Ashcroft et al., 2007; Loomba, 2015; Young, 2003). Drawing on the experiences of First Nation evacuees and using their verbatim quotations provides a platform from which otherwise silenced First Nation residents can talk freely about their experiences in an anonymous fashion. The research process and the study results are also a way of contributing to the self-determination and empowerment of First Nations, using methods which value their insights, knowledge, perspectives, experiences, and concerns (Howitt et al., 2012; Howitt & Stevens, 2010). For this reason, a community-based, qualitative approach was used to conduct this research. The specific approach and methods employed are discussed in the methodology chapter.

3.3. **Key Concepts**

Vulnerability, resilience, adaptive capacity, and coping are also important concepts for this research. These concepts are used extensively in the hazards literature, however; interpretations and models vary among researchers. In particular, vulnerability and resilience are at the center of much debate and are continually undergoing some degree of reinterpretation. Several critical reviews of the hazards literature in geography by Cutter (1996), Alexander (1993), Quarantelli

(1998), UNDP (2000), White *et al.* (2001), and Wisner (1978) have all made important contributions by summarizing the numerous definitions of vulnerability and resilience. In many respects, though, these reviews have also created some confusion, mainly because of different typologies used by the authors to categorize definitions and some attempts on their part to re-conceptualize specific terms. Thus, what follows here is a review of literature to clarify the use of these important concepts in the context of the current investigation.

3.3.1. Vulnerability

Vulnerability is broadly defined as the the pre-event, inherent characteristics of social entities that create the propensity to suffer some degree of loss from a hazardous event (Cutter, 1996; Etkin, Haque, Bellisario, & Burton, 2004). The vulnerability of individuals and their communities will influence how they experience different stages of a hazard event including evacuation from their homes. It is important to consider the vulnerability of First Nations because they are considered more at risk to suffer harm from hazard events than the general Canadian population due to their physical exposure to hazards and the legacy created by colonialism which has contributed to socio-cultural differences, low education attainment, high rates of chronic illness, low socio-economic status, and insufficient emergency management infrastructure, planning, and resources (Office of the Auditor General of Canada, 2013).

There are many different definitions of vulnerability in the hazards literature. Three of the most common conceptualizations are discussed here. The first, biophysical vulnerability, explains causality by highlighting the potential exposure or risk to biophysical hazards (Cutter, 1996; Mileti, 1999). In other words, vulnerability is simply a function of proximity to the source of risk or hazard (Alexander, 1993; Heyman, Davis, & Krumpe, 1991). Research on biophysical vulnerability focuses on the magnitude, impact, duration, frequency and rapidity of onset of a particular hazard (Cutter, 1996). It is also characterized by its focus on the distribution of hazardous conditions, the human occupancy of hazardous zones, and the degree of loss associated with the occurrence of a hazardous event (Cutter, 1996). From this perspective, the vulnerability of many First Nations is a function of their occupancy of remote and hazard-susceptible areas such as forested areas prone to wildfires (Christianson, 2015; Epp et al., 1998; Newton, Paci, & Ogden, 2005). Additionally, their biophysical vulnerability to wildfire has

increased due to factors including: climate change (Flannigan et al., 2006; Gillett, Weaver, Zwiers, & Flannigan, 2004; Tymstra, Flannigan, Armitage, & Logan, 2007) and mountain pine beetle infestations (Canadian Forest Service et al., 2005). Importantly, Indigenous people traditionally used burning practices to manage their environment and mitigate fire risk to their communities until it was banned in many places including the province of Alberta in 1910 (Christianson, 2011; Lewis, 1982; Pyne, 2007). While the fire suppression practices of the Canadian government in provinces such as Alberta were put in place to protect timber stocks, watersheds, and communities (Pyne, 2007); they also stripped Indigenous communities of their self-determination to manage their traditional lands and subsequently eroded traditional knowledge regarding burning (Christianson, 2011; Lewis, 1982). The widespread fire suppression that occurred throughout most of the twentieth century has led to a significant build-up of fuel which fire management agencies and fire ecologists now acknowledge has contributed to an increased wildfire risk (McFarlane, B.L., 2006; Stocks, B.J. & Wotton, 2006; Wotton & Stocks, 2006). Together, these factors have increased the scale, impact, extent, and occurrence of wildfires and consequently, have increased the biophysical vulnerability of First Nations living in remote and forested areas.

Any investigation of biophysical vulnerability also requires analysis of how natural and social systems interact to put people at risk. This point is well made by Mustafa, who notes that "exposure is a function of the socially determined physical location of the communities at risk, as well as the human decisions and societal structures that imperil the community" (1998, p. 290). This brings us to the second conceptualization of vulnerability, which focuses on social influences. Called social vulnerability, the focus of causality is on the inherent social conditions that are often remote from the actual hazard event (Cutter, 1996). In other words, social vulnerability asserts that hazards only *become* disasters when they impact the lives of people who lack the capacity to anticipate, cope with, resist, and recover from the impact of a hazard event (Blaikie, Cannon, & Wisner, 1994). According to Cutter (1996; 2008) social vulnerability refers to a condition rooted in historical, cultural, social, and economic processes and the pre-event inherent characteristics of social systems that create the potential for harm. Socially vulnerable people and communities are more likely to experience property loss, physical harm, psychological distress, and have more difficulty in recuperating from a disaster (Fothergill & Peek, 2004; Ojerio, Moseley, Lynn, & Bania, 2010). From this perspective, the vulnerability of

many First Nations to hazards is associated with historical and ongoing socioeconomic and political conditions which have increased their exposure to hazards and their susceptibility to suffer harm. For instance, experiences with poverty, inequality, low education attainment, and chronic health problems can be traced to the legacy of colonialism which created and continues to exacerbate economic, social, and cultural marginalization (Alfred, 2009; Coulthard, 2014). In addition, a legacy of political and economic marginalization has challenged the ability of First Nations communities to acquire the necessary resources, capacities, and infrastructure to adequately mitigate, respond to, and recover from hazard events (Haalboom & Natcher, 2012). This has increased their reliance on external agencies to provide support and jeopardizes ongoing efforts to decrease vulnerability.

In the last two decades or so, studies have also begun to construct vulnerability in a more comprehensive manner – as a function of the position people occupy in both biophysical and social systems. According to studies such as Clark et al. (1998) Cutter et al. (2000), Weichselgartner (2001), and Odeh (2002), vulnerability is interpreted as a combination of some degree of proximity to a hazard and some level of adaptive capacity to cope with the threat. From this perspective, being subject to physical harm and the ability to deal with hazards become co-determinants of an individual's or group's vulnerability to hazards (Clark et al., 1998; Cutter et al., 2000; Mileti, 1999). In her work, Cutter (1996) referred to this interpretation as place vulnerability. This conceptualization acknowledges both the biophysical and social factors that influence vulnerability and how they interact to produce the specific vulnerability of places and the people who live there (Cutter, 1996). It also acknowledges that vulnerability can change temporally depending on changes to risk, mitigation, and the different contexts in which hazard events take place.

Place vulnerability is useful for this study because it considers the specific biophysical and social context in which the vulnerability of Dene Tha' First Nation to wildfires is produced. Recognizing, for example, that differences in access to power and resources exist within communities is important as this can influence evacuation experiences and how people define their experiences. According to Cutter (2008) the hazardousness of place model of vulnerability is designed to capture such disparities by focusing on the place and the spatial interactions among the social system, built environment, and natural processes.

3.3.2. Resilience

Resilience is another important concept for this research. For the purpose of this thesis, it is defined as the ability of a community to respond to and recover from hazard events and includes the inherent characteristics and conditions that allow them to absorb and cope with impacts as well as the adaptive processes they adopt to facilitate re-organization, change and learning in response to a threat (Cutter et al., 2008). There are several different conceptualizations of resilience; four of which will be discussed here. The first and original conceptualization of resilience was developed by the ecologist C.S. Holling (1973) based on his observations of the boreal forest ecosystem (Berkes & Ross, 2013). He sought to explain the capacity of the boreal forest to self-renew even while undergoing extreme disturbances such as wildfire. From these observations, he conceptualised resilience theory to describe how ecosystems are continuously changing, at times abruptly and unpredictably yet they can continue to function, sometimes in an altered or new state (Berkes & Ross, 2013). This conceptualization was limited to biological ecosystems and did not acknowledge any role of social systems in the resilience process.

In the years that followed, a second conceptualization of resilience theory was developed to encompasses the role that social systems play in shaping, influencing and co-evolving alongside ecosystems (Berkes & Ross, 2013). Resilience theory, applied in this context uses the term 'social-ecological system' to describe the coupled, interdependent relationship between social systems and ecosystems (Gunderson & Holling, 2001). A conceptual framework known as *panarchy* was developed by Gunderson and Holling (2001) to explain the resilience of social-ecological systems. The panarchy framework is a hierarchical structure where natural and social systems are joined in endless adaptive cycles of growth, accumulation, restructuring, and renewal (Cutter et al., 2008). Adaptive cycles take place at discrete scales of space, time, and social organization, yet have multiple cross-scale interactions that influence the dynamics of the social-ecological system. The panarchy framework illuminates the multi-level dynamics of these adaptive cycles to identify processes which contribute to the resilience of social-ecological systems. For example, a system is said to demonstrate adaptive capacity when it is able to adjust to change, moderate the effects, and cope with a disturbance (Burton, Huq, Lim, Pilifosova, & Schipper, 2002). Social learning takes place when a disturbance or abrupt change is used as a

window of opportunity (Goldstein, 2008) to transform a social-ecological system into a new or altered state instead of perpetuating factors which do not contribute to its resilience (Berkes & Ross, 2013; Wilson, 2012). According to Berkes and Ross, the social ecological systems literature signals researchers to be aware of "renewal cycles, memory in the system that can help restart cycles, disturbance events, drivers of change, and the significance of windows of opportunity during which innovative changes can be made in the system" (2013, p. 15).

A third conceptualization of resilience comes from the field of psychology where scholarship focuses on identifying the variables that influence individual coping through major life disturbances to provide a foundation from which interventions can be built (Buikstra et al., 2010; Lutha & Cicchetti, 2000). Studies involve considering different contexts and stressors which influence personal resilience. Relevant to the current study is an extension of this psychological research which focuses on community level resilience to hazard events, the fourth conceptualization of resilience discussed here. This scholarship has studied how communities avoid, reduce, or cope with the damages caused by disasters, and recover with minimal social disruption (Buckle, Mars, & Smale, 2000; Manyena, 2006; Tierney & Bruneau, 2007). Investigations have focused on identifying the factors, processes, and contexts that influence resilience at the community level in the short and long term in order provide direction for better interventions before, during and following future hazard events (Cox & Perry, 2011; Krishnaswamy, Simmons, & Joseph, 2012; J Kulig, Edge, & Joyce, 2008; J. Kulig, Reimer, Townshend, Edge, & Lightfoot, 2011; Judith Kulig, Botey, & Townshend, 2013; Paton, Smith, & Violanti, 2000; Townshend, Awosoga, Kulig, & Fan, 2014; Twigg, 2009). While this research is still very limited, a number of common factors that influence community resilience have been identified, including: social networks and communication within these networks; social support and the sense of belonging it fosters; community leadership and its role in community organizing; outlook on life such as the readiness to accept change and learning; infrastructure and support services and their role in facilitating the use of community strengths (Berkes & Ross, 2013; Davidson, 2010; Goldstein, 2008; Levy, Itzhaky, Zanbar, & Schwartz, 2012; Townshend et al., 2014).

Currently, no research has concentrated specifically on the idea of resilience in First Nations who experience wildfire evacuations. As discussed in the previous section on vulnerability, First Nations in Canada have and continue to experience difficult conditions

associated with colonial policies and practices which occurred when the Canadian government attempted to enforce assimilation (Battiste & Youngblood, 2000). Yet, despite these challenging conditions, First Nations have or are beginning to recover (LaFromboise et al., 2006). It is important to study the resilience of First Nations, such as Dene Tha' First Nation, because an understanding of the adaptive processes required for resilience, the factors which contribute to it, and how these processes can be supported may help build a community's capacity to cope with hazard events. Furthermore, recognizing that a community can be vulnerable yet resilient may help in the identification of factors and processes which *positively* influenced the evacuation experiences of Dene Tha' First Nation.

3.3.3. Adaptive Capacity and Coping

The concepts of coping and adaptive capacity are important to this study. 'Adaptive capacity' is commonly used in climate change research to refer to "the ability or capacity of a system to modify or change its characteristics or behaviour in order to cope better with existing or anticipated external stresses" (Adger et al., 2004, p. 34). As this study is ultimately concerned with people's experiences, adaptive capacity is used to refer to people's abilities to cope with new circumstances triggered by a wildfire evacuation. Similarly, coping is defined as the cognitive and behavioral work of managing and overcoming the environmental and internal demands which pose difficulties and/or exceed personal resources (Lazarus & Folkman, 1984). Overall, the primary purpose of coping is to assist the social group to minimize, avoid, tolerate or accept a stressful situation (Lazarus & Folkman, 1984; Thoits, 1995).

In the context of this study, the concept of coping is a process of adaptation by individuals and the community to help minimize factors that negatively affect them, while finding ways to bolster factors that positively influence wildfire evacuation experiences. According to Miller et al. (2012) coping strategies can be positive or negative. Examples of positive coping strategies include seeking social support or distracting oneself by volunteering to help others, whereas examples of negative coping strategies include self-criticism, blaming, or withdrawing socially (Belter, Dunn, & Jeney, 1991; Lack & Sullivan, 2008; Vernberg, La Greca, Silverman, & Prinstein, 1996). With this study's aim of investigating factors that negatively and

positively influenced evacuation experiences, the concepts of coping and adaptive capacity will be valuable in understanding the processes and variables that contributed to experiences.

3.4. The Human Dimensions of Wildfire

The research presented in this thesis examines how a First Nation experienced an evacuation due to wildfire smoke. It is therefore necessary to place this research within the context of the human dimensions of wildfire research before proceeding to review the literature pertaining to evacuations (section 3.5.). Wildfires are an environmental hazard that can impact the lives of people by altering the landscape, destroying houses and infrastructure, and creating smoke pollution. In Canada, a country highly prone to wildfire activity, an average of 2 million hectares are burnt each year (Stocks et al., 2002). Like other hazards, research on wildfires began with studies focusing on the physical characteristics of wildfire such as fire behaviour and risk reduction methods including the use of prescribed burning (Buell & Cantlon, 1953; K. P. Davis, 1959). Other research has explored the impact of wildfires on the ecology of the natural landscape and the implications of fires for forest management (Gärtner, Bokalo, Macdonald, & Stadt, 2014; Johnstone, Rupp, Olson, & Verbyla, 2011; Kasischke et al., 2010; Rota, Millspaugh, Rumble, Lehman, & Kesler, 2014; H. G. Smith, Sheridan, Lane, Nyman, & Haydon, 2011; Thompson, Vaillant, Haas, Gebert, & Stockmann, 2013; Wimberly & Liu, 2014). Recent research has also focused on changes in fire behaviour (Johnstone et al., 2011) and increased risk resulting from mountain pine beetle infestations (Canadian Forest Service et al., 2005; Rota et al., 2014), climate change (Flannigan et al., 2006, 2006; Gillett et al., 2004; Tymstra et al., 2007) and past fire suppression practices (Stocks, B.J. & Wotton, 2006; Wotton & Stocks, 2006). Based on findings from this body of research, fire management agencies have developed mitigation strategies such as prescribed burning, the creation of defensible space, and promoting the use of fire-resistant building materials in order to reduce wildfire risk to individuals and communities (McFarlane, B.L., 2006).

Led by researchers in Australia, Canada and the United States, research on the human dimensions of wildfire has predominantly focused on risk perception and the use and acceptance of various mitigation and preparedness measures for practical and policy purposes. For instance,

academic work has investigated how people perceive and respond to the risk of wildfire (Champ, Donovan, & Barth, 2013; Christianson, 2011; Gordon, Matarrita-Cascante, Stedman, & Luloff, 2010; Martin, Raish, & Kent, 2008; McGee, McFarlane, & Varghese, 2009; Monroe & Nelson, 2004); and factors that influence why people favour certain adjustments over others (Christianson, 2011; Christianson, McGee, & L'Hirondelle, 2014; Paveglio, Prato, Dalenberg, & Venn, 2014). Recently, research has begun to explore the social impacts of large wildfires (Carroll & Cohn, 2007; Carroll et al., 2005a, 2006; Jones, Ribbe, Cunningham, Weddle, & Langley, 2002; Kent et al., 2003; Paveglio, Brenkert-Smith, Hall, & Smith, 2015; Tally et al., 2012). Investigations about the social impacts of wildfire have investigated questions such as: (1) the effect of wildfires on housing values or use of recreational lands (Englin, Holmes, & Lutz, 2008; Stetler, Venn, & Calkin, 2010); (2) social disruptions caused by wildfire and efforts to recover from them (Carroll et al., 2005a, 2006); (3) how past experience with wildfire influences property owners' preparedness and mitigation activities (Brenkert-Smith, Champ, & Flores, 2012; Christianson, McGee, & L'Hirondelle, 2013; McGee et al., 2009); (4) how conflict and collaboration between firefighters and residents surrounding fire events and the effects on future support for wildfire management (Carroll & Cohn, 2007; Carroll et al., 2005a, 2006; Cohn et al., 2006; Olsen & Shindler, 2010); and (5) communication of information about wildfire (Cohn et al., 2006; S. M. McCaffrey, Velez, & Briefel, 2013; North & Bainbridge, 2010; Taylor et al., 2005). Nestled within many of these studies are useful insights into how the evacuation stage of wildfire events is experienced by communities. For example, some studies on the social impacts of wildfires have found that communication and information availability influence how people experience evacuation (Cohn et al., 2006; S. M. McCaffrey et al., 2013; Stidham, Toman, Eric, McCaffrey, & Shindler, 2011; Taylor et al., 2005). Others have found that communities experience cohesion and solidarity during the evacuation stage of wildfire (Carroll & Cohn, 2007). With the exception of a few studies (Christianson, McGee, & Mottershead, 2015; Epp et al., 1998; Scarbach, 2014), limited research has specifically sought to examine factors that influence how communities experience the evacuation stage of wildfires. The following section reviews relevant studies on evacuation from wildfires as well as other hazards such as hurricanes, floods, tropical cyclones, and volcanic eruptions.

3.5. **Evacuations**

The use of evacuations has been common in response to wildfires and other environmental and human-caused hazards such as floods, hurricanes, disease, and war. Used as a preventative measure, evacuations can minimize the impacts of disasters by eliminating or reducing the loss of life and by removing people in an impact area to enhance the operation of emergency services (Perry, 1985; Sorensen & Sorensen, 2007). For example, the greater the number of residents removed from the scene of impact, the more likely that post-impact activities can be shifted away from recovering victims, administering medical aid, and transporting survivors and instead concentrated upon the prevention of further destruction (Perry, 1985). Furthermore, evacuations can also enhance trust in emergency management authorities and reduce negative psychological impacts when a potential hazard event is recognized and control of the situation is maintained (Perry, 1985). Thus, evacuations can directly save lives, reduce the loss of property, and may enable communities to recover faster.

The type of evacuation used by local leadership and government authorities can range from compelling residents to leave voluntarily to forcing them to leave under a mandatory evacuation order[6] (Perry, 1985). While voluntary evacuations rely on the willingness of residents to leave the danger zone with minimal resistance, mandatory evacuations may involve the forced removal and denial of re-entry of people from an endangered area and can include threats of arrest or legal consequences for those who do not comply (Perry, 1985). In most countries, persuasion is typically relied upon to pressure people to evacuate an area under threat voluntarily and then to prevent them from re-entering the area until the safety of the area is established.

Previous research on the evacuation process has found that it is one of the most socially disruptive consequences of a hazard event (Cohn et al., 2006; Paveglio et al., 2008; Taylor et al., 2005). How communities cope with the disruption caused by evacuations is contingent upon numerous factors related to the context of the community, the organization and management of the evacuation, and the conditions of the host community. Although research on the wildfire

[6] In the province of Alberta, a local authority such as a First Nation Chief or a municipality's mayor have the power to compel the mandatory evacuation of residents once a state of emergency has been declared for an area under threat (Alberta, 2012).

evacuation experience is limited, the existing literature on wildfire events has recognised several factors that may influence how evacuees experience evacuations. These factors include: communication before, during and after a wildfire evacuation; the time to prepare for evacuation; the community's level of emergency preparedness; the length of displacement and conditions of the host community; availability of social support; local leadership in organizing and managing the evacuation; community social dynamics; loss of control over decision making; and the pre-existing vulnerabilities of the community.

First, communication before, during, and after a hazard event is an important factor which may influence evacuation experiences. Communication includes providing the community with an evacuation warning and ensuring that important information reaches community residents at all stages of a hazard event (Perry, 1985). Within the existing literature on communication during wildfire events, it is clear that disseminating information about wildfire proximity, smoke, and level of threat in relation to communities and homes is a significant factor in how evacuees evaluate their evacuation experiences (Cohn et al., 2006; Hodgson, 2007; Kent et al., 2003; McCool et al., 2006; Stidham et al., 2011; Taylor et al., 2005)). For instance, Taylor et al. (2005) found that when the public received accurate, place sensitive, and real-time information they experienced reduced levels of confusion, stress, and anxiety during a wildfire evacuation.

The communication of specific wildfire information is also an important variable in evacuation decision making. The warning response model (Perry, 1985) provides a set of variables that may influence decisions to comply with an evacuation warning under conditions of uncertainty. Accurate information is crucial to this process because without it, individuals may decide that evacuation is not necessary. The variables identified by the warning response model include risk identification, risk assessment, and risk reduction (Perry, 1985). Risk identification means developing an understanding of the risk through activities such as research, screening, and monitoring (Kates, 1976). In the case of evacuation, the information communicated with the warning to evacuate should reduce the need for research and screening so that risk identification only involves asking the question: is the threat described in the warning really there (Perry, 1985). Perry (Perry, 1985, p. 70) explains that other factors are involved in the process of interpreting a warning message such as considering the credibility of the authorities who issue the warning, trying to verify the information by checking for environmental cues, and/ or attempting to confirm

the information with other sources such as the media or social contacts. Importantly, the warning message must have enough information for individuals to then progress to the next stage of the decision-making process otherwise they may not perceive a risk and either will not evacuate or will wait until more information becomes available. In other words, without accurate, place sensitive, and real-time information, individuals may experience confusion, stress, and uncertainty in the midst of a wildfire event (Taylor et al., 2005).

The second variable in the warning response model, risk assessment, refers to the process of determining the possible personal consequences of the risk specified in the warning (Perry, 1985). Three factors influence the risk assessment process. First, the higher the credibility of the message sender, the more likely the individual will perceive a risk based solely on the message (Mogil & Groper, 1977; Perry, 1985). Second, the information in the warning message such as when, where, and probable force of the hazard's impact will allow the individual to determine their personal risk (Moore, Bates, Layman, & Parenton, 1963; Perry, 1985). Third, the individual's past experience with the hazard also influences risk assessment because they are may use information from their personal history with the threat to determine their personal risk (Drabek, 1986; Perry, 1985; Sorensen & Sorensen, 2007).

The last variable that influences the warning response decision-making process is risk reduction (Perry, 1985). This involves determining what can be done to reduce risk to an acceptable level (Rowe, 1977). For example, if the individual is presented with the option of evacuation, they will likely evacuate if they have determined the nature of the risk and perceive it poses a personal risk. However, numerous contextual variables may also mediate individual decisions to take protective actions. Some of these variables include: the family context in which the warning is received; the network of social relationships in which the family is enmeshed; the level of community involvement; ethnic group membership; the individual's beliefs about their locus of control; concerns for the safety and security of property and possessions; reluctance to leave pets or livestock behind; inability to leave due to health or mobility constraints; and a lack of transportation (Perry, 1979, 1985; Sorensen & Sorensen, 2007). The warning response model is mainly aimed at understanding variables that affect the decision-making processes that an individual undergoes when they are issued an evacuation warning so that authorities can understand and work to convey clear warning messages (Perry, 1979; Sorensen & Sorensen, 2007).

However, it does provide some insights into factors that may influence evacuation experiences. For example, inadequate information may undermine an individual's ability to determine the nature of a risk such as how it may threaten them personally. Thus, they may delay their decision to evacuate and may subsequently experience stress, confusion, or uncertainty when they are forced to evacuate under uncertain conditions.

Despite the importance of communication, serious problems can be introduced during evacuation. This is because residents' information needs change and intensify just as communication becomes more difficult. According to Taylor et al. (2005) evacuations not only disrupt informal information networks but they may also limit access to traditional media when power fails, causing radios, televisions, and some telephones to shut down. Difficulties with communicating and accessing information during evacuation has been identified as a factor which has negatively affected First Nations during both wildfires and floods (Christianson et al., 2015; Epp et al., 1998; Larose, 2009; Scarbach, 2014).

Another communication problem that may be revealed during evacuation relates to the issue of pre-event collaboration and communication. Previous research has argued that the development of relationships before a hazard events contributes to effective communication during confusing situations (Cohn et al. 2006; Martin, Bender and Raish 2007; Queensland Police Service 2011; Taylor et al. 2007). In the province of Alberta, First Nations have the jurisdiction and authority to declare a state of emergency, call, and carry out an evacuation (Alberta Emergency Management Agency, 2008). The extent to which external organizations become involved before, during, and after wildfire evacuations is largely at the discretion of the First Nation and depends on their need for additional resources (Alberta Emergency Management Agency, 2008). Communication of wildfire information from external agencies with the First Nations and vice versa during an evacuation may also be dependent on whether relationships and mutual assistance agreements have been established in advance of an emergency. In Epp et al.'s (1998) study of emergency preparedness and First Nations in Manitoba, all three First Nations included in the study experienced serious communication problems between agencies, local authorities and community members due to differences in jurisdiction. In Manitoba, there is provincial legislation and bodies which work towards emergency preparedness. However, at the time of Epp et al.'s (1998) study, First Nations were not recognized as being local authorities under provincial law and

therefore could not initiate their own evacuation. Thus, while other non-Indigenous communities were able to proceed with evacuation at their own discretion, the First Nations had to first check with federal authorities to see if they should also evacuate. The First Nations also experienced difficulties obtaining information concerning impending risk, necessary preparedness measures, and how to locate family members during evacuation due the confusion caused by having to navigate between multiple agencies with different jurisdictional accountabilities and responsibilities.(Epp et al., 1998).

Another factor that may influence evacuation experiences is the community's level of emergency preparedness. Emergency preparedness is defined as preimpact actions that provide the human and material resources required for supporting effective response during a hazard event (Lindell & Perry, 2000). As explained by Whittaker et al. (2012), preparedness measures aim to reduce vulnerability to a potential threat and to increase resilience. However, previous research has demonstrated that many First Nations communities may not be adequately prepared for emergencies, with many lacking up-to-date and/ or complete emergency plans (Office of the Auditor General of Canada, 2013). The lack of emergency response knowledge, training, and planning has been found to cause confusion and stress due to the sense of disorganization it causes (Epp et al., 1998; Scarbach, 2014). Epp et al. (1998) and Scarbach (2014) found that while the First Nations involved in their studies had emergency plans, the plans failed to outline who was responsible for specific duties required during evacuation.

Being adequately prepared is important because wildfire evacuations frequently occur with little warning and at any time of the day or night (Cohn et al., 2006; McCool et al., 2006; Paveglio et al., 2008; Taylor et al., 2005). This can place limits on the time available for warning and preparing at the last minute for evacuation. McCool et al. (2006) and Stidham (2011) found that the time between notification of an impending wildfire evacuation and the actual evacuation, significantly influences how a person copes with an evacuation. Likewise, in Christianson et al.'s (2015) study of Whitefish Lake First Nation 459 some research participants were given as little as 10 minutes to prepare for their wildfire evacuation which resulted in feelings of anxiety, stress, and uncertainty. Participants also did not have enough time to pack personal items and became dependent on donations made to evacuation centres and on financial aid provided by the band and the government.

Another factor that may influence the evacuation experience is the length of time spent in host communities. Previous research has found that wildfire evacuees can experience a disruption in their normal routines because periods of displacement can last anywhere from a few days, to several months depending on the damage incurred by the fire (Cohn et al., 2006; Hodgson, 2007; Tally et al., 2012). Likewise, travelling long distances to reach unfamiliar host communities may impact First Nations because they tend to have a strong attachment to their communities and environment (Wetherell & Kmet, 2000; Beckley, 2003; Spyce, 2009). Strong place attachment "can provide feelings of security, belonging and stability" (Hay, 1998, p. 25). Research has found that being removed from one's community can have the inverse effect, especially when evacuees are unable to communicate in their language and are evacuated to town or city that is culturally different (Epp et al., 1998; Newton, 1995; Scarbach, 2014).

Social support is one of the most highly studied coping resources (Thoits, 1995) and has been examined in many ways, including the number of social relationships one has, the structure of the support network, and the functional content of the support (House, Kahn, McLeod, & Williams, 1985). Richmond (2007) explains that social support operates at the individual and community level and is dependent on one's social integration. The social relationships one possesses can affect overall health and wellbeing due to the role that sociality plays in regulating human thoughts, feelings and behaviours. Richmond's (2007) study identified that the sources of social support in rural First Nations are both institutional and intimate. Institutional refers to support received from employees mandated to provide support at the community level while intimate support refers to support received from family members, friends, and fellow community members. During an evacuation, institutional support may become temporarily unavailable when employees are occupied with evacuation logistics or caring for their families. At such times, the role of family in providing social support can become especially important (Christianson et al., 2015). Conversely, being separated from social and family support may make coping with evacuation difficult (Epp et al., 1998; Scarbach, 2014).

Previous research has also identified the role of local leadership in community organizing during emergency evacuations (Christianson et al., 2015; Epp et al., 1998; Veland, Howitt, &

Dominey-howes, 2010). For example, in Epp et al.'s (1998) case study of Mathias Colomb Cree Nation's 1989 wildfire evacuation the community did not have an local emergency coordinator. Evacuees were subsequently grouped haphazardly into planes and military helicopters and dispersed among different host communities. The authors found that the lack of local oversight resulted in the separation of children from parents and was identified as a factor that negatively affected evacuees (Epp et al., 1998). In another case study, Epp et al. (1998) examined the experiences of Sioux Valley First Nation in Manitoba when the community was flooded and partially evacuated. They found that the local emergency coordinator was crucial for mobilizing local people to assist with sand bagging and evacuation efforts which gave community members a sense of purpose and accomplishment in helping fellow residents. The local emergency coordinator was also credited for using local resources and applying innovative ideas using local capacities that may have been overlooked by an external agency. Thus, Epp et al.'s (1998) research demonstrates that local leadership plays an important role in community organizing and can positively influence evacuation experiences.

Some hazards studies have found that disasters may have a therapeutic effect, creating community solidarity (Drabek and Key, 1984; Perry and Lindell, 1978; Western and Milne, 1979). For instance, research on wildfire events have identified an increase in community cohesion during evacuation (Carroll et al., 2005a, 2006; Cohn et al., 2006; Epp et al., 1998; Kent et al., 2003; Scarbach, 2014). Kent el al. (2003) examined the social impacts of the Hayman fire in the United States and found that community members pulled together during their evacuation and provided one another with support. Research participants recognized an increased sense of community and an awareness of the strength, consideration, and kindness of people (Kent et al., 2003). Conversely, some literature has also shown that conflicts within social systems invariably arise (Hoffman, 1999; E. L. Quarantelli & Dynes, 1976; Schneider, 1992). For instance, previous research has identified community conflict and blaming over disagreements between residents, fire management agencies, and organizations who provide support during wildfires (Carroll et al., 2005a, 2006; Kent et al., 2003). Flint and Luloff (2005) point out that the disturbance created by disasters such as wildfire can lead to conflicts when they reveal pre-existing local vulnerabilities such as deficiencies of infrastructure and interaction. Carroll et al. (2006) examined six wildfire events in the western United States and found that evacuation-based conflict was centred around

interactions between evacuees and external agencies, including the timing and amount of notice given to household and access to homes during the evacuation period.

This relates to another factor that may negatively influence evacuation experiences - the loss of control over decision making. In a study of three wildfire evacuations, Cohn et al. (2006) found that evacuees experienced a loss of control when they were prohibited from re-entering the evacuation zone to retrieve pets and possessions or check on their homes once an evacuation order had been called. The loss of control experienced during the evacuation resulted in a small number of research participants voicing reluctance to leave in the event of future wildfires because they wanted to have continued access to their homes after learning that, once they left, they could not come back without a sheriff's escort (Cohn et al., 2006). The loss of control over decision making regarding evacuation and re-entry may be a particularly significant factor in how First Nations experience evacuation. In Scarbach's (2014) study, one First Nation participant compared the lack of agency experienced during the evacuation to her time spent in a residential school when children were forced to leave their families and had no power to stay behind. The level of coercion used by authorities to compel evacuation and the subsequent loss of control experienced by evacuees may be an important factor in how community members experience evacuations.

Pre-existing vulnerability may also impact how individuals and communities experience wildfire evacuations. For instance, the evacuation of the elderly and those persons with special medical needs or disabilities may make coping during evacuation particularly difficult (Maiolo, 2001). Special medical needs may include conditions that require electricity, special medical equipment, home health care, or universally accessible vehicles, all of which are likely to be disrupted or unavailable during a wildfire evacuation. The elderly may also have negative experiences during evacuation. When the Old Fire in 2003 prompted the evacuation of communities in the San Bernardino Mountains, public transit buses were dispatched to transport elderly people off the mountain but were denied access leaving the people stranded (Taylor et al., 2005). During the same evacuation, the elderly experienced a sense of insecurity about possessions in the giant open evacuation center (Taylor et al., 2005). Other challenges experienced by vulnerable evacuees have been identified by Scarbach's (2014) study: for example, Indigenous participants such as Elders and single mothers faced challenges collecting social assistance and accessing basic provisions such as food, clean water, diapers, and laundry services.

The presence of pre-existing vulnerabilities may make the evacuation experience particularly difficult for First Nations by exacerbating already challenging life circumstances. A recent report from the Auditor General of Canada concluded that "the safety and well-being of First Nations communities on reserve are being adversely affected in significant ways because of their vulnerability to emergencies and to the cumulative effects of these emergency events" (2013, p. 2). In First Nations, the ongoing effects of colonialism have contributed to the economic, social and cultural marginalization of many communities (see section 3.2.1). When coupled with the inherently disordering and disruptive experience of emergency evacuations, this can be particularly disruptive for communities already coping with chronic vulnerabilities (Alfred, 2009; Coulthard, 2014; Furgal & Seguin, 2006; Scarbach, 2014).

3.6. **Chapter Summary**

This chapter provided the theoretical framework followed by a review of relevant literature for the study of the Dene Tha' First Nation wildfire evacuation. First, it introduced theory from the human dimensions of hazards, social constructivism and post-colonial theory that provided the theoretical foundation for this research. It also discussed important concepts including, vulnerability, resilience, adaptive capacity, and coping. It then positioned this study within the field of human dimensions of wildfire by briefly discussing previous areas of study within that body of literature. This provided the necessary context for presenting the literature on evacuations and factors that may influence evacuation experiences. The following chapter provides the methodology that guided this research.

Chapter 4. Methodology

4.1. Introduction

This research on the wildfire evacuation experiences of Dene Tha' First Nation presents the perspectives of community residents from Meander River and other individuals associated with Dene Tha' First Nation who were involved in carrying out the evacuation. Semi-structured interviews completed during fieldwork gathered qualitative data, which was analyzed to fulfill the research objectives: (1) To document and describe how a wildfire evacuation was carried out and how evacuees defined and framed their evacuation experiences; (2) to investigate factors that influence how First Nations and individual members are positively and negatively affected by wildfire evacuations and (3) to recommend ways in which the First Nation, other First Nations, and organizations who provide support during evacuations can work to improve wildfire evacuations. Supplementary sources of data included participatory observations during fieldwork and documentary evidence.

This chapter explains how this study was carried out. It begins by presenting the qualitative research approach. This is followed by data collections methods with explanations regarding how they were applied throughout the study. It also considers the ethical matters involved in this study, and ends by summarising efforts to ensure rigour in this research.

4.2. Research Approach

The research approach for this study is qualitative with the aim of understanding the multiple meanings attached to human experiences with the environment (Creswell, 2013; Winchester & Rofe, 2010). Qualitative methods are also the preferred method when working with Indigenous peoples and using a postcolonial theoretical approach because the researcher typically attempts to reduce power differences by democratizing the research process and by questioning the traditional researcher/researched dichotomy (Karnieli-Miller, Strier, & Pessach, 2009). Although the researcher is primarily responsible for data collection, qualitative inquiry takes a critical view of the hierarchical relations of power between researchers and participants by

focusing on the co-construction of knowledge and the inherently social nature of research (Karnieli-Miller et al., 2009). By doing so, qualitative methods demonstrate that the opinions, insights and understandings of participants are valued and respected (Longhurst, 2009). Qualitative methods also allow participants to use their own words to describe their understanding, meaning and experiences thereby providing a more in-depth and context-rich understanding of the topic of study (Kingsley, Phillips, Townsend, & Henderson-Wilson, 2010). Finally, qualitative researchers usually collect data in the place where participants experience the issue or problem under study (Creswell, 2013). It is possible to "gather up-close information by actually talking to people and seeing them behave and act within their context" (Creswell, 2013, p. 45). This contextual approach is especially important for this study due to the important links between First Nations people and their community and culture.

This study also used a Community Based Research (CBR) approach. This is appropriate for conducting research with First Nations using a postcolonial theoretical framework (see section 3.2). Special care must be used to select an appropriate research approach due to colonialism's legacy of unequal power relations between researchers and the researched (Cochran et al., 2008; Howitt & Stevens, 2010; L.T. Smith, 1999). In order to address inequality in research methodologies, there has been an increased interest and drive towards more collaborative, culturally sensitive, and emancipatory research that is locally guided and produces community-relevant materials (Cochran et al., 2008; Howitt & Stevens, 2010). CBR is an increasingly popular approach designed to meet these objectives and is defined as research that is carried out by, for or with the participant or community members (Markey, Halseth, & Manson, 2010). Although it is rooted in participatory action research (PAR) CBR is less prescriptive than PAR both in the nature of participation and empowerment (Markey et al., 2010). Accordingly, CBR is a well-suited approach for doing research with First Nations communities because many of these communities are experiencing processes of economic, social, and political change which can place significant pressure on local members of Chief and Council, band administrators and residents. Markey et al., (2010, p. 159) write that "CBR represents an appropriate form of research under these conditions given its flexibility and sensitivity to local dynamics". When applied and practised appropriately, CBR can provide direct benefits to the community such as strengthening local capacity, increasing

knowledge mobilization and producing community relevant information (Cochran et al., 2008; Markey et al., 2010).

Members of Dene Tha' First Nation participated in this study in several ways. Members of Chief and Council were consulted about the planned research design and fieldwork logistics during a dinner meeting in Edmonton in early 2014. At that time, the planned research methodology was explained and they were asked for feedback on how to change or improve the approach. Specific advice provided by Chief and Council on the planned methodology and fieldwork logistics included the dates, duration of stay, where to interview residents, and where I could stay during my fieldwork. It was suggested that I conduct my fieldwork at the same time as their annual assembly to take part in this important cultural event. Chief and Council also selected three local leaders to form a community advisory committee which could provide additional advice and assistance throughout the research project. The community advisory committee was kept informed about the research process via emails, were asked questions about fieldwork logistics and follow-up visits to the community, and were invited to participate in regular teleconferences held by the First Nations Wildfire Evacuation Partnership (which is described in further detail in section 4.2.1.). Two residents of Meander River were also hired as research assistants to help with data collection, analysis and results dissemination. The research was explained in detail to the research assistants and they were trained in interview techniques. They helped to recruit participants by phoning people at their homes and giving them rides to the interview location. They also participated in interviews by asking questions and contributing to the discussion. Finally, they were consulted following each interview to clarify any misunderstandings I had and to provide some background context about the community and culture. After my initial data analysis was completed, I went to Chateh to present initial findings at a regular meeting of Chief and Council. The intent of the presentation was to ensure the accuracy of the findings, to ask if anything should be added or omitted, and to seek permission to disseminate the initial findings publicly. I also met with one research assistant in Meander River who assisted with a community feedback presentation in which the research findings were discussed. At that time, they also provided me with any information I was missing and helped to clarify anything that was unclear. This study's CBR approach involved the community throughout the research process to ensure it was relevant

to members of Dene Tha' First Nation and provided local benefits such as temporary employment and research skills training.

This study also used a case study approach. According to Creswell (2013) a case study helps to explore an issue or problem using the case as a specific illustration. Therefore, case studies involve the investigation of a case within a real-life contemporary context (Yin, 2009). For this study, the case is the evacuation of Meander River, Dene Tha' First Nation. According to Hardwick (2009) a case study is most often conducted using a multiple methods of investigation to intensely analyse a particular place, group or specific issue. This case study used multiple sources of information to understand how the evacuation took place, how individuals experienced the evacuation and the contextual factors that influenced how individuals were positively or negatively affected. I used a combination of interviews, participatory observations, and documents to gather detailed, in-depth data about the case.

Case studies have been criticized for their lack of generalizability due to the context specific nature of the research (Hardwick, 2009). However, Willis (2007) suggests that researchers do not seek to find universal truths through case study research, but instead, an in-depth understanding of the context they are studying. This is important for this study because the context within which people experienced the wildfire evacuation is crucial for understanding the specific characteristics of the evacuation and the local conditions that influenced positive and negative outcomes. A context specific focus is also beneficial when using a CBR approach since one of the main goals is to produce research which is relevant to the community.

While the research should provide local benefits, it is nonetheless important to consider the utility of case studies more broadly. Flyvbjerg (2006) suggests that case studies produce the type of context-specific examples that allow people to progress from beginner to expert. He writes that "if people were exclusively trained in context-independent knowledge and rules, that is, the kind of knowledge that forms the basis of textbooks and computers, they would remain at the beginner's level in the learning process" (Flyvbjerg, 2006, p. 222). This is important for researchers and policy makers because case studies provide real-life examples that can help shift assumptions and serve as a benchmark for gauging the effectiveness of current programs, services, and other community development measures which may have been previously overlooked. Context-specific cases also

add to our knowledge about factors that should be considered when decisions regarding policies are made and help guide further study. For example, First Nations and the individuals in those communities are not homogenous and have varying levels of vulnerability and resilience. Differences in the resources available to community members; levels of community and individual preparedness; socio-economic status and levels of education may affect how residents experience evacuation. Other context-dependent factors emerge through the study of specific cases and help expand our knowledge and understanding of different realities and experiences.

Last, emergency management policies and practices are often created and implemented to maximize safety and efficiency and do not necessarily consider the different ways in which people experience their effects. Case studies illuminate the human experience and allow both researchers, the 'cases' they study, and other important stakeholders to gain valuable context specific insights into how a certain policy (for example) affects people. This research study seeks to accomplish this through an exploratory case study of one evacuation and the local context and factors that influenced how residents of Dene Tha' First Nation at Meander River were positively and negatively affected by their wildfire evacuation experiences.

4.3. The Research Process

This section details the steps taken to select a study community, establish a research relationship with Dene Tha' First Nation, and describes how fieldwork was carried out. It then describes the data collection and analysis methods.

4.3.1. Community Selection and Entry

Based on the principles of CBR, research should begin and end with the community and the relationship with the researcher should be well-established (Howitt & Stevens, 2010; Kindon, 2010; Le De, Gaillard, & Friesen, 2014; L. T. Smith, 1999). While this is ideal, it is frequently not the case. While this particular research study did not originate from within Dene Tha' First Nation, it was instigated as a result of the common experience of thousands of Indigenous Peoples in Canada who are evacuated each year due to wildfires (Beverly & Bothwell, 2011). Concerns over

the well-being of evacuees combined with the lack of research regarding the evacuation experiences of First Nations in Canada led to the creation of a multi-case study project called the First Nations Wildfire Evacuation Partnership (FNWEP). This partnership involves seven other First Nations in Alberta, Saskatchewan and Ontario along with federal and provincial agencies that provide support during evacuations (see Appendix D for a complete listing of agency partners). The aim of this partnership is to explore and understand the negative and positive wildfire evacuation experiences of First Nation individuals and communities to improve how evacuations are carried out. Consequently, First Nations that had been evacuated during a recent wildfire were identified as part of the process to obtain funding for this project. Dene Tha' First Nation was recommended by the Alberta Emergency Management Agency (a FNWEP partner agency) as a community with a recent wildfire evacuation experience. The band administrator for Dene Tha' First Nation was subsequently contacted to discuss the aims of the research and identify if they might be interested in participating. Following consultation with Chief and Council, Dene Tha' First Nation agreed to participate in the research. Funding was subsequently obtained through a Social Sciences and Humanities Research Council (SSHRC) Partnership Development Grant for the First Nations Wildfire Evacuation Partnership, including this study with Dene Tha' First Nation.

As detailed in my autobiographical statement (see preface), I specifically applied to work with the FNWEP when I applied to the Master's program at the University of Alberta. Once accepted to the Master's program, I was assigned to work with Dene Tha' First Nation by my supervisor. Beginning in September 2013, I contacted Chief and Council of Dene Tha' First Nation to arrange meetings to collaborate on the research design and process. However, the First Nation was in the midst of an election which underwent several appeal processes so I was unable to meet with the newly elected leadership until early in the following year (2014). In the meantime, I contacted and met with the Director of Emergency Management (DEM) for Dene Tha' First Nation in November 2013. At this meeting, I received a general overview of how the evacuation took place and began to form a relationship with this key contact. We also discussed the research design and approach and other potential key contacts.

4.3.2. Fieldwork

Fieldwork for this research took place during two visits to the community in June 2014 (three weeks) and in August 2014 (one week). In June 2014, I drove from Edmonton to High Level where I stayed in a motel owned by Dene Tha' First Nation since no housing was available in Meander River at that time. High Level was also a convenient place to stay because it was centrally located between the three Dene Tha' First Nation communities (see Figure 1, page 7). During my fieldwork, I typically drove from High Level to Meander River everyday where I visited the band office, elementary school, or community health centre to interview residents. I either had interviews set up in advance or I recruited participants throughout the day. No incentives were offered to participants but refreshments such as cookies, fruit, and juice were offered during the interviews. In between interviews I chatted informally with service workers and residents. On days when interviews were not taking place I visited the two other Dene Tha' communities, Chateh and Bushe River to interview key contacts who helped organize the evacuation. I also attended cultural events including activities for National Aboriginal Day, a residential school day of remembrance and the Dene Tha' First Nation Annual Assembly. During these events, I participated in activities such as playing games with local children, making traditional artwork, observing performances and traditional Dene hand games (a game with two teams in which players attempt to guess what member of the opposing team is concealing an object in their hands), and talking informally with other attendees. I also had several opportunities to explore the local area such as the Hay Lakes and the sites of the 2012 wildfires north of Meander River.

I approached my fieldwork with an open mind, acknowledging the possibility of encountering a variety of methodological and cross-cultural challenges. This was helpful because I did face a major challenge during my first stage of fieldwork (June 2014) when I learned that a local research assistant was no longer available upon arriving in the community. This was challenging for two main reasons. First, it did not sit well with me because I was using a CBR approach with postcolonial theoretical framework. Not having a research assistant felt like I was failing to engage the community in an appropriate manner as I had intended. I felt conflicted because I did not want to force participation but I also wanted to ensure, as a novice researcher that I was 'following the rules'. I made several attempts to find a replacement by asking members of the advisory committee for recommendations but was unsuccessful. The absence of a research

assistant during my June 2014 fieldwork also fueled my personal concerns regarding my ability to build trust and rapport with interview participants. Working on my own, as an outsider, I was not confident I could adequately recruit participants and build rapport with those I did recruit. After consulting with my supervisor, I decided to initiate participant recruitment by myself. I navigated this by asking for participant recommendations from service workers I met in the community and through snowball sampling (asking initial interview participants to recommend other potential participants). This was successful and I interviewed 17 participants. However, I decided to shorten my first fieldwork trip and return later in the summer once I had the opportunity to advertise and recruit two research assistants. This worked to my advantage because during the break between fieldtrips I reviewed my first interviews, identified initial themes, refined my interview guide, and further refined my purposeful sampling technique.

Another challenge I encountered was the low level of engagement of the community advisory committee in the research. I respected that members of the advisory committee were extremely busy with work and family commitments so I balanced including them in the research process, keeping in mind that they had other demands for their time. I did this by travelling to their place of work to conduct interviews and limiting my requests for assistance. I also engaged the assistance of local service workers and the research assistants to answer my questions. By doing this, I engaged more community members in the research than I had originally planned. Once I finished fieldwork, I continued to engage the advisory committee by sending occasional emails to update them on my progress and the status of the research.

A challenge that I anticipated before and during fieldwork was the risk of power imbalances and misunderstanding presented by cross-cultural fieldwork in a postcolonial context. This required a process of reflexivity in which I had to consider how my positionality and actions may be affecting the research (Howitt & Stevens, 2010). As previously mentioned, an autobiographical statement of my background and motivations is included in the preface of this thesis. In it, I explain my positionality. While in the field, I also regularly considered my role as a non-Indigenous researcher conducting research with a First Nation and how my biases, assumptions, and past experiences were influencing the process. Rather than navigating the complexities of undertaking cross-cultural fieldwork for the first time by myself, I sought the advice of an experienced researcher (my supervisor) by sending regular emails and having online

discussions over skype. I also kept a detailed journal while in the field and continued to maintain the journal while I was analysing the data. This provided me with a purposeful way of being reflexive while also seeking direct feedback from a more experienced researcher regarding the complexities inherent in doing cross-cultural fieldwork in a postcolonial context.

4.3.3. Community Research Assistants

As previously mentioned, an initial methodological challenge I faced during the first stage of fieldwork was the absence of a local research assistant to help with participant recruitment and data collection. Despite several attempts to find a different research assistant, nobody was found on such short notice. Given that I was already in High Level with arrangements to stay for at least three weeks, I made the decision in consultation with the community advisory committee and my supervisor to recruit participants and conduct interviews on my own. The details concerning these interviews are described in the section on semi-structured interviews.

Following this first fieldtrip, I returned to Edmonton in early July 2014 to begin the initial data analysis phase, to identify gaps in the data, and to narrow my sampling strategy. I also used this time to recruit two community research assistants. At the end of my first field visit, I placed posters around the community to advertise two research assistant positions. I also asked several contacts I had made if they could refer suitable individuals. This strategy resulted in the recruitment of two research assistants; Cameron Chalifoux and Tina Yakinneah. I subsequently returned to Meander River in August 2014 for an additional week of data collection. The research assistants helped to recruit additional participants, helped to conduct interviews, provided translation when necessary, and answered my questions about the community context. They also assisted with initial data analysis by providing context to some of the issues discussed in the interviews and by providing their insights into what had been discussed.

4.3.4. Semi-Structured Interviews

The primary data collection method was semi-structured interviews. This type of interview follows a set of questions and probes which are flexible in their order and wording so that

interviews typically unfold in a conversational manner (Longhurst, 2009). This type of interview was appropriate for this research because it allowed participants to express their opinions and viewpoints in their own words, and provided more flexibility in terms of question-order than would a more structured interviewing practice (Dunn, 2010). Semi-structured interviews also allowed for an investigation of complex behaviours and motivations and they enabled the collection of a diversity of meaning, opinion, and experiences pertaining to the evacuation (Dunn, 2010). Additionally, semi-structured interviews are an ideal method when conducting research with Indigenous peoples because they show respect for the individual being interviewed by allowing them to use their own words and examples (Dunn, 2010). For instance, each participant described the evacuation, the experiences which were important to them, and their opinions in their own words. Semi-structured interviews were also an appropriate method due to the story telling culture characteristic of Indigenous communities (Corntassel, Chaw-win-is, & T'lakwadzi, 2010).

Interview participants were selected using purposeful and snowball sampling (Bradshaw & Stratford, 2010). During the first stage of fieldwork (June 2014), I began recruitment by placing posters in various locations around the community. I also introduced myself to employees working at the band office, the health centre, and the local elementary school. Many of these service workers were helpful in referring potential participants. Interview participants also provided referrals to other potential participants when they were aware of friends and family who had different evacuation experiences. During this first stage of fieldwork I also interviewed key contacts who were involved in organizing the evacuation. They provided in-depth information on how the evacuation was carried out from their perspectives. When I returned to the community for one week in August 2014, the recruitment strategy was similar but this time I had the help of the two research assistants who were familiar with community members and assisted with recruiting participants who had different experiences during the evacuation. The research assistants called potential participants, explained the research and provided participants with transportation to and from the interview.

The interviews took place in the local community in locations convenient for participants. These locations included meeting rooms at the band office, the health centre, and the school, or in private offices. At the beginning of each interview, participants were supplied with a detailed information sheet and an informed consent form (see Appendices A & B). These forms outlined

the objectives of the study, a description about the research team, the use and secure storage of data, and the requirements from the study participants (Dowling, 2010). If they agreed to participate, the interview took place immediately. All interviews were audio recorded with the permission of participants.

In total, 27 interviews were conducted with 31 participants. Participants included men (10) and women (21) ranging from 20 – 73 years of age (see Table 1). I had originally planned for interviews to have only one participant and most did. However, six participants felt more comfortable to be interviewed with friends or family members present. This is an example of 'spontaneous recruitment' (Peek & Fothergill, 2009). Although interviews involving pairs or small groups are not the most common method for semi-structured interviews, they are still permissible (Longhurst, 2009), and were allowed in order to make participants feel as comfortable as possible. I also hoped that by having a small group discussion, different information would emerge due to the discussion between multiple participants. Several interviews also had children present though they did not participate in the interviews. The children were often under the care of their mother, father or a relative. I provided them with snacks, toys, and colouring activities while the interviews took place.

A semi-structured interview guide was prepared in advance (see Appendix C). Questions were prepared in collaboration with two other FNWEP researchers and my supervisor based on our knowledge of the existing literature on wildfire evacuations and what we knew about the wildfire evacuations from speaking with key contacts from the First Nations and from agency partners. The list of questions acted as a guide to ensure that I covered all relevant topics in each interview, rather than a 'script' to read from directly (Dunn, 2010). The interviews were carried out in a very informal and conversational style, allowing the participants to express themselves and reflect on their individual experiences using their own words. This interview style was aligned with my postcolonial approach and helped to develop rapport as it allowed for participants to share their stories in a relaxed way without formalities or rigid questioning.

The interview questions were also refined as the interviews progressed to explore new and emerging themes. This helped to develop rapport as it showed my familiarity with and interest in the topic. Using my postcolonial approach, I was conscious of other ways of developing rapport

and shortening the social distance between myself and participants to place participants at ease and reduce any possible power inequalities created by the cross-cultural research context (Howitt & Stevens, 2010). Allowing for participants to be interviewed in small groups or with children present were some of the methods I used to develop rapport and shorten social distance. Providing refreshments for participants and activities to entertain children were other methods. I also altered my clothing choices to be more informal and by using an informal speech style.

Table 1: Overview of Interview Participants

Participant	Gender	Age Group	Role/ Experience
1	Male	50-59	Fire fighter – not evacuated
2	Female	60 +	Evacuee
3	M	60+	Evacuee
4	F	60+	Evacuee
5	F	60+	Evacuee
6	F	30-39	Evacuee
7	F	40-49	Evacuee
8	F	40-49	Evacuee
9	F	40-49	Evacuee
10	F	40-49	Evacuee
11	M	20-29	Evacuee
12	F	40-49	Evacuee
13	F	40-49	Evacuee
14	F	40-49	Evacuee
15	F	40-49	Evacuee
16	F	30-39	Evacuation organizer
17	F	50-59	Evacuation organizer
18	M	40-49	Evacuation organizer
19	M	60+	Evacuee
20	F	50-59	Evacuee
21	M	50-59	Evacuee
22	F	30-39	Evacuee
23	M	40-49	Evacuee
24	F	40-49	Evacuee
25	F	50-59	Evacuee
26	M	60+	Evacuee
27	F	20-29	Evacuee
28	F	20-29	Evacuee
29	M	40-49	Evacuee
30	F	20-29	Evacuee
31	F	60+	Evacuee

Additionally, I drew on shared experiences and backgrounds to make participants feel at ease and to elicit deeper conversation. For instance, I shared personal details about myself such as having a child and having lived in a small northern community for part of my childhood. Scholars refer to the creation of a space that is a welcoming and nonthreatening environment as creating "a feeling of empathy for informants" which enables them to share their personal experiences and feelings more openly (Karnieli-Miller et al., 2009). I attempted to shorten the social distance between myself and the participants by creating an "unstructured, informal, anti-authoritative, and non-hierarchical atmosphere" (Karnieli-Miller et al., 2009, p. 280) I was not comfortable using a more structured interview method because I thought it would be too intrusive, rigid, formal and conflicted with my postcolonial approach to the study which rejects traditional and hierarchical research protocols (Howitt & Stevens, 2010).

Participants were recruited and interviews were conducted until theoretical saturation was achieved and no new themes, insights, or information was emerging from the interviews (Bradshaw & Stratford, 2010).

4.3.5. Analysis of Interview Data

Once I had returned from fieldwork, the interviews were professionally transcribed verbatim. I then personally checked each transcript for errors. This enabled me to become very familiar with the data. I then coded the transcribed interviews with the help of NVivo 10 software (QSR International, 2010) so that data could be more easily grouped and examined, and so that patterns of response could begin to emerge (Cope, 2010). First, the transcripts were coded for descriptive codes, which were themes that presented themselves as relevant during the literature review and during my early analysis that occurred between stages of fieldwork (Cope, 2010). Descriptive codes were also assigned to surface details such as *meals, accommodation, transportation*, etc. For example, descriptive codes helped to answer questions such as who, what, when, where, and how and were directly related to constructing the case study and satisfying my first thesis objective of exploring and documenting how the evacuation was carried out. The initial coding framework can be found in Appendix E.

Analytic codes were then applied to emergent thematic categories such as different experiences reported by participants during the various stages of the evacuation. These thematic categories included experiences such as *uncertainty, isolation,* and *receiving social support.* Each category included useful quotes that I could use later when writing this thesis. At this stage in the analysis (March 2015), I visited Dene Tha' First Nation where I presented my initial results to members of Chief and Council and to participants and community members during an open-house. In accordance with my postcolonial and CBR approach to this study, I wished to confirm that my interpretation of the events and experiences identified during this initial analysis was accurate and that I had not missed anything important. I received excellent feedback and was able to clear up a few 'grey areas' during these meetings.

After this initial analysis and community consultation, the complex coding structure was re-visited and relationships between categories were explored. This resulted in some highly-related codes being merged, others being re-grouped under broader 'parent codes,' and several being eliminated as they were not as significant as initially assumed. This re-evaluation of the initial coding was helpful in addressing my second objective which aimed to investigate factors that influence how First Nations and individual members are positively and negatively affected by wildfire evacuations. The final coding framework can be found in Appendix F.

My third thesis objective, to recommend methods for improving emergency management in the community, was addressed by identifying ways to mitigate the specific characteristics of the evacuation and local context which caused negative experiences. Recommendations for improving emergency management also came directly from participants and members of Chief and Council who provided many suggestions during interviews and following my presentation of initial findings.

4.3.6. Supplemental Sources of Data: Documentary Evidence & Participant Observations

I obtained background information for my research by reviewing media reports related to the Lutose Complex Fires, reading policy documents concerning emergency management procedures in Alberta, and listening to audio recordings of meetings which took place between my

supervisor and several agency partners for the First Nations Wildfire Evacuation Partnership. In these meetings, agency partners provided information on their experiences and descriptions of the wildfire evacuations which took place in Alberta in 2011 and 2012. These audio recordings were examined for specific details regarding the evacuation of Meander River such as issues that were identified which could subsequently be asked about during the interviews.

Participant observation also provided information about the local community context. Participant observation is a qualitative research method that involves the direct observation of participants' lives by the researcher who places themselves in situations in which more nuanced understandings of a place and its inhabitants are most likely to arise (Kearns, 2010). I achieved this by attending local events and gathering described in section 4.2.2, by passing time sitting in the lobby of the band office in Meander River drinking coffee with local community members, and by taking my lunch breaks with local service workers. These participatory interactions and informal conversations provided insights into Dene Tha' cultural traditions, historical issues and current social and economic conditions that I would have missed had I not spent time in the community attending events. I also had conversations with residents that lasted for several hours. These unrecorded conversations were profoundly informative but could not be directly quoted or referred to in this thesis due to the reluctance of individuals to sign consent forms or to be audio recorded. Respecting their reluctance to take part in this study – I have only used information gathered in those conversations to inform my understanding of the local context in which participants experienced the evacuation. Throughout the study, I acknowledged that these fieldwork experiences would affect the outcome of the research. A log book was kept throughout fieldwork to record these activities and my reflections.

4.4. **Dissemination of Research Results**

The results of this research were disseminated through presentations to the community, Chief and Council, and at academic conferences. The results were also disseminated to members of the First Nations Wildfire Evacuation Partnership through conference calls and newsletters posted on the research partnership website (http://www.eas.ualberta.ca/awe/). Consideration and actions were taken to ensure that the results were disseminated in a way that would be acceptable

to the community participants and Chief and Council including my visit to the community in April 2015 to seek feedback and permission before I shared the initial findings publicly.

In April 2015, I attended the International Association of Wildland Fire conference in Boise, Idaho where I delivered a presentation of the initial results from the research to an audience of wildfire social science researchers, managers, and graduate students. I also shared the initial findings from the research via a national teleconference held by the Canadian Inter-Agency Forest Fire Centre (CIFFC) called the National Conversation on Forest Fire Management.

Following a maternity leave I resumed work on my thesis and returned to the community in May 2017 to present results to Meander River residents during a supper event and presentation. This presentation was also broadcasted over the local radio station so that residents not in attendance could listen. A summary report (see Appendix H) was also prepared for and presented to Chief and Council during this visit. A photo booklet with interview participant quotes describing the evacuation were placed in the band office in Meander River for interested members to view (see Appendix I).

4.5. **Ethical Considerations**

This section details the ethical considerations and issues involved in carrying out this qualitative study and the approaches taken to deal with issues stemming from the "social nature of research" (Dowling, 2010, p. 27). While all research necessitates ethical codes, research which involves Indigenous peoples requires special attention due to the patriarchal and colonial legacy created by research conducted by non-Indigenous researchers (L. T. Smith, 1999). This legacy has not necessarily reflected Indigenous worldviews or interests and has resulted in mistrust and apprehension in regards to research originating outside Indigenous communities (Government of Canada, 2010; Howitt & Stevens, 2010; L. T. Smith, 1999).

For this study, I followed the First Nations Principles of Ownership, Control, Access and Possession (OCAP), which are a set of standards that establish how First Nations data should be collected, protected, used, or shared (First Nations Information Governance Centre, 2014).

According to the First Nations Information Governance Centre (2014), OCAP asserts that First Nations have control over data collection processes in their communities, and that they own and control how this information can be used. This is important for this study because OCAP is fundamentally tied to self-determination, an important element of postcolonial efforts to decolonize formerly colonized peoples such as First Nations. For this study, the ownership principle refers to the relationship of Dene Tha' First Nation to their data and information. This means that the First Nation collectively owns the data and information related to this study in the same way that an individual owns their personal information. The control principle asserts that Dene Tha' First Nation, their communities, and representative bodies are within their rights in seeking to control all aspects of this research and information management processes that may impact them from start to finish. I made this clear during the initial meeting with Chief and Council in early 2014 and reiterated this at the final presentation of this thesis in May 2017. The access principle affirms that Dene Tha' First Nation is entitled to have access to information and data about themselves and their communities related to this study regardless of where it is held. Lastly, the possession principle refers to the physical control of data and is the mechanism by which ownership can be asserted and protected. I provided Dene Tha' First Nation with this thesis and the interview data (with anonymity of participants protected) after the thesis was finalized.

I also thoroughly examined and applied the guidelines and prescriptive rules for ethical conduct stated in the Tri-Council Policy Statement 2 (TCPS2), and in particular, Chapter 9, which refers to research involving First Nations, Inuit and Métis Peoples of Canada (Government of Canada, 2014). The TCPS2 outlines three core ethical principles with specific interpretation given for research conducted in Indigenous contexts. The three principles are: 1) Respect for Persons, 2) Concern for Welfare, and 3) Justice. The application of these ethical principles to my research was explained in detail in the preceding sections; however, I will provide a summary of how these core principles have been applied throughout this study.

The first principle, *Respect for Persons* is expressed principally through the securing of free, informed, and ongoing consent of participants (Government of Canada, 2014). This principle

has been maintained throughout this study by providing participants with an information sheet (Appendix A) and an informed consent form (Appendix B) which outlined the objectives of the study, a description of the research team, the use and secure storage of data, and the requirements from the study participants (Dowling, 2010). Feedback concerning the interpretation of initial results was solicited from members of Chief and Council and community members during a visit to the community in April 2014. Final results were also presented to Chief and Council, participants, and community members in May 2017. To respect the governing authorities of Dene Tha' First Nation; engagement with members of Chief and Council and other important community stakeholders was ongoing throughout this community based research study and included presentations in which feedback on the accuracy of findings was sought and permission to disseminate findings to the public was requested.

The second core principle, *Concern for Welfare* requires consideration of participants and prospective participants in their physical, social, economic, and cultural environments, as well as concern for the community to which participants belong (Government of Canada, 2010). This principle has been maintained throughout the study by ensuring that the autonomy and privacy of participants is respected and kept confidential by exclusively storing data on password protected personal computers and by ensuring the confidentiality of participants in this thesis and in other publications. Qualitative research also has the potential to raise issues which may be upsetting or psychologically damaging (Dowling, 2010). Participants were warned during informed consent that reflecting on their evacuation experiences may be emotionally upsetting and stressful. On two separate occasions interview participants said that it was upsetting to talk about their experiences but they felt relieved to be sharing it. In both situations, I tried to comfort the participants and moved on from the topic that was upsetting to ease any stress they were feeling. Finally, while there is no guarantee that the recommendations stemming from this research will be implemented, I aimed to ensure that the objectives of the research were relevant to participants and their First Nation, with potential for contributing to improvements in individual and community welfare.

The last core principle, *Justice* entails acknowledging that research is a social phenomenon, subject to power imbalances between the researcher and participants (Government of Canada, 2014). In accordance with my postcolonial theoretical framework and CBR approach, I took steps to reduce power imbalances through informed consent and using strategies to shorten the social

distance between myself and participants. These strategies included employing local research assistants, conducting interviews in an informal and conversational manner. Simple gestures such as providing refreshments and activities for children while their parents or guardians were interviewed helped to foster the informal atmosphere. In addition, my engagement with the community advisory committee and local research assistants aimed to achieve mutual trust, respect, and understanding. Fostering relationships with the community involved in the research is an important aspect of the postcolonial approach because this makes it easier for them to voice their concerns and offer feedback about us and the research in an open and honest way (Howitt & Stevens, 2010) In addition, I was very forthcoming about what I hoped to accomplish with the research, the limitations of the study and myself as a novice researcher. I included community members, Chief and Council, and research assistants in the research process when I thought it appropriate yet balanced my requests for feedback and assistance by acknowledging that they had other commitments and demands for their time. Most importantly, I prioritized the building of respectful relationships and the needs and concerns of the people and community I had the privilege to work with.

4.6. **Rigour**

Postcolonial research allows for the context of the research, participants, and community to guide procedures to mitigate power imbalances that could occur if the research was wholly directed by the researcher's agenda (Howitt & Stevens, 2010). This requires flexibility in methods and procedures as opposed to rigidly designed research plans that are pre-determined before entering the field. Yet, as Baxter and Eyles (1997) note, "for research to be evaluated, there must be clarity of design and transparency in the derivation of findings" (p. 506). Accordingly, they detail four criteria first set out by Lincoln and Guba (1985) for ensuring qualitative rigour. They are: (1) credibility: authentic representations of reality; (2) transferability: fit within contexts outside the study situation; (3) dependability: minimization of idiosyncrasies in interpretation and variability tracked to identifiable sources; and (4) confirmability: extent to which biases, motivations, interests or perspectives of the inquirer influence interpretations (Baxter & Eyles, 1997, p. 512). For each criterion, Baxter and Eyles (1997) outline strategies which can be applied to meet the criteria. While I have attempted to demonstrate how these criteria have been met in the

sections above, I summarize the specific strategies which have been applied to ensure rigour as follows.

First, the sampling strategy for this study included purposeful sampling, a strategy which stresses the search for information rich cases (Baxter & Eyles, 1997). Interview participants included key informants and residents of Meander River who had experienced the evacuation. Participants were also selected through snowball sampling, by asking research assistants to recommend people who had unique experiences and by asking participants to recommend other community members who may have experienced the evacuation in a different way (Bradshaw & Stratford, 2010). This ensured that participants from various age and socio-economic groups in the community were represented which increased breadth and strength (Bradshaw & Stratford, 2010). I also interviewed participants who were disconfirming cases, or individuals who challenged my initial interpretations (Bradshaw & Stratford, 2010). For example, many of the participants I interviewed had negative evacuation experiences so I made sure to include participants who reported having few difficulties and described their evacuation experience as unremarkable. Purposeful sampling increases credibility in qualitative research because the selected participants are knowledgeable about the topic and represent a broad range of respondents from various groups in the community, including disconfirming cases which can challenge stereotypes and require us to ask additional questions of how various actors are represented (Baxter & Eyles, 1997).

Second, persistent observation was used to increase credibility by adding depth to research. Persistent observation involves focusing on information relevant to the research during data collection (Baxter & Eyles, 1997). Since understanding the community context was important to this research I attended community events and gatherings and asked questions of community members and my research assistants to better understand contextual and cultural factors that may have influenced evacuation experiences.

Third, an autobiographical statement has been provided (see preface, page iv). It includes a documentation of how I came to be interested in the research, why I chose to do it and for what purpose. It also includes my positionality - my philosophical and theoretical dispositions and my biases, motivations, and interests (Baxter & Eyles, 1997; Bradshaw & Stratford, 2010). I have also

attempted to include explanations regarding how my positionality may have influenced the research design, data collection and analysis throughout this thesis.

Fourth, I was mindful of how my positionality was influencing the research project and aimed to exercise reflexivity. For instance, I kept journals while doing my fieldwork and data analysis and sought advice from more experienced researchers. I also attended a workshop at the beginning of my master's program (in October 2013) on Indigenous methodologies given by a leading academic in the field, Linda Tuhiwai Smith (L. T. Smith, 1999). Attendance at this workshop resulted in deep reflection regarding my place in this project as a non-Indigenous researcher and influenced the inclusion of postcolonial theory in my theoretical framework

The fifth strategy to ensure rigour is through prolonged engagement. For this research, it involved spending sufficient time in the community in order to build rapport and relationships, to understand the culture and to investigate for possible misinformation (Baxter & Eyles, 1997, p. 514). I spent three and half years engaged with the community advisory committee members and visited four times during this time (for a total of four weeks). The time constraints presented by my personal circumstances limited how much time I could spend in the community. Knowing this, I made every effort to attend cultural events and community gatherings to observe and speak informally with community members. These informal activities helped to verify findings from the interviews and provided additional information that I would have missed out on had I not spent time at these events.

The sixth strategy to ensure rigour was through triangulation. This involved using multiple sources, methods, investigators or theories in order to confirm findings and increase credibility (Baxter & Eyles, 1997; Denzin & Lincoln, 2011). Source triangulation was achieved by using more than one quotation from different participants to support my interpretations. Investigator triangulation can be achieved by having multiple investigators studying the same phenomenon and comparing results. This was satisfied through my relationships with my research group which included research members of the First Nations Wildfire Evacuation Partnership who were simultaneously investigating the wildfire evacuation experiences of other First Nations in Canada. Regular meetings ensured that we discussed and compared findings. I also met bi-weekly with my supervisor (the Primary Investigator for the FNWEP) and discussed my results and interpretations

throughout my research. I also discussed my research annually with my supervisory committee, which consisted of my supervisor and two experienced researchers.

The seventh strategy to ensure rigour was through member checking. This involved verifying the adequacy and credibility of interpretations and findings with group members from whom the data was collected (Baxter & Eyles, 1997; Bradshaw & Stratford, 2010). This was satisfied by discussing early findings with key contacts and research assistants, and through two visits to the community to seek feedback from participants and members of Chief and Council. In April 2015, I returned to the community where I presented my initial findings to members of Chief and Council during a regular council meeting and during a one-day open house in Meander River. Valuable feedback from Chief and Council and from interview participants and one research assistant was received during these meetings. When I had completed my data analysis and written the final draft of my thesis, I returned to the community to presented findings to Chief and Council and held a community supper in Meander River to report the research findings. This presentation was also broadcasted over the local radio station for community members who were unable to attend in person.

The final strategy to ensure rigour was an inquiry audit. Baxter and Eyles (1997) explain that the inquiry audit is a process in which an auditor is consistently updated and supervises the research process from beginning to end to ensure that appropriate decisions are made and to increase the dependability of the study. Accordingly, the auditor should be an individual who is well-informed in qualitative methods and the topic area and can provide guidance on research decisions. The auditor role can be satisfied by the supervisor in a graduate student-professor relationship (Baxter & Eyles, 1997), as was the case in this research.

4.7. **Chapter Summary**

This chapter has presented the methodology for this study. First, the interpretive framework for this research was discussed followed by the methodological approach. The process for conducting the research was then described including how the community was selected; how fieldwork proceeded; the selection of community research assistants; the use of semi-structured

interviews and their analysis; and how supplementary data was used to enhance the context and credibility of this case study. The dissemination of this research was explained followed by the ethical considerations involved in carrying out this research with a First Nation. Last, a detailed summary of the methods and strategies applied to ensure rigour were identified and described. Throughout this chapter, the strengths and weaknesses of the approaches and methods used were presented along with the justification for using them for this study. The following chapter presents the findings of this research.

Chapter 5. Results and Discussion

5.1. Introduction

This chapter describes the 2012 wildfire evacuation of Meander River, Dene Tha' First Nation and interview participants' experiences before, during, and after the evacuation. This is followed by a presentation and discussion of the factors that emerged as significant to interview participant's evacuation experiences.

5.2. The Evacuation of Meander River

Unusually hot and dry conditions led to the start of many wildfires in northern Alberta during the months of June and July 2012. Many fires were ignited by a thunder and lightning storm that occurred on June 21, 2012. Two wildfires referred to as Fire HWF 120 and Fire HWF 106 by Alberta Agriculture and Forestry (AAF) were causing concern for local authorities due to their rapid spread in Mackenzie County and proximity to the hamlet of Zama City (see Figure 2, a map of forest fire history near Den Tha' First Nation). Fire HWF 120 was declared out of control at 1,000 hectares on July 9th, 2012. It was located approximately 30km north of Meander River and crossed Highway 35 (the main highway leading from Alberta to the Northwest Territories) and resulted in road closures for several days. Meanwhile, Fire HWF 106 was 12,000 hectares and was located 27 km northwest of Zama City. Several smaller fires were in the same vicinity as the two main fires and grew over the following days. Due the numerous fires in one area, they were later grouped together and referred to as the Lutose Complex Fires.

On July 10th, 2012, Fire HWF 106 grew to approximately 12,200 hectares with fire detected less than 10 km from the hamlet of Zama City. Mackenzie County declared a local state of emergency and placed Zama City residents on a 2-hour evacuation notice. Shortly thereafter, strong northwestern winds began to blow towards Zama City, increasing the risk for residents. A mandatory evacuation order was then issued for Zama City with all residents directed to an evacuation reception centre in High Level.

Interview participants in Meander River said they were aware that wildfires were burning near Zama City and causing periodic road closures just north of Meander River. However, Meander River was not placed on evacuation alert like Zama City. Participant 6 recalled seeing a notice in the health centre operated by Health Canada and the North Peach Tribal Council, "*that there was smoke nearby and that if anybody that's chronically ill or whatever to be aware that there's smoke* [but] *that was only thing we had, and other than evacuation I didn't hear nothing*". Similarly, the rest of the interview participants including did not recall receiving any official information about the wildfire status or being told to prepare for a possible evacuation.

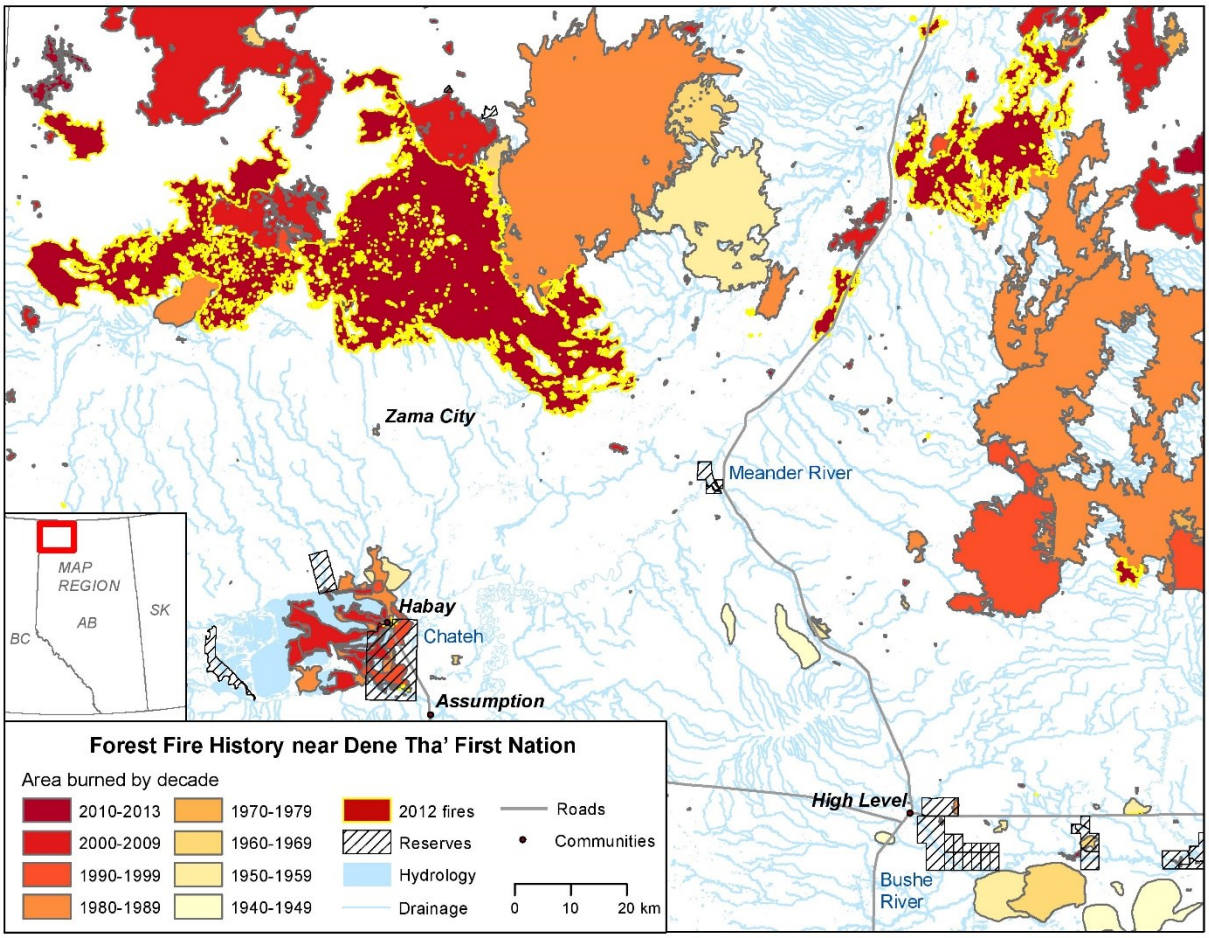

Figure 2: Forest fire history near Dene Tha' First Nation. Source: Canadian Forest Service

On the morning of July 10th, 2012, the DEM for Dene Tha' First Nation visited Meander River and observed that the air conditions were relatively normal and proceeded to return to Chateh since no action was required at that time. However, in the afternoon, the strong

northwesterly winds that prompted the evacuation of Zama City began blowing heavy smoke and ash towards Meander River. Within an hour, the air conditions deteriorated to the point that breathing and visibility were difficult. Even though an evacuation warning had not been issued for Meander River, a few participants recalled leaving the community early due to the smoke. For example, Participant 5, recalled leaving when the air quality began to deteriorate, *"my daughter phoned me from Bushe River and she said Mom you better get over here, 'cause I'm asthmatic. She said get out of that smoke. So, I just pack a few things and I went".* Similarly, Participant 7 recalled leaving when their daughter grew concerned about their breathing, "*Well when I left here, I left here even before the evacuation started because my daughter said […] you need to get out of here because you're not breathing right, you could hear the wheezing".* Meanwhile, Meander River's volunteer fire chief observed the wildfire smoke and deteriorating air quality. They called the DEM to return immediately to Meander River. After driving 100 km from their home in Chateh to Meander River, the DEM for Dene Tha' First Nation observed the severity of the air conditions. This assessment was based entirely on personal observations and not by using air quality monitors. Air quality monitors were made available to the community by Health Canada once the community had been evacuated. Shortly the DEM made these observations, they began the first ever community-wide evacuation of Meander River band members. The evacuation began at approximately 9:00 pm and continued until the following morning.

The DEM was familiar with and in possession of a generic emergency plan provided by the AEMA for First Nations which they followed during the Meander River Evacuation. They noted at the time of the evacuation that the plan had not been formally tailored to Dene Tha' First Nation or each of the three reserves. However, their personal knowledge and familiarity with the communities was used in conjunction with the generic emergency plan to make decisions during the evacuation. Initially, the evacuation of Meander River was voluntary; intended for vulnerable residents including small children, infants, pregnant women, people with chronic respiratory problems, and Elders. However, most of the approximately 500 Meander River residents chose to evacuate during the voluntary evacuation. This was due in part to the composition of most households in Meander River: healthy family members chose to accompany residents for whom the voluntary evacuation applied. In addition, since most people learned about the evacuation via

word-of-mouth, the detail about the voluntary nature of the evacuation was lost in communication resulting in most people choosing to evacuate as soon as they learned about it. For example, Participant 30 recalled learning about the evacuation from a text message, "*I was at my sister's and then I got a text and then I went to see my boyfriend and […] he's like pack up all your stuff and we have to go like right away".* Most interview participants were told they had 10-15 minutes to pack a bag and leave. Many interview participants said this made them feel rushed and unprepared especially because it was late at night and nobody was expecting to be evacuated. For instance, Participant 13 said they were preparing for bed when they were told to pack a bag and evacuate:

> *"We were puttin' the kids to sleep and everybody had pajamas on. And then somebody bang on my door really hard, and I was wondering what's goin' on? So, I opened the door and they said you got 15 minutes to get everything you need and to meet us at the Band office for evacuation".*

Similarly, Participant 21 said that the last-minute nature of the evacuation combined with a lack of information about the situation caused worry and stress:

> *"But we really didn't get that much information, what was really goin' on, you know. The main thing was people were worried about their houses and all that because it was such short notice that where people had to run around. And they said the fire was just right there. So, a lot of people were worried, that's all".*

Residents with vehicles left on their own while some residents received a ride from family or friends. Otherwise, residents without transportation were told by either the DEM, the volunteer fire chief, family members, or community residents who volunteered to warn neighbours to gather at the band complex and wait for a charter bus organized by the band to transport them to High Level. The bus had to make two trips to transport all the evacuees.

Although most residents left as soon as they heard about the evacuation, some chose to stay behind. Several hours after the voluntary evacuation began, the air quality visibly deteriorated even more. At this stage, the band Chief had arrived in Meander River. Together, with the DEM, they decided to declare a local state of emergency. This was followed by a mandatory evacuation

order for the remaining residents of Meander River. A few interview participants who did not leave during the voluntary evacuation said they were reluctant to evacuate until they were threatened with arrest from the RCMP. Participant 19 recalled his experience:

> "*I was wondering what the hell's happening and then the cops came there,* [saying] *you have to be evacuated. If you don't go through town then we might have to arrest you. I tell them I'm worried about my house but he said no, don't worry about anything 'cause you have to. Everybody's gone he said from Meander"*.

Several other interview participants recalled not wanting to evacuate because they either wanted to personally protect their homes if the wildfire advanced toward the community or they did not think the wildfire smoke threat warranted their evacuation. Although almost everyone in the community was required to evacuate, two residents were permitted to stay on the reserve throughout the evacuation. One was a band employee who looked after infrastructure; the other was the volunteer fire chief. Both patrolled the community in case blowing ash or embers ignited a fire, provided security, and fed animals that were left behind. They also provided updates to evacuees through the local radio station, text messages, and social media.

The host communities included High Level and one of the other Dene Tha' First Nation communities, Bushe River. A reception centre for Meander River evacuees was set up at the band complex in Bushe River and operated by local band employees. Due to the simultaneous evacuation of Zama City, Mackenzie County had also set up a reception centre at a school gym in High Level. The existence of the two evacuation centres caused confusion. Most Meander River evacuees including bus passengers went to the High Level reception centre set up for Zama City evacuees instead of the reception centre in Bushe River. Interview participants who self- evacuated recalled being confused about where to go once they arrived in High Level and being directed to the incorrect reception centre. For example, Participants 25 stated:

> "*And then I was all over the place. Like we had no information where we were supposed to go, who was a contact person. We went through town council and they directed us to the place where there was agencies and then I was all over the place. It was just completely out of it"*.

Bus passengers were also mistakenly dropped off at the High Level reception centre and could not make their way to Bushe River once the bus had left. Also, adding to the confusion, the High Level evacuation organizers were initially unaware that Meander River was also evacuating until evacuees began checking in. Once Meander River evacuees began arriving at the High Level reception centre, they experienced delays because High Level evacuation organizers needed to coordinate with the First Nation to ensure that band members and expenses would be tracked separately for the First Nation's reimbursement process. As a result, Meander River evacuees experienced long delays before they were assigned accommodation. Participant 22 recalled the difficult experience they had spending the first night sleeping on the gym floor of the High Level reception centre,

> "*I slept on the floor in the gym with my kids and there was some elders that were there and there was other families. I kept asking if they had blankets or anything and there was nothing. So, I used my kids' jacket to cover them and tried to make them comfortable as much as I can. They couldn't go to sleep".*

Most evacuees were assigned to motels in High Level by the following day. Some evacuees stayed with friends and family who lived in the host communities. When motels were filled, young single people were provided with tents in Bushe River which interview participants nicknamed 'Tent City'. Some evacuees also decided to leave the area and go camping instead of staying in the host communities.

Two interview participants reported being temporarily separated from their children. This happened in two ways. First, children who were being cared for by relatives when the evacuation occurred ended up staying with the relatives because the parents did not get a motel room themselves. In this incident, the interview participant claimed they had to sleep in their car while their child stayed with extended family because the only accommodation option available was to sleep in a tent in Bushe River which they opposed. Second, one participant reported that their teenaged children were assigned to a different motel than their parents. However, it appears that widespread separation of families did not occur and most were kept together.

Crowded motel rooms were a problem with many interview participants reporting that they had to sleep on the floor because spare cots were not available. For example, Participant 22 recalled the crowded conditions in their motel room, *"The room where we stayed we had to crowd in, there was two beds. There was […] six of us. […] There was no cot or nothing"*. Another accommodation related concern occurred a few days after the evacuation when several participants were told their motel rooms were no longer available. Motel staff and evacuation organizers informed them that they would have to find alternate accommodation because the rooms had been previously reserved by government employees. This was an inconvenience for the evacuees but they found rooms at a motel across the street.

Most participants spoke about problems that occurred during the evacuation due to alcohol use in motel rooms by a small group of evacuees, mostly young people. For example, Participant 6 recalled the situation and how this group's behaviour made the community look bad:

> *"They would get kicked out if they were caught drinking or partying in a room. I heard a couple of instances that it happened. […] It was kind of bothersome 'cause we come from the same community and it's kind of making everybody else look bad. That was the only thing that bothered me"*.

Following some reported loud behaviour and disturbances, Dene Tha' First Nation evacuation organizers enforced a zero-tolerance policy for disruptive behaviour which, if violated, would result in eviction from the motel. These evacuees were then given the option of sleeping in the school gym or in the tents set up in Bushe River. Two participants also experienced being removed from their motels due to drinking by their family members.

Problems related to pre-existing health conditions were also reported by interview participants. Several participants who had forgotten medications during the evacuation had to wait at the hospital when they arrived in High Level to get their prescriptions re-filled. This was time consuming and was especially difficult for elderly residents and their family caretakers who were already tired and inconvenienced by the evacuation. Many interview participants also experienced difficulties breathing due to their exposure to the smoke before leaving Meander River and the smoky conditions in High Level. Most participants like Participant 13 stayed inside their motel

rooms to avoid the smoke, "*Yeah, we all stayed together in one room but I had to keep my grandson in the room most of the time because of the smoke. […] there was smoke all over the place so we mostly stayed in the room and watched TV with him, occupied him".* Participants also recalled that most of the motel rooms were hot since they did not have air conditioning and the smoky conditions outside inhibited the opening of windows. The band provided bottled water to evacuees but many interview participants recalled being hot and having difficulties breathing due to the wildfire smoke in High Level. A few interview participants said they had severe reactions to the smoke and spent time in the hospital on Ventolin.

Most evacuees ate meals at the evacuation reception centre set up at the band complex in Bushe River. Others were given vouchers to eat meals if their motel had an on-site restaurant. However, no money was provided to evacuees to purchase other food or incidentals so interview participants said they had to spend their own money. A few interview participants who stayed in family homes or had family nearby said they had bar-b-ques and trying to make the most of the time together. Aside from meals, most participants said they passed time by taking children swimming at motels that provided free passes. Others said they occupied their time by trying to keep informed about the evacuation and by visiting with other evacuees. This eased the stress of the evacuation. Daily wildfire status meetings were held in High Level and were attended by the DEM and other members of the band's leadership. This information was subsequently passed on to evacuees during meals in Bushe River, over the band's radio station, and when volunteers periodically visited motel rooms. However, most interview participants said they spent most of their time in their motel rooms and watched TV to avoid breathing the wildfire smoke outside and because they did not know what else to do. Many participants said that being removed from their daily routines was difficult and some had problems coping with the uncertainty caused by the evacuation. Participant 25 recalled the difficult experience they had during the evacuation when they were removed from their routine:

> *"All I did was I stayed there, I just felt frustrated, confused, and lost. […] So overall that, I forget how many days we were in High Level and all I did was I just laid around and I slept. I was depressed […] I was just too depressed […] to go out there and socialize. So, I kind of just isolated myself […] I just didn't want to have anything to do with it".*

Some interview participants said that being with family in their rooms helped the stress and uncertainty caused by the evacuation but that overall, it was not an experience they cared to repeat.

Five days after the evacuation, the band allowed some evacuees to access their homes in Meander River for 45 minutes to pick up personal belongings and check on pets. Since the RCMP blocked the roads into the community, residents had to seek permission at the Bushe River evacuation reception centre. Bus transportation was arranged by the band for residents who wanted to return to their homes in Meander River but did not have a personal vehicle.

The evacuation ended after seven days, on July 17th, when air monitoring machines set up by Health Canada in Meander River indicated that the air quality was safe for residents to return home. Residents learned that the evacuation had ended through a variety of channels including notices sent around to motel rooms, visits to their motels from organizers, word-of-mouth from family, and announcements during meals in Bushe River. Bus transportation was also provided to residents without vehicles to return to Meander River. Prior to returning home, most interview participants reported being put on a list at the local grocery store to receive a purchase order valued at $40 (per person) to replace food lost due to spoil during the evacuation. Electricity was not lost during the evacuation so food loss was minimal. Interview participants who had personal vehicles were also able to obtain a $40 purchase order to replace gas used during the evacuation. However, not all interview participants were aware of this financial compensation and therefore missed out. Once at home, most interview participants said they were relieved the ordeal was over. Although it was an inconvenience, most participants said that the evacuation was worthwhile to protect the health and safety of community members. Participants who helped organize the evacuation recalled being exhausted after everything was finished, having worked as much as 20 hours a day for the duration of the evacuation. These participants said they took their vacation time after the evacuation to recover from the ordeal.

Organizers and band administrators also worked many hours to complete the necessary paperwork and to provide documentation to be reimbursed through the government disaster recovery program. They described the process as complex, requiring many work hours that would have otherwise been devoted to their existing duties. Participant 17 said the difficulties with the process are due, in part, to frequent changes to the application process: "*The process is really slow*

and then every year they keep changing the way we have to do the paperwork and then we have to make the changes". Initially, the band was responsible for the cost of the evacuation, and they then applied to the provincial government for reimbursement. Participant 17 noted that it took more than a year to be reimbursed and in the meantime, funds had to come out of the band's administrative budget:

> *"[…] the funding, it takes more than a year to get. What we did with Meander was when we did our evacuation we finally, I think it took almost a year and a half to get our money back because we used the administration, the funds. And then when we get our money back the money goes back to administration*".

At the time of this study, federal and provincial disaster funding did not cover the entirety of evacuation related expenses. A total of $160,762.72 was not reimbursed by disaster funding. The band had to cover these expenses using their administrative budget.

Following the evacuation, there was not a community meeting regarding the evacuation in which residents could discuss their experiences or provide feedback to leadership. Participant 5 expressed frustration that nothing had to been done to improve upon emergency management procedures in Meander River:

> *"And then we never got any report of how it went, how they moved people and all that, so how would I know? [*how it affected community members*] They need to have a report done after everything's done, so this is how we moved people, this is what we did".*

In addition, most participants said that they did not share their experiences with anyone outside their immediate family until the interview for this research. For some participants, such as Participant 25, sharing their experiences about the evacuation was difficult: *"Well to be honest, I don't feel good right now having to go back and over what I experienced. It's just like that happened a couple days ago".* Other interview participants also had difficulties going over their evacuation experiences, stating that they were still struggling with the stress they experienced during the evacuation and were challenged with the lack of resources available to help them cope. For example, Participant 22 shared their experience after the evacuation:

"Yeah I still have effects. I feel still stressed. I never dealt with any of it […] and there was no counsel or nothing put in place for people that would have been affected, and how it affected them and how stressful it was, and like it's just they took people and then had them go through all this stress and everything and don't even provide no counsel or nothing to help with things like that, like how it affected people. There was nothing. I don't know how they run everything".

Some participants reported that certain sights and smells triggered their memories of the 2012 evacuation and made them worry about their ability to cope with a similar situation. For example, Participant 6 reported that seeing helicopters fly over the community made them worry about being evacuated again:

"It was quite the experience but I promised myself I will not go through that again. We saw helicopters the other day and we're like oh no, we're gonna get evacuated again. Everybody's like oh no and we all start talking about it again".

Similarly, Participant 22 said that seeing and smelling wildfire smoke made them experience worry and stress:

"Last week was so smoky, I got scared. I did not want to have to leave again and go through all that […] I was panicking and I said like I want all the windows closed and I don't want the kids to go outside. I don't want nobody to go in and out of here, like what if it gets smoky in here. And I said maybe I'll have to go to the hospital and stay there and let them know that I'm there or home because I was scared".

In contrast to this small group who reported that they continued to struggle with the evacuation two years afterwards, most interview participants said that, for them, the evacuation was an inconvenience but it did not significantly affect them over the long term. Importantly, these participants pointed out that while they did not personally experience any difficulties, they were still concerned about the well-being of other community members such as Elders, children, and members with chronic health conditions. Several participants said they would not evacuate in the future under the same conditions because they did not think the evacuation was warranted for all

residents. For example, Participant 15 who had a particularly negative experience during the evacuation because she didn't receive a motel room reported:

> *"I would stay back. […] First of all, you tell me how far the fire is 'cause I don't have any health problems. I don't have allergies or any, well I do have allergies but it's controllable. If it's like 200 kilometers or whatever away, I'm gonna stay home, don't tell me to move".*

In addition to suggestions regarding who should evacuate and under what circumstances, interview participants provided many recommendations for improving emergency management in Meander River. For example, some participants wanted to see more wildfire mitigation take place around the community such as creating a firebreak. In the event of a future nearby wildfire, some participants wanted more notice to prepare for evacuation. For example, Participant 26 recommended having notices placed around the community:

> *"Well, yeah, there should be notices up in the office or some place where people can see and read them, just to be aware of emergency or another evacuation or something. […] they should notify people earlier, they should know that the fire is coming up close to Meander, they could have evacuated people 2 or 3 days earlier".*

Other participants wanted improved warning communication procedures. Participant 20, for example, suggested the community radio station should have been used more during the warning stage:

> *"I think they need to have immediate communication with the community. The local radio station is well used during band elections but for other purposes it's not. They need to have immediate communication with the community, let people know, don't panic now but be prepared".*

Other recommendations were made in regards to communicating the evacuation notice to residents given the local context. Participant 19, acknowledged that many people in the community do not have telephones: *"But a lot of people too, they don't have phones. I just know a few numbers around here".* He said this poses a challenge after hours because there is no public telephone for members to access if they have an emergency: "a*nd the band office too, there's no emergency after*

*hours, it's locked up and you gotta find out for yourself what's going on". P*articipant 20 suggested the community adopt a system in which certain residents are designated as leaders who are responsible for notifying the geographic area around their house:

> *"Yeah, like, what do you call it? Those fans, you put somebody reliable, the people that came in and woke me up, I should have known they weren't reliable but they weren't working for the band. […] Like put you in charge for this little area here or put somebody else for that little area and just make sure that you let people know".*

Other recommendation made during interviews included: improving decision-making by having air quality monitors available in the community; and reducing difficulties on band members with mobility constraints by having universally accessible vehicles available in Meander River. In addition, some participants who were employees of the band, the school or the health centre wanted to be involved in the planning process and assigned roles to improve response and recovery for the members they served.

5.3. Factors that Positively and Negatively Influenced Evacuation Experiences

Analysis of the transcripts consisted of looking for key themes that arose from what respondents revealed about their evacuation experiences. Seven themes were identified:

1.) Wildfire information

2.) Community emergency preparedness

3.) Compromised sense of moral order

4.) Local leadership

5.) Social support

6.) Familiar host communities

7.) Wildfire smoke

In the following sections, each factor is discussed in relation to interview participant's evacuation experiences and situated in the context of previous relevant research.

5.3.1. Wildfire Information

A lack of wildfire information was the first theme that emerged as significant to participants' evacuation experiences. Specifically, information regarding the wildfire's location and the direction of the smoke in relation to Meander River was not communicated to the DEM or to residents in Meander River which resulted in several consequences described below. Taylor et al. ((2005) explain the importance of wildfire information at the beginning of a fire event, noting that the main information needs identified by the public are real-time and place-sensitive and encompass information such as the exact location of the fire, the extent of the fire, the direction it is burning, the risk to homes and communities, and the possibility of evacuation.

Communication of real-time and place-sensitive information to the First Nation did not occur for several reasons. First, as a First Nation, Dene Tha' First Nation is under federal jurisdiction which means they are responsible for declaring their own state of emergency (see section 2.4). When a state of emergency was declared by Mackenzie County for Zama City residents, this did not apply to the First Nation so they were not included in communications regarding Mackenzie County's state of emergency or evacuation. AAF also provides wildfire status updates for the High Level Wildfire Management Area (the Upper Hay Area) but according to interview participants, the band complex was closed when the smoke began to pose a threat and nobody was present to receive any information. Also, wildfire proximity was not considered a risk for Dene Tha' First Nation communities. The Lutose Complex Fires were considered a far greater threat to the non-Indigenous community of Zama City since Fire HWF 106 was closing in on the small hamlet. Thus, with the wildfires not yet considered a threat to Dene Tha' First Nation by the AAF and being outside the jurisdiction of Mackenzie county, Dene Tha' First Nation received no official communication regarding the emerging wildfire threat. This finding is consistent with previous studies which have identified problems inadequate access to wildfire information and poor communication across agencies and between jurisdictions as negatively affecting First Nations during wildfire and flood evacuations (Epp et al., 1998; Goodchild, 2003; Larose, 2009;

Scarbach, 2014). Specifically, when a regional municipality or provincial county declares a state of emergency, this does not apply to First Nations and their reserve lands, which are under federal government jurisdiction. As a result, there appears to be a lack of clarity regarding appropriate communication during a regional hazard event.

Wildfire information in relation to Meander River was also not available through media such as local radio stations, online newspapers, or through major news networks at the provincial or federal level. Media was actively covering the Lutose Complex fires but their focus during the days leading up to the evacuation was Zama City. Mentions of Meander River were included in media reports three days after its evacuation. A couple of interview participants said they saw news coverage on July 9th and 10th, 2012 about the wildfires near Zama City but since no information was provided about Meander River, they were confused about what they should do. Participant 23 said their son mistakenly thought the news said that Meander River was being evacuated so they left the day before the evacuation actually began: *"my son banged on the door he says mom there's a news that came on that everybody has to evacuate from here"*. They ended up paying for a hotel room for one night only to return the following evening and learn that, this time, the community was actually evacuating. The initial lack of media coverage on the wildfires in relation to the First Nation is similar to findings from previous studies of evacuations involving Indigenous communities. For example, Goodchild (2003) and Christianson et al. (2015) also found that the media failed to include the First Nations in their reporting. Instead, the media focused their coverage on the more populated non-Indigenous communities affected by the respective disasters.

As the smoke began blowing into the community in the late afternoon of July 10th, 2012, the community had not yet been placed on evacuation alert (see figure 3 below for image of the smoke).

Figure 3: Smoke blowing towards Meander River. Photo credit: Sidney Chambuad

Some participants recalled becoming increasingly concerned and feeling uncertain about whether the wildfire was a threat to the community since they could not tell where the wildfire was in relation to Meander River. Participant 22 reported trying to contact someone in the band's administration who could provide information about the wildfire and if they should leave town.

> *"I phoned around and tried to find out if they had emergency plans […] There was thick smoke. There was ashes falling […] And I (tried) […] to see if they can tell me something if there was emergency plans. There was nobody available. I got a hold of (a band employee) [….] and asked if they had anything planned for, like if they had anything for emergency evacuations or anything set up for any of sort of emergency and there was nothing. And I told […] about the smoke, how thick it was and how there was ashes falling. [They] did not know that there was thick smoke and there was ashes falling. I told [them] I'm gonna get a hold of the forestry* (AAF*). I got a hold of them and I told them there's*

ashes falling, there's thick smoke. They said there was fire close to Meander and close to Zama, enough that there was ashes falling all over".

This resident was especially concerned because they had asthma and several young children in their care. Also, they did not have a personal vehicle (like many Meander River residents) so they could not leave town easily.

The lack of wildfire information had several consequences that influenced evacuation experiences. First, it resulted in the DEM being unable to define the level risk posed to Meander River by the wildfires and consequently delayed the initiation of the evacuation until a visual inspection of the community could be performed by the DEM. Cohn et al. (2006) also identified a lack of information about nearby wildfires in the United States as a factor that prevented authorities from gauging the extent of the threat, thereby delaying the initiation of emergency response plans for a possible evacuation. In Meander River, the initiation of an evacuation was further delayed because the DEM resides in Chateh, located 100 km from Meander River. Thus, they had to drive to Meander River to inspect the conditions before officially initiating the evacuation. Upon arrival, they described how the smoke was so bad that it was raining ash and appeared dark outside even though the sun was still out (see Figure 4 as an example).

The delay in initiating the evacuation of Meander River also resulted in secondary impacts. First, it limited the time to prepare for evacuation. When residents were told to evacuate, it was already 9:30 pm and many were preparing to go to bed. Interview participants recalled being given as little as 10-15 minutes to either leave in their own vehicles or make their way to the band office where they were told a bus would transport them to High Level. With little time to prepare and no information about the location of the wildfire, interview participants recalled hurriedly packing their belongings, not knowing what to take. Others, such as Participant 25, recalled taking sentimental belongings such as photo albums out of fear that they would lose their houses:

"And then I said holy crap. […] I did not expect this and I don't know what the heck is going on so what else can I take but the only thing I said that I was gonna take was my late hubby's photo album. […] And the rest I said never mind and then there was a lot of fear

too. Like what if a fire came to the community and our whole house burned down. I'll have to start from scratch and a lot of things were going through my mind".

Figure 4: Wildfire Smoke in Meander River (Photo credit: Sidney Chambaud)

Many participants also forgot to take prescription medications and personal items. The limited time to prepare for evacuation left interview participants feeling rushed, stressed and unprepared to spend a week away from their homes. This finding is consistent with previous studies on wildfire evacuations which have found that the amount time between warning and the actual evacuation significantly influences how a person copes with an evacuation (Christianson et al., 2015; McCool et al., 2006; Stidham et al., 2011).

Another impact resulting from the lack of wildfire information was that some evacuees from Meander River experienced uncertainty and delayed evacuating. A few interview participants described how they were skeptical that an evacuation was needed because they didn't think the risk posed by wildfire smoke was significant. With little real-time information about the wildfire location available, they were unable to confirm the vague details communicated by evacuation organizers. This led them to experience a loss of control when they were eventually forced to leave under a mandatory evacuation order. This is like previous studies which have found that a lack of credible, place sensitive information during evacuation can cause uncertainty. For example,

Hodgson (2007) explains that when people are threatened by a hazard such as wildfire, they are likely to experience uncertainty about what is happening. He writes that, "in response to confusion, people seek information and attempt to put together a story that explains what is happening and predicts what will happen" (Hodgson, 2007, p. 234). The warning response model (see section 4.2) also proposes that individuals require credible information about the impending threat in order to assess their personal risk. If an individual cannot easily asses the seriousness of a threat due to a lack of information, they may delay evacuation which is what some interview participants in Meander River chose to do (Perry, 1985).

5.3.2. Community Emergency Preparedness

A sense of disorganization due to inadequate community preparedness was the second theme that emerged as significant to evacuation experiences. Community preparedness is defined as actions taken before a hazard event to prepare for and minimise potential impacts during the response and recovery phases (Jakes & Nelson, 2007). Specific community emergency preparedness measures include creating; regularly updating, disseminating, and conducting drills of emergency response plans; acquiring emergency equipment; assembling lists of community resources (physical and human); assigning roles to community members; and training emergency management personnel (Perry, 1985).

Meander River's inadequate level of preparedness was primarily caused by failing to have an evacuation plan tailored to Meander River. Instead, a generic evacuation plan provided by the AEMA was used to guide the evacuation. The generic plan combined with the DEM's personal training in emergency management and familiarity with the community undoubtedly provided valuable direction during the evacuation (see section 5.2.4.). However, the sense of disorganization may have been reduced if roles and responsibilities had been pre-assigned to specific community residents and employees in Meander River to assist with the evacuation. For example, Participant 12 expressed frustration that they had not been included in any evacuation planning, *"I work with the community and that* [but] *I wasn't updated or informed of what's going on. It would have been nice if I was in the evacuation program and then I would've been more helpful".* Not having community residents trained and assigned roles in evacuation procedures had several

consequences that negatively affected interview participants. First, when the evacuation warning was communicated, the instructions were vague and missing crucial information such as where exactly evacuees should go upon arrival in High Level or Bushe River. This is because the message to evacuate was primarily communicated by word of mouth and by untrained residents who volunteered to go door-to-door. For example, Participant 21 explained how he volunteered to spread the word about the evacuation:

> *"That's when I went to the band house and they said we're evacuatin' people's home. I went running around too. I banged on doors there and I told them to go to the band house where the bus is. I told a lot of people by banging on doors there. It was kinda late too. But the smoke was pretty heavy. I'm pretty sure someone with asthma or something like that could have had a hard time. Yeah, that's what I did".*

The sense of disorganization that occurred in Meander River has been identified in previous research regarding the emergency management of First Nations (Epp et al., 1998; Goodchild, 2003; Office of the Auditor General of Canada, 2013; Scarbach, 2014). Like Meander River, these studies have found that while many First Nations have plans for managing emergencies, many are incomplete and have not been disseminated to community residents. Incomplete evacuation plans have also been found to increase the risk of First Nations being unprepared to deal with emergencies and the resulting impacts (Office of the Auditor General of Canada, 2013). This was found in Meander River where incomplete evacuation plans left community members vulnerable to other problems that arose during the evacuation. For example, the existence of the two evacuation centres (one in High Level and one in Bushe River) combined with the lack of information given to participants when they were ordered to evacuate Meander River contributed to the sense of disorganization. Many interview participants were disoriented when they arrived in High Level and when they asked directions, they were directed to the incorrect evacuation reception centre. This caused further problems when they discovered they should have gone to Bushe River. Participant 25 described the confusion they experienced:

> "*And then I was all over the place. Like we had no information where we were supposed to go, who was a contact person. We went through town council and they directed us to the*

place where there was agencies and then I was all over the place. It was just completely out of it".

Although a few participants mentioned going to the reception centre in Bushe River, most ended up at the High Level reception centre operated by Mackenzie County. While the organizers welcomed everyone at the High Level reception centre, there was confusion about what to do with the Meander River evacuees as explained by Participant 18:

> *"I guess any evacuation it's always the coordinating, like there's always gonna be - 'cause our evacuation was unfortunately right the same time as Zama evacuees right, so there was a miscommunication between where to sign in and so those people. Zama was to sign in High level* […]*, and then ours was in Bushe River* [… we] *had some of our members signing in High Level, so it was some mix up. But the good thing is the school* [in High Level] *opened up doors for our members and Zama".*

Another problem caused by inadequate community preparedness was related to the inappropriate sequencing of evacuees, a factor which has been previously identified as playing a strong, negative role in influencing negative evacuation experiences among First Nation evacuees (Epp et al., 1998; Scarbach, 2014). When the initial evacuation warning was communicated in Meander River, it was not made clear to all residents that only vulnerable community members such as Elders, infants, children, and pregnant mothers should evacuate first. While some residents left with family, most of these vulnerable residents had to wait for bus transportation and were amongst the last evacuees to leave Meander River. Further disorder resulted when the bus passengers were mistakenly dropped off at the evacuation reception centre in High Level rather than in Bushe River. Unaware of the initial mistake, the bus also dropped the second load of evacuees in High Level. The bus passengers ended up spending the night and most of the next morning on the floor of the High Level reception centre because they arrived in the middle of the night and they were unable to go to make their way to Bushe River once the bus left.

Sleeping on the gym floor was a significant source of distress for interview participants who endured the experience such as Participant 22 who recounted some of the difficulties, "*I was stuck in the gym with my four kids and there was some Elders in there. There was some families*

in there. They did not provide no blankets, nothing, just the school mats that were used to sleep on the floor there". Others, such as Participant 15 were more concerned with the difficulties experienced by fellow evacuees than with their own circumstances:

> *"So, they got to town late at night and just dumped them off at the school. So, I'm not too sure if Elders even had a place to stay […], there was moms there with kids. They did not grab anything too, just got their clothes, that was it. No food, no nothing. There could have been a protocol saying that there's a fire and just be heads up that you might be evacuated or something like that would've been more helpful 'cause when I was there, the parents were there and their kids were crying, and some of them looked tired and hungry and they had nothing to eat. And some had no money so they can't get food […]"*.

The behavior and decision making of fellow evacuees and organizers related to these, and other negative experiences was the third major theme that emerged as significant from participants interview and will be discussed further in the next section.

Overall, inadequate community emergency preparedness created a sense of disorganization and directly and indirectly led to other problems that arose during the evacuation including the inappropriate sequencing of evacuees, confusion and frustration regarding reception centres, and long delays in receiving accommodation. This was especially difficult for many of the community's most vulnerable members. Disorganization due to poor community emergency preparedness had been previously identified by research pertaining to the evacuations of First Nations (Epp et al., 1998; Scarbach, 2014).

5.3.3. Compromised Sense of Moral Order

The lack of information and community preparedness undoubtedly caused many of the negative experiences recounted by interview participants. However, as many interview participants attempted to make sense of their experiences, their re-construction of the evacuation highlighted how the behavior of fellow residents and the decision made by organizers at the High level compromised a sense of moral order and rendered themselves or others vulnerable to distress. (J. E. Davis, 2013) defines moral order as any system of obligations that defines and organizes

proper, right, or virtuous relations among individuals and groups in a community. They are expressed explicitly in institutional rules, laws, moral codes, and the like, as well as implicitly in the various roles, rites, and rituals of social life (J. E. Davis, 2013). Interview participants perceived that the moral order concerning respect for elders and vulnerable community members was compromised in several instances during the evacuation and this was a significant source of distress. This finding is consistent with Leighton's concept of sociocultural disintegration (1959) which proposes that catastrophic events can disrupt implicit and explicit norms (how people ought to behave) and forms of social interaction, transforming socio-culturally "integrated" communities into socio-culturally "disintegrated" environments. According to Leighton's theory, compromised moral order is one among several consequences of sociocultural disintegration (Leighton, 1959, pp. 318–319).

A common complaint that emerged during interviews was that many residents left Meander River in their own vehicles as soon as they heard about the evacuation and then proceeded to check into motels in High Level. Participant 20 expressed disapproval towards the residents who, in their opinion, acted in selfish manner when they evacuated before helping others such as Elders:

> *"Um, I certainly noticed in this community the Elders were not the first to be taken out. Those who could help themselves took off first and they're the ones that should have stayed to help the Elders".*

When the initial evacuation warning was communicated, not all residents were aware that only vulnerable community members such as Elders, infants, children, and pregnant mothers should evacuate first. Although some people who had vehicles evacuated with vulnerable community members, many left as soon as they heard about the evacuation while residents who did not have vehicles had to wait for a bus. This resulted in the first evacuees swiftly receiving motel rooms upon arrival in High Level while the bus passengers who were evacuated last slept on the gym floor of the reception center in High Level, and experienced a long wait for motel accommodation. Participants 14 recalled the disappointment they experienced when they witnessed Elders in the gym:

"They know that Elders should have come first. My husband [was] just kind of [like] "honey, honey". And I said what? I said a lot of these Elders are sitting here and it's 2:30 in the morning. And then those [guys] are going into a motel? Yeah."

Many interview participants subsequently expressed disapproval towards fellow evacuees because they perceived that their behavior compromised a sense of moral order in which Elders warrant special considerations; both because of their status in the community, and because of health concerns.

The second way that interview participant's expectations regarding proper behaviour were not met occurred when a small group of evacuees, mostly young people, engaged in loud and rowdy behaviour due to drinking. This created a disturbance for other evacuees in neighbouring motel rooms. Participant 6 expressed disapproval towards this group of people who they believe threatened the community's reputation:

"They would get kicked out if they were caught drinking or partying in a room. I heard a couple of instances that it happened. […] It was kind of bothersome 'cause we come from the same community and it's kind of making everybody else look bad".

Participant 22 similarly explained how the partying exacerbated their personal struggle in trying to care for and entertain children in a motel:

*"And there was rooms all with young people were drinking. All the single people would drink [*and that was a disturbance*] because there's kids that can't play outside due to the drinking right around in the rooms, and to have them run around and play outside if there's drinking and stuff like that, you have to keep an eye on them. I tried to keep my kids inside but it was really hot so I let them play outside"*.

These interview participants and others expressed disapproval toward the people who caused the disturbances due to their disregard for the community's reputation and comfort of fellow evacuees.

Favouritism was a third behaviour that interview participants perceived as troublesome. As interview participants attempted to make sense of their negative experiences, many drew on past

experiences in which they have perceived moral order had been compromised. One such example is the perception that favouritism influences decision-making and the distribution of resources within Dene Tha' First Nation. Participant 23 drew on the example of limited employment opportunities with the band in Meander River compared to the other two Dene Tha' First Nation communities:

> *"I ask for jobs around here, Assumption gets it first. And whatever jobs that is available around here, Assumption or Bushe comes dragging in here and does the work, there's no work here […] Yeah, we get the short end of the stick".*

Interview participants drew on past examples of favouritism to substantiate who they found accountable for the difficulties they personally experienced or witnessed occurring during the evacuation. For example, Participant 22 blamed favouritism for distress experienced by Elders:

> *"I don't know if it was favouritism or what because that is like family and family that do help each other around here. Because it's so small, it's all favouritism. The first ones that were getting comfortable rooms would be the council's family and the people that work around here, and their family. Stuff like that, it's all about favouritism. The whole band is like that. Here, Bushy and Assumption. It's all about favouritism."*

Interview participants draw on this pre-existing perception of favouritism to make sense and to hold someone accountable for their negative experiences. For them, the evacuation reinforced this perception when they witnessed the same people benefiting from their familial connections to band employees or leadership. This was considered inconsistent with well-established Dene cultural norms (ideas about how individuals ought to behave) of communal support and respect (Goulet, 1994). Along with Leighton (1959), Flint and Luloff (2005) suggest that the disruption caused by disasters may expose existing local vulnerabilities such as deficiencies in social interactions. Button (2016) also suggests that a lack of wildfire information combined with a lack of personal control can facilitate discourses of blame and responsibility. These discourses are used as coping strategies and ways of making sense of victims' experiences. In my findings, interview participants used discourses of blame for what they perceived as inappropriate behaviours that comprised the

moral order of their community and left them or others vulnerable to secondary impacts that arose throughout the evacuation.

5.3.4. Local Leadership

The fourth factor that emerged as significant to participants' evacuation experiences was local leadership and the role it played in mobilizing volunteers and building community capacity. Local leadership has been identified as a key factor that contributes to community resilience (Berkes & Ross, 2013; Newton, 1995). During the Meander River evacuation, the local leadership primarily consisted of the DEM with assistance provided by the volunteer fire chief and members of Dene Tha' First Nation Chief and Council. The coordination provided by local leadership contributed to building the capacity and resilience of volunteers in several ways.

First, local leadership was responsible for mobilizing residents to help evacuate the community of Meander River. These volunteers helped notify residents about the evacuation and provided transportation from their homes to the band complex to catch a bus. The bus was also owned and operated by a local resident. The role that local leadership played in identifying and using local resources such as the local charter bus service and mobilizing local people to volunteer to help organize the evacuation cultivated a sense of purpose and accomplishment among volunteers. The role of local leadership has been identified as important in building community cohesion and a sense of comradery during a hazard event (Carroll, Cohn, Seesholtz, & Higgins, 2005b; Epp et al., 1998). Local leadership was also responsible for mobilizing another team of volunteers in Bushe River to set up a reception centre, register incoming Meander River evacuees, organize accommodation, and provide transportation from High Level motels to Bushe River for meals. Having a band-operated reception centre developed the capacity of band employees because they became familiar in the operation and logistics organizing an evacuation. The community action and self-organizing initiated by local leadership cultivated a sense of agency among volunteers, which has been identified in previous studies as an integral factor contributing to community resilience building (K. Brown & Westaway, 2011; Goldstein, 2008; Magis, 2010; Wilson, 2012).

The security of homes and leaving pets behind was a major concern for some interview participants. In response, the volunteer fire chief and a band employee remained in the community to feed pets, to provide security, to turn off natural gas to homes, and to block road access into the reserve. Together, they also provided information on local conditions to evacuees throughout the evacuation by communicating through text message, social media, and over the local radio station. This helped to provide up-to-date and locally accurate information which has been identified as important in previous studies (Cohn et al., 2006; Kumagai, Carroll, & Cohn, 2004; Taylor et al., 2005).

Local leaders may also serve as key contacts between different stakeholders and groups, such as acting as a liaison between local government and provincial government, or between different community groups or stakeholders (Eggleston & Koob, 2004). In Meander River, the DEM acted as a liaison between the various agencies who became involved with the wildfire evacuation (such as the AEMA, AEP, town of High Level, Mackenzie County, Red Cross, RCMP, etc.) and the First Nation. For example, they attended daily information briefs and relayed the information to evacuees during meals.

Local leadership also demonstrated flexibility in meeting the needs of evacuees when, for instance, community members were permitted access to their homes in Meander River to retrieve personal belongings and check on pets. This arrangement enabled community members to save money during the evacuation because they did not have to replace these items. It also eased anxiety regarding the safety and security of their homes and pets. For example, Participants 13 explained:

> *"We came home one time 'cause we needed some clothes, they allow us to come over, they said for an hour, like there was cops on the road, they said they give us just 45 minutes to get what we need. I did not wanna buy more clothes."*

Allowing evacuees to return to their homes during a mandatory evacuation is unusual due to safety concerns. Previous research has found that residents denied re-entry to their homes and communities during evacuation is often a source of conflict and has even motivated some evacuees to resist evacuation in the event of future wildfires (Carroll et al., 2006; Kent et al., 2003). However, smoke levels and the threat of wildfire proximity were deemed safe enough by the First

Nation and other agencies involved in the evacuation including Health Canada and AAF to allow small numbers of evacuees to return home for 45 minutes. This example of flexibility and problem solving demonstrates how local leadership reduced the anxiety caused by the evacuation and allowed some evacuees to retain some sense of agency over their lives. This echoes the work of Newton (1995) who found that when a larger share of the responsibility for emergency management is taken by those closest to the scene, actions can be more responsive to immediate needs, with losses minimized.

Overall, local leadership played an important role in the evacuation including mobilizing local volunteers, using local resources, acting as a liaison between external agencies and members of the First Nation, and demonstrating flexibility to respond to the immediate needs of evacuees. This helped evacuees cope during the evacuation and helped develop a sense of agency among volunteers.

5.3.5. Social Support

Social support has been identified by previous research for its role in helping evacuees cope with evacuations (Carroll & Cohn, 2007; Christianson et al., 2015; Goodchild, 2003; Heppenstall, Wilkinson, Hanger, Dhanak, & Keeling, 2013; Townshend et al., 2014), and was the sixth factor that emerged as significant to interview participants' evacuation experiences. Social support refers to four broad classes of supportive behaviour or acts including positive interaction, emotional support, tangible support, and affection that are important to one's overall wellbeing (Richmond, 2007).

The social support that interview participants received during the evacuation generally came from family networks and included a range of supportive behaviours and acts. The way that family helped evacuees cope with their evacuation was also identified by Christianson et al.'s (2015) study of the wildfire evacuation experiences of Whitefish Lake First Nation 459. During the evacuation of Meander River, extended family provided tangible support when they welcomed evacuees into their homes (if they resided in High Level or Bushe River). This tangible support reduced the need for some interview participants to sleep in motels or in large evacuation centres. Several participants, such as Participant 20, expressed gratitude that they could stay with family

and avoid staying in motels: *"So I was quite thankful to stay at my brother-in-law's where I didn't have anything to worry about*". Previous research has found that evacuees experience a sense of insecurity in evacuation centers (Taylor et al., 2005) so the ability to stay with family helped some interview participants avoid a potentially distressing situation. The spread of information regarding the evacuation and the wildfires from younger family members to older family members was also a form of tangible social support identified by participants. For example, Participant 26 mentioned their daughter notified them about the evacuation and assisted them with getting motel rooms and transportation from Meander River to High Level:

> *"My daughter phoned ahead so that they had the room ready for us. We just packed our extra clothes and stuff like that. […] Not long after that, my daughter come and so she picked us up and took us to town. […] She knew ahead of time. (because) she was working for the chief and council".*

Likewise, Participant 5 recalled how their daughter helped pass on information about the wildfire:

> "*Every day there were reports. […] Well,* [the fire chief] *goes on the radio, and we get it* [the radio] *in Bushe but I don't get it in the hotel (in High Level), so I ask my daughter to keep checking, leave the radio on, see how the fire is".*

This supports the well-established finding in hazards research that family, friends, and neighbours are an important source of information during hazard events (Burnside, Miller, & Rivera, 2007; Cretikos et al., 2008; Fitzpatrick & Mileti, 1994; Heath, Lee, & Ni, 2009; S. Moore et al., 2004). Other examples of tangible support provided by family during the Meander River evacuation which were identified by participants included transportation, preparing meals and doing laundry at the homes of family, and taking care of children when the parents could not. These acts of tangible support provided by family helped create a sense of order and hospitality in an otherwise disruptive situation.

Though more implicit, interview participants mentioned less tangible forms of support provided by family including positive interaction and emotional support. For example, support was provided by visiting each other such as Participant 26 who recalled, *"Well there was a lot of people from Bushe that come visit us and either that or they'd drive us around. Walked to the*

hospital once in a while just to go visit patients". Interview participants also mentioned that most families were kept together in the same motel rooms or motels and were therefore able to socialize, reassure one another and help one another through the stress. Avoiding the separation of families has been a key recommendation resulting from previous studies due to the stress and anxiety that separation has caused First Nations evacuees (Epp et al., 1998; Scarbach, 2014). Thus, by keeping families together, Meander River evacuees were able could to receive support from their family.

Culturally, the importance of families for providing social support can be traced back to traditional social organization of Dene Tha' First Nation in which people lived in small social units, or 'band' comprised of families who travelled on foot to hunt, trap, fish and gather food on a seasonal basis (Berry & Brink, 2004; Spyce, 2009). Today, family continues to play an important role in Dene Tha' First Nation, with most band members growing up in multi-generational family clusters within the community and with extended family members contributing to different aspects of learning and in their lives (Spyce, 2009). By keeping families together during the evacuation, organizers were therefore able to facilitate the tangible and emotional support provided by family. Much of this social support was also facilitated by using familiar, nearby host communities where the presence of extended families increased the availability of social support. This was the next factor identified by this research and is discussed in the following section.

5.3.6. Familiar Host Community

The sixth theme that emerged as significant to participants' evacuation experiences was the low disruption to place attachment which occurred due to being evacuated to a familiar host community. Place attachment describes the bonds that people develop with places (Altman & Low, 1992). Brown and Perkins (1992), add that place attachment also provides individuals with stability, familiarity, security, predictability, and a sense of control. An evacuation can cause a disruption to place attachment which can negatively impact First Nations (Epp et al., 1998; Scarbach, 2014). Scarbach's (2014) study found that being evacuated to shelters in larger towns or cities is difficult for First Nations due to the unfamiliar cultural conditions .

The use of nearby host communities reduced the disruption to place attachment for Meander River evacuees because the town of High Level and the Dene Tha' First Nation reserve

of Bushe River (both located approximately 70 km from Meander River) are regularly frequented by residents for purchasing groceries, accessing services, and visiting family. Therefore, they were a familiar setting. Thus, when participants were evacuated to these communities, they were already familiar with the physical setting, the activities that occur there, and human social and psychological processes (meanings and attachments) that are rooted in that setting (Brandenburg & Carroll, 1995). Previous research has found that success in the adjustment of evacuees to new places is a major challenge due to cultural differences between the receiving communities and evacuees (Epp et al., 1998; Goodchild, 2003; Scarbach, 2014). For example, Scarbach (2014) found that evacuees faced enormous difficulty in adjusting to unfamiliar cultural environments in the faraway towns and cities used as host communities during a wildfire evacuation because many evacuees were not used to being outside their small, remote community and were unfamiliar with host community cultural norms of behaviour. During the Meander River evacuation, use of the band complex in Bushe River as the evacuation reception centre reduced the amount of disruption due to differences in culture that could have occurred if evacuees had been sent to faraway towns or cities. In Bushe River, evacuees could communicate in Dene Dháh, (which many people from Meander River speak), were familiar with local volunteers, and could eat culturally familiar meals. High Level was also culturally familiar since most Meander River residents regularly visit the town to purchase groceries and access services. Overall, the use of nearby host communities reduced the disruption to place attachment and positively influenced evacuation experiences.

5.3.7. Wildfire Smoke

The last theme to emerge as significant to interview participant's evacuation experiences was the presence of wildfire smoke in the host communities. While evacuating to High Level and Bushe River removed evacuees from the heavy smoke that prompted the evacuation, interview participants perceived that air quality in the host communities continued to pose a significant health risk. Wildfire smoke is increasingly recognized as an important health hazard.

While the use of nearby and familiar host communities benefitted many evacuees by reducing the disruption to place attachment, the choice of host communities was called into question by some interview participants who had difficulties tolerating the high smoke levels in

High Level. For example, Participant 16 perceived that the measures to mitigate the effects of smoke exposure in the host communities were insufficient.

> *"It was bad in High Level too, like the smoke was super thick I remember. I was having problems, so I couldn't imagine somebody who did not have their full lung capacity. So necessarily relocating people with chronic illnesses or pulmonary anything from Meander to High Level probably wasn't the best […]".*

Some interview participants experienced difficulties breathing due to their exposure to the smoke before leaving Meander River and the sustained, though less severe, smoke conditions in High level and Bushe River such as Participant 7:

> *"But I ended up with a severe asthma attack and I had to stay in the hospital all that next day on the Ventolin and the whatnots and the oxygen, and my grandson is just a little guy and he had to have Ventolin and stuff too. He's never had problems with his lungs before. But I found that in the last 2 years my breathing problems have worsened".*

Adding to the difficulties described by interview participants were the uncomfortably hot summer weather conditions. In High Level, most of the motels did not have air conditioning and the smoke levels prohibited the opening of windows. The band made sure that water was distributed to motel rooms but many interview participants recalled being very hot and uncomfortable during their stay in High Level. Interview participants also said that being confined to their motel rooms caused boredom and challenges entertaining children. Participant 22 had a particularly difficult time during the evacuation:

> *"My kids were stressed. They had no place to play around. […] The had no place to play. […] And then the kids are running around outside in the parking because they needed to tire themselves out. To go to the park with them it was not good for me because I had asthma. The smoke was thick and I was going through a lot of stress and I just wanted to go home".*

This finding is significant because the evacuation was prompted by heavy wildfire smoke but did not remove some of the most vulnerable residents from the area of threat. Previous research has

provided clear evidence that wildfire smoke exacerbates chronic lung disease (Government of Northwest Territories, 2016; Henderson & Johnston, 2012) and that the prescription and use of asthma rescue medications rises rapidly during wildfire smoke events (Elliott, Henderson, & Kosatsky, 2012). Likewise, emergency room visits and hospital admissions due to respiratory illnesses also increase during the days and weeks following a wildfire event (Government of Northwest Territories, 2016). Given that First Nations in general, and children in particular are disproportionately affected by respiratory infections such as viral bronchiolitis, pneumonia and tuberculosis (Kovesi, 2012), exposure to wildfire smoke may be a particularly significant health concern for First Nations. This finding indicates that exposure to wildfire smoke may have undermined the benefits of using a familiar host community for some interview participants. My study is the first to identify that First Nation evacuees perceived that they were negatively affected by their exposure to wildfire smoke in host communities. Interview participants also perceived that the wildfire smoke levels in the host communities increased their level of discomfort and their risk of heat stroke due to the necessity of staying indoors with windows and doors sealed.

5.4. Chapter Summary

This chapter presented and discussed the findings for this study. First, a synopsis of the evacuation, including interview participant's experiences was provided. I then identified and discussed eight factors which influenced interview participant's wildfire evacuation experiences. Four factors negatively affected evacuation experiences: a lack of wildfire information, inadequate community emergency preparedness, a compromised sense of moral order, and wildfire smoke. Three factors positively affected evacuation experiences: local leadership, social support, and the use of familiar host communities. The following chapter concludes this study by providing a summary of the findings, contributions to the literature, and recommendations for First Nations leadership, government, and agencies who provide support for emergency management.

Chapter 6. Conclusion

6.1. Introduction

This final chapter contains a discussion of the significant findings of this research. The academic and practical contributions of this study are discussed followed by the limitations. The chapter concludes with recommendations for First Nations leadership and government and other agencies who provide support for emergency management as well as recommendations for future research.

6.2. Summary of Findings

The findings in this case study reflect the wildfire evacuation experiences of 31 residents and evacuation organisers who were evacuated from Meander River, Dene Tha' First Nation in July 2012 due to heavy wildfire smoke. The first four factors that negatively influenced evacuation experiences - limited wildfire information, inadequate community preparedness, exposure to wildfire smoke, and compromised moral order can be traced to the pre-existing vulnerabilities of the community. Filtered through a postcolonial perspective, the findings suggest that the historical and enduring effects of colonialism have contributed to pre-exiting vulnerabilities. Indigenous communities continue to be plagued by social problems that are, in large part, due to the legacy of a century of oppression (Epp et al., 1998; Office of the Auditor General of Canada, 2013; Richmond, 2007; L. T. Smith, 1999). Emergency management, for example, must compete with chronic and arguably, more salient individual and community issues. Challenging socio-economic conditions such as high unemployment and poverty are more of a priority in peoples' lives than emergency planning and preparedness. The continuous pressures and challenges of everyday life in a postcolonial context within Dene Tha' First Nation influenced participant's capacities to cope and adapt during the evacuation. Some evacuees resorted to negative coping mechanisms such as drinking to deal with the stress induced by the evacuation. This led some participants to perceive that moral order was compromised which, in turn, facilitated additional negative coping strategies such as discourses of blame and

responsibility. The lack of mental health resources made available to participants who had difficulties coping, along with the lack of community follow-up after the evacuation suggests that community leaders are overtaxed by current issues and are ill-equipped to cope with the additional disruption caused by evacuations. This study also echoes findings from previous studies and reports that the financing of First Nations emergency management is inadequate (Epp et al., 1998; Office of the Auditor General of Canada, 2013). For example, Dene Tha' First Nation was required to pay a total of $160,762.72 that remained after they were reimbursed through disaster funding. The band had to cover these expenses using their administrative budget which negatively impacted community programs for several years after the evacuation. Lastly, although First Nations are recognized as being local authorities under the provincial law, this study revealed that emergency management issues were largely managed in isolation from surrounding, non-Indigenous local authorities. While the reasons for the lack of collaboration were beyond the scope of this study, this research revealed how differences in jurisdiction and a lack of collaboration between Dene Tha' First Nation and surrounding communities created communication and logistical challenges that negatively impacted evacuees from Meander River.

The findings from this case study are consistent with existing research on the wildfire evacuations of First Nations which typically assumes an automatic relationship between hazard and the development of negative experiences (Epp et al., 1998; Scarbach, 2014). However, the findings also indicate that an evacuation may also develop and/ or reveal community resilience. For example, the factors that positively influenced evacuation experiences including local leadership, social support, and the use of familiar host communities are among previously cited processes, community characteristics, and contexts that influence resilience at the community level (Berkes, 2007; K. Brown & Westaway, 2011; Magis, 2010; Manyena, 2006; Tierney & Bruneau, 2007; Townshend et al., 2014). Specifically, local leadership was integral in organizing community volunteers and demonstrating flexibility to local needs. Most participants were well-integrated in family social networks and could access tangible and emotional support. The use of nearby and familiar host communities enabled local leadership to mobilize the First Nation' locally available infrastructure and human resources. Being evacuated to a familiar host community was also more culturally appropriate and minimized the disruption to place attachment caused by the evacuation. Together, these factors helped participants cope with the

evacuation in a positive manner and demonstrated how the community drew on its strengths and resilience.

A key finding of the research is that a community can be vulnerable yet demonstrate resilience through its adaptive capacity and coping. This demonstrates the importance of understanding that analyses of human-hazard interactions must explicitly account for factors that contribute to people's vulnerability while also considering factors that highlight and/or develop resilience. As Berkes and Ross (2013, p. 13) note:

> "Communities do not control all of the conditions that affect them, but they have the ability to change many of the conditions that can increase their resilience. They can build resilience through their responses to shocks and stresses, and actively develop resilience through capacity building and social learning- but up to a point".

This is evident in Dene Tha' First Nation. The postcolonial conditions which make them vulnerable to the disruption caused by the wildfires and evacuation were not entirely within their control. Yet, as Berkes and Ross (2013) argue, they have the ability to change some of the conditions through their coping and adaptive capacity. In doing so, they demonstrate their resilience.

6.3. **Contributions**

Theoretically, this research contributes to our scholarly understanding of how a First Nation existing within a postcolonial context experiences a wildfire evacuation. Examining the wildfire evacuation experiences in this context reveals the interplay of vulnerability and resilience. It illuminates the heterogeneity in experiences, access to power, and ability to cope present within a small 'community' of less than 500 residents. Further, it demonstrates that a community can be simultaneously vulnerable yet resilient. In addition, the identification of factors which demonstrated and contributed to the community's resilience during the evacuation contribute to better understanding First Nations' adaptive capacity and coping. Local leadership and its role in community organizing; family networks and the social support it provided, and the use of familiar

host communities to reduce disruption have not been previously associated with resilience during a First Nations' wildfire evacuation. This is the first study to link these specific factors with the concept of resilience and how community characteristics and specific actions taken during an evacuation can lead to positive outcomes for both evacuees and organizers.

This research also confirms and contributes new findings to our knowledge regarding communication and information during wildfire events. Specifically, it confirms the importance of disseminating official wildfire warning information as broadly as possible, through multiple information channels especially as it applies to the status of the evacuation and the fire in relation to the community (Cohn et al., 2006; Hodgson, 2007; Kent et al., 2003; McCool et al., 2006; Stidham et al., 2011; Taylor et al., 2005). It contributes to the human dimensions of wildfire literature by identifying specific contextual conditions that may create challenges for disseminating information before and during a fire event. For example, it identified the difficulties in communicating information within a small community with limited communication infrastructure on a last-minute basis. It also highlighted how limited communication between external agencies or neighbouring communities and the First Nation due to jurisdictional differences restricted preparedness and evacuation decision-making. To the best of my knowledge, it is the first study to use the warning response model (Perry, 1985) to demonstrate how a lack of credible wildfire information can result in experiences with stress and uncertainty when individuals are unable to confirm or assess the level of risk posed by a hazard.

Third, this study contributes to our knowledge regarding emergent norms of behaviour during evacuations. Specially, the findings suggest that emergent norms of behaviour were perceived as compromising a sense of moral order. This is important for understanding how First nations may be negatively impacted by evacuation because it illuminates the importance of providing an advance warning in order to ensure that evacuees are sequenced appropriately and in a culturally respectful manner. Importantly, I found that the combination of pre-existing community tensions (such as perceptions of favouritism) combined with emergent norms of behaviour (such as disrespect for Elders) were sources of conflict during the wildfire evacuation of Meander River. This contributes to understandings regarding sources of social conflict and blaming, common occurrences during and after wildfire events (Carroll et al., 2005b, 2006; Flint & Luloff, 2005; E. L. Quarantelli & Dynes, 1976; Scarbach, 2014).

Fourth, this is the first study to examine a community-wide wildfire evacuation of a First Nation due entirely to wildfire smoke. As identified in Beverly and Bothwell's (2011) study of wildfire evacuations in Canada, 19 percent of evacuation events from 1980-2007 were prompted by smoke concerns with 75 percent of those events involved First Nations. My study examines factors that contribute to a First Nation's decision about whether and when to call for an evacuation due to wildfire smoke. These factors include a lack of official wildfire and smoke information, and a perception that wildfire smoke poses a threat to health. For example, Dene Tha' First Nation had to base their evacuation decision-making on visual observations of the air quality instead of official wildfire, wind, and smoke status updates or by using air quality monitors. A lack of readily available resources to gauge the air quality diminished the First Nation's capacity to gauge the severity of the threat posed by the wildfire and the smoke. This indicates that heavy wildfire smoke, without sufficient official information was perceived as a severe enough threat to all residents' health to carry out a week long, community-wide evacuation. The second reason why investigating a smoke evacuation makes an important contribution is that it provides context for how inadequacies in community preparedness impact First Nation band members with respiratory problems. For instance, in the absence of a tailored evacuation plan for Meander River, the First Nation had not assigned roles and responsibilities to local health care workers. Had these local employees been included in evacuation response, they could have helped identify residents with medical problems in order to prioritize their early evacuation. The lack of coordination between the First Nation and local health care employees resulted in medically vulnerable residents being exposed to heavy wildfire smoke with some spending time in the hospital to treat their asthma or COPD. In addition, measures to evacuate these medically vulnerable individuals to safe and healthy environment were perceived by some interview participants as inadequate. Participants with respiratory problems thought they should have been evacuated further away to avoid the wildfire smoke in the host communities.

Finally, and arguably most importantly, this research contributes in a substantial way towards developing an understanding of the importance of investigating First Nations wildfire evacuation experiences, the goal of which is to inform current emergency management policies and practices. This understanding will be of particular use to Dene Tha' First Nation as it is has continued to experience wildfires, floods, and winter power outages in all three communities since

the wildfire evacuation in 2012. Most important concerning the primary rationale for this study, Dene Tha' First Nations has already begun to address findings from this research by planning and exercising a mock community-wide evacuation, in partnership with the AEMA, other government officials, police, and energy companies. This was a first of its kind exercise on an Alberta First Nation and will serve as a model for other First Nations. From my perspective, then, the research partnership with Dene Tha' First Nation has been successful in terms of addressing issues that were important and meaningful to them.

6.4. **Limitations**

This research project had several limitations. First, data collection was completed two years after the evacuation. Participants may have remembered more and would have been able to provide more detailed accounts of their evacuation experiences had the data collection been conducted earlier. Second, the field research was completed within a four-week period during the summer of 2014 and was limited to daily visits to Meander River because there was no accommodation for me in the community. The limited time spent in the community interviewing residents may have restricted the breadth of residents available to interview since some residents may not have been available for interviews during the times I visited. The limited time spent in the community may have also reduced my ability to build rapport with residents. A lack of rapport may have affected how much information was shared with me about the evacuation and the community context. This relates to the third limitation of this project which were the cultural differences between the researcher and the community. This also may have limited the rapport and trust established between myself and interview participants because I may have been viewed as an outsider. Participants may have limited what information and experiences they shared with me. However, the community advisory committee and two local research assistants for this project helped direct this work. Research assistants also shared in some interviewing which may have mitigated this limitation. As part of the postcolonial and CBR approach used for this research and to ensure that the First Nation had a clear understanding of the study results, a summary of the preliminary findings was presented to the Dene Tha' Band Council, a local research assistant and available participants for confirmation and discussion before the final analysis was conducted.

6.5. Recommendations

The third research objective of this study was to identify ways in which Dene Tha' First Nation and other First Nations in Canada can prepare and respond to future wildfire evacuations to reduce negative impacts. Based on the findings from this study, the following recommendation can be made to First Nations leadership, government, and agencies who provide support for emergency management. The recommendations are broken down into three categories which include evacuation preparedness; during evacuation; and evacuation recovery and vulnerability mitigation. Interview participants were also asked how they would improve the emergency management of Dene Tha' First Nation and Meander River with a specific focus on evacuations. A summary of their recommendations is also included in the next section.

6.5.1. Evacuation Preparedness

When a First Nation has multiple reserves, evacuation plans should be tailored to each community with roles and responsibilities assigned to trusted residents to assist the DEM. Plans should be updated, practiced, and disseminated to the community regularly. The tailoring of emergency plans may require coordination and collaboration between the different employers within the community (such as the band, tribal council, Health Canada, etc.) to assign roles to individuals who are naturally positioned to provide leadership during an emergency given their familiarity with the community and its residents. For example, health centre employees may be able to identify and assist residents with health conditions or mobility constraints. Evacuation plans should make provisions to ensure that timely and suitable transportation is available for residents without vehicles and those with limited mobility. Plans should also recognize the special status of Elders in the community, and the needs of these individuals should be prioritized throughout the evacuation. In addition, the identification of vulnerable community members and the extra support they may require during evacuation should be included in plans.

To improve the safety of First Nations, the DEM position should be converted to a paid position so that this person can devote the time needed for updating and tailoring emergency plans, assisting the community in an emergency, and coordinating resources to ensure community

preparedness. In First Nations, where there are multiple communities in separate locations, there should designated assistants in each community who are trained in emergency procedures. This would improve response times and help in the identification of local conditions and circumstances which may impact mitigation, preparedness, response and recovery.

Several measures should be introduced to ensure that accurate, real-time, place-specific wildfire and smoke information which pertains to the First Nation is communicated to both local leaders and to residents. First, opportunities need to be created to bring all stakeholders (including local employers, tribal councils, neighbouring municipalities or hamlets, counties, and government agencies) together to discuss how they can support one another during emergencies. Second, local contextual considerations for information dissemination need to be considered by the DEM. This includes how to improve the communication of information about the wildfire, smoke and evacuation procedures during an emergency to ensure that everyone in the community is reached. For example, information could be communicated through multiple channels including the local radio station, information bulletins or flyers, door-to-door visits, or placing multiple residents in charge of communicating information to a designated group of community members (such as in a phone tree).

In this study, using High Level and Bushe River as host communities was identified as an important factor that positively influenced interview participants. Whenever possible, evacuations should be made to nearby communities due to the higher level of familiarity, abundance of social contacts, and ability to return home faster when the evacuation ends. However, the air quality in host communities should be considered when planning for evacuations. When heavy wildfire smoke is present, residents with pre-existing respiratory conditions should be evacuated early with provisions made to ensure exposure to smoke in host communities is minimized. This could include evacuating these individuals and their families to host communities with better air quality or, as a last resort, assigning them to motels with air conditioning. First Nations also require more information to inform decision making about wildfire smoke and additional ways to monitor air quality to protect themselves from excessive exposure.

6.5.2. During Evacuation

Throughout the Meander River evacuation, the DEM mobilized local resources such as local bus transportation and local volunteers to assist. During future evacuations of First Nations, evacuees should also be given the opportunity to volunteer to help pass time, develop a sense of agency, and build community capacity. The two volunteers who stayed in Meander River to feed pets, provide security, and provide information about local conditions helped reduce the anxiety of interview participants who worried about leaving their animals and possessions behind. Opportunities for communicating information updates from these volunteers to more evacuees should be explored. If conditions allow, community members should be allowed to return to their homes to retrieve belongings for a short period. Findings from this research demonstrated that allowing evacuees to briefly return to their homes saves them money because they did not have to purchase new items such as clothing and toiletries. It also relieved distress once they checked on their homes and pets.

This research identified the importance of keeping families together because they provided tangible and emotional support. Organizers for First Nation evacuations should prioritize keeping families together while also avoiding overcrowding. If evacuees do not have family who can support them, then organizers should match evacuees with suitable roommates who can support them. Opportunities should also be created for evacuees to gather for social support, receive updated information and to learn about available resources during the evacuation. This can be provided during meals (if they are provided), activities, or during scheduled meetings.

6.5.3. Evacuation Recovery and Vulnerability Mitigation

Interview participants were unable to discuss the evacuation or provide recommendations based on their experiences until this research took place. It is therefore recommended that community members should be brought together with Chief and Council after an evacuation for the opportunity to provide emotional support and identify lessons learned. Lastly, the financial and staffing implications of cost recovery on a First Nations band must be considered. Dene Tha` First Nation was required to pay for a significant cost of their wildfire evacuation which remained outstanding after compensation was received. This negatively impacted community operating

budgets for several years after the evacuation. Additional financial support is required to assist First Nations fund the full cost of evacuations and other emergency management related infrastructure, resources, and training.

6.6. Future Research

Further research is needed in several areas. First, there is a need to investigate further whether positive evacuation experiences have an impact on community resilience. Findings from this study showed that factors including local evacuation leadership, family support and evacuation to a familiar host community helped evacuees cope during the evacuation. To better understand factors that produce positive impacts during evacuations, future research should focus on the evacuation experiences of both residents and evacuation organizers of other First Nations including if and how they benefitted from their experiences. Previous studies have investigated how evacuations are difficult for First Nations (Epp et al., 1998; Scarbach, 2014), however, given the forecasted increase in wildfires and subsequent evacuations there is a need to understand how First Nations can strengthen their adaptive capacity and coping to better support evacuees. This requires a focus on not only vulnerabilities which need to be mitigated and prepared for, but also a focus on identifying community characteristics, capacities, processes, and contexts that contribute to resilience. Also important is assessing whether or not evacuation is the best option for First Nations. Research on alternatives to evacuation has indicated that sheltering-in-place, a method is which residents use their homes or other structure as a shelter from the flaming front and radiant heat of a wildfire and then actively defend the structure from spot fires before and following the event (Paveglio, Carroll, & Jakes, 2010), is viable option for some communities when faced with wildfire proximity or smoke (Cote & McGee, 2014; Handmer & Tibbits, 2005; S. McCaffrey, Rhodes, & Stidham, 2015; McLennan, Elliott, Omodei, & Whittaker, 2013; Paveglio et al., 2010, 2008, 2014). To my knowledge, no studies have specifically examined how First Nations perceive alternatives to evacuation and whether this would be a preferred method of coping with wildfires.

There is also a need to consider in more detail the barriers to community emergency preparedness and access to wildfire information that were identified in this study. For example,

there is a need to better understand how First Nations develop relationships with external agencies and maintain those relationships to ensure that information is made available during hazard events. Also, developing a better understanding of how First Nations engage community members in emergency preparedness efforts vis-a-vis other local challenges.

It would also be of benefit to return to conduct further research on the First Nations' experiences with subsequent wildfire events and evacuations. This would help develop an understanding of how experience with evacuation alters experiences and influences preparedness, information availability, and recovery during subsequent evacuations. For example, Dene Tha' First Nation experienced two other evacuations in the two years following the wildfire evacuation of Meander River (one in Chateh due to flooding and one in Bushe River due to loss of essential utilities). It would be valuable to conduct research on how organizers were affected by these evacuations, such as if social learning took place and changes to emergency management implemented. This may lead to a better understanding of how repeated evacuation experiences influences a community's resilience or vulnerability. In addition, as natural resource development in First Nations traditional territories increases, future research should also examine how communities experience emergencies related to hazards such as H2S (sour gas) wells, pipeline ruptures and explosions, and water and soil contamination, all of which have occurred on Dene Tha' traditional lands in recent decades (Dene Tha' First Nation & Arctic Institute of North America, 1997; Spyce, 2009).

Last, there is a need to conduct further research on the effects that wildfire smoke has on First Nations. This includes understanding what factors influence the evacuation decisions of First Nations when wildfire smoke threatens communities and how residents experience wildfire smoke while remaining in their communities or while evacuated. Importantly, further research on the impacts of wildfire evacuation on First Nations is already being conducted with seven other First Nations in Alberta, Saskatchewan and Ontario through the First Nations Wildfire Evacuation Partnership which this case study is associated with. The variety of communities included in the partnership and the diverse ways that the evacuations were carried out will enable this research partnership to identify and understand other factors that influence peoples' evacuation experiences.

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Appendix A: Participant Information Sheet

UNIVERSITY OF ALBERTA
Earth and Atmospheric Sciences
Faculty of Science
1-26 Earth Sciences Building
Edmonton, Alberta, Canada T6G 2E3
www.ualberta.ca/eas
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Researcher:
Kyla Mottershead
Department of Earth and Atmospheric Sciences, 1-26 Earth Sciences Building,
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Phone (780)224-2936 Email: kyla.mottershead@ualberta.ca

Background & purpose:
I am in Meander River to learn about residents' experiences during the wildfire in 2012, as part of a study about how First Nations residents are affected by wildfire evacuations. You are being asked to participate in this study because you experienced the wildfire evacuation.

Study procedures:
I would like to meet with you to learn about your experiences during and after the wildfire evacuation. I think our conversation will take about 1 hour. I would like to audio record the conversation, with your permission. After I have typed up the recording, we will return it to you so that you can check it and also keep a copy for yourself.

Benefits and risks:
I am not sure if you will benefit from being in this study. The information that you and other Meander River residents provide will help us better understand how this community was affected by the wildfire evacuation and can be used by Dene Tha' First Nation to help plan for a future wildfire. During the conversation with me, you might feel stress if you are talking about the wildfire evacuation.

Voluntary participation:
Your participation in this study is voluntary. Even if you agree to be in the study, you can change your mind. When we return your typed information to you, we will check that you are still happy to be involved in this study. If you decide that you no longer want to participate, your information can be removed up until August 5, 2014.

Confidentiality:
I will be presenting a summary of the results of this study to Chief and Council and at a community event. Government agencies involved in wildfire evacuations will receive a written summary. Results from this study will also be presented in journal articles, conference presentations. You will not be personally identified in any of these, unless you tell me that you would like to be identified. All information that I obtain during our conversation will be kept confidential. The recorded and typed copy of our conversation will be stored in a secure location and only I will have access to this data. If you would like to receive a copy of the research findings, please let me know.

Further information:
If you have any further questions about this study, please contact Kyla by email or phone (above). Additional information is also available on our website:
http://www.eas.ualberta.ca/awe/

Appendix B: Participant Consent

UNIVERSITY OF ALBERTA
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Consent Form

Please check the circle beside each statement if you agree with it, and sign your consent at the bottom.

- ○ I am aware that the researcher will ask about my community and my wildfire evacuation experiences.
- ○ The interviewer has answered my questions about this study.
- ○ It has been explained to me that my participation is voluntary.
- ○ I am free to withdraw from this study until August 5th, 2014.
- ○ I am under no obligation to answer any questions that I do not feel comfortable with.
- ○ I may refuse to disclose any information that I do not want to.
- ○ I am aware that the conversation will be tape recorded.
- ○ I understand that information gathered during our conversation will be kept confidential.
- ○ I understand that the research team may use information and/or short quotes from this interview, but that no information on my identity will be released unless I give permission to use my name.

Name of participant:

Signature of participant:

Date:

Name of researcher:

Signature of researcher:

Date:

Appendix C: Interview Guide

Can you tell me about your background?

➔ How long have you been living in Meander River?

➔ What is your role in the community? (i.e. family caregiver, community responsibilities, elder, employment)

➔ Do you like it here? What do you like about it?

➔ What are some of the challenges related to living here?

The July 2012 Evacuation:

Can you tell me about the fire and the evacuation 2 years ago?

➔ Did you evacuate?

➔ Was this your first evacuation?

During the evacuation:

- ➔ Where were you when you were told to evacuate?
- ➔ How was this communicated to you?
- ➔ Were you responsible for helping family members of friends evacuate? Tell me about this…
- ➔ Did you have to leave any pets behind? Tell me about this…
- ➔ How much time did you have to prepare?
- ➔ Where were you told to go and how did you get there? (form of transportation)

In the host community:

- ➔ Where did you stay during the evacuation?

- ➔ Did you have to change your accommodation during the evacuation? If so, tell me about this…
- ➔ Was your family separated? If so, tell me about this…
- ➔ Was the community separated? Tell me about this…
- ➔ Where did you eat?
- ➔ Was the food enjoyable?
- ➔ What did you do while you were in the host community? Any positive of negative experiences?
- ➔ How did you receive communication about the status of the fire in relation to Meander River?
- ➔ Did you receive any assistance during the evacuation (financial or other)? Tell me about this….
- ➔ Were you allowed to return to Meander River during the evacuation?

Returning Home:

- ➔ When did you return home?
- ➔ How did you get home?
- ➔ What experiences did you or your family have upon your return home?
- ➔ What was negative and/or positive about your return home?
- ➔ Did you or your family receive any assistance once you returned home?

Reflecting on the experience:

- ➔ What helped or hindered the evacuation process?
- ➔ What were the lasting effects of the evacuation? For example, what stands out the most for you as you recall this experience from 2 years ago?

- ➔ Do you feel prepared should you have to evacuate again?
- ➔ Would you evacuate again if a similar risk of wildfire were to occur in Meander?
- ➔ Have you or your family done anything to prepare for the possibility of another evacuation?
- ➔ What has the community done to prepare?
- ➔ Do you have any suggestions for future wildfire evacuations, things to improve, things to keep?

Final thoughts:

- ➔ Is there anything else you would like to add?
- ➔ Is there anyone else you can recommend that I speak to in regards to your community's wildfire evacuation? Specifically, someone who may have had a different experience from your own?
- ➔ Would you like a copy of the results once the study is completed?

Appendix D: About the First Nations Wildfire Evacuation Partnership (FNWEP)

This partnership brings together researchers, six First Nations communities in Ontario, Alberta and Saskatchewan, and agencies involved in providing assistance during wildfire evacuations in the three provinces. The aim of this partnership is to learn about how First Nations residents and communities were affected by recent wildfire evacuations, and to identify ways to reduce the negative impacts of wildfire evacuations on First Nations people and communities.

First Nations Communities Involved in the Partnership:

- Alberta: Dene Tha' First Nation, Driftpile First Nation & Whitefish Lake First Nation (Atikameg 459)
- Saskatchewan: Onion Lake First Nation & Lac La Ronge Indian Band
- Ontario: Mishkeegogamang First Nation, Sandy Lake First Nation & Deer Lake First Nation

Agencies Involved in the Partnership:

Health Canada, Assembly of First Nations, Aboriginal Affairs and Northern Development Canada, Alberta Emergency Management Agency, Ontario Ministry of Natural Resources, Ontario Office of the Fire Marshal and Emergency Management, Saskatchewan Ministry of Environment, Saskatchewan Ministry of Government Relations, Saskatchewan Ministry of Social Services, Saskatchewan Ministry of Health, First Nations Emergency Services.

Researchers:

University of Alberta, Canadian Forest Service, University of Tasmania

Funding:

This research partnership is funded by a Partnership Development Grant from the Social Sciences and Humanities Research Council. The Alberta Centre for Child, Family & Community Research is funding

research with Whitefish Lake First Nation 459 in Alberta. The Canadian Circumpolar Institute provided funding to support research travel in Alberta and Ontario.

Additional Information:

Website: http://www.eas.ualberta.ca/awe/

Appendix E: Initial Coding Framework (Descriptive Codes)

Code	Sub-code

Logistics (Who/What/ Where/ How)	• Timing/ stages of evacuation
	  ○ Pre-evacuation
	  ○ Smoke arrives
	  ○ Evacuation
	  ○ Displacement
	  ○ Returning home
	  ○ Long term reflections
	• Information/ Communication
	• Host communities
	• Accommodation
	• Organization
	• Evacuation Roles
	• Food
	• Transportation
	• Recreational Activities
	• Return Trips to Meander River
	• Returning Home

Experiences	• unprepared/ rushing • Confusion/ information • Worry about house/ possessions • Helping family or help from family • Staying behind • Resisting evacuation • Finding transportation • Reception centre problems • Concern for Elders • Accommodation experiences • Meals • Passing time • Alcohol use • Volunteering • Isolation • Wildfire Smoke & heat in High Level • Communication • Return trips to retrieve belongings • Long term, unresolved stress • Financial (Individual and band) • Past hazard experiences

Appendix F: Final Coding Structure (Analytic Codes)

Factors that negatively affected evacuees	**Impacts / experiences**
• Lack of Wildfire Information	• confusion/ uncertainty • inability to gauge extent of threat • delays in evacuation decision making • questioned credibility of evacuation warning – loss of control • limited time to prepare for evacuation • Forgotten personal items
• Inadequate community preparedness	• lack of advance preparations & assigned roles • frustration in not being able to help • sense of disorganization • disorientation/ confusion • reception centre problems • sequence of evacuees questioned
• Compromised sense of moral order	• Unmet expectations • Difficulties coping • Favouritism • Disrespect for cultural norms of behaviour/ respect • Discourses of blame and responsibility • Rendered evacuees more vulnerable
• Wildfire Smoke	• Exacerbation of pre-existing health problems • Made coping/ passing time difficult • Unmet expectations
Factors that positively affected evacuees	**Impacts/ experiences**
• Local leadership & evacuation coordination	• Built capacity and resilience • Enabled positive coping • Mobilized volunteers • Flexibility towards local context • Communication • Use of local resources
• Family/ social support	• Tangible and emotional support helped evacuees cope • Communication of information • Stress relief/ mitigation
• Local host community	• Low disruption to place attachment • Familiarity • Family nearby • Enabled return trips and quick repatriation • Use of local resources

Appendix G: Letter of Community Support

DENE THA' FIRST NATION
P.O. BOX 120
CHATEH, ALBERTA
T0H 0S0

TELEPHONE: (780) 321-3774
(780) 321-3775
(780) 321-3842
FAX: (780) 321-3886

November 18, 2012

To Whom It May Concern:

Dene Tha First Nation is pleased to be a community partner on the "Aboriginal Wildfire Evacuation Partnership" grant application submitted for funding to the Partnership Development Grant program by Dr. Tara McGee of the University of Alberta. Our community of Meander was evacuated in July 2012, when over 400 of our residents had to leave due to smoke from nearby wildfires. This being said, we are happy to support this research proposal, which looks to improve the future evacuations of Aboriginal communities due to wildfire.

Dene Tha First Nation will contribute to the partnership in several ways:

- Chief and council participating in an initial meeting with Dr. McGee and a graduate student to discuss the research to ensure that it meets our community's needs;
- The Council will recommend community members to form a research advisory committee;
- The community advisory committee will assist in selecting two community research assistants; and
- The community advisory committee members will provide advice to the researchers during the data collection process
- The community research assistant completing training and assisting the graduate student to conduct interviews with local residents and interpret the results of interviews; and

Twenty local residents will be invited to participate in interviews with a graduate student and community research assistant. Our community's in-kind contribution to this research will be the time that we spend participating in this research.

We have numerous expectations of this partnership. One is that the research will allow us to develop a better understanding of how our residents were affected by the evacuation in the summer of 2012. Another is that information gained from this research will enable us to work with agencies to improve future evacuations of our community. A third, but in no means final, expectation of this research is that the future evacuations of other Aboriginal communities be improved, with lessons learned from ourselves and the other community partners.

Sincerely,
Wilfred Hooka-Nooza, EDO

CC: DTFN

Appendix H: Final Report Submitted to Chief & Council, Dene Tha' First Nation

THE SUMMER 2012 WILDFIRE EVACUATION EXPERIENCES OF MEANDER RIVER, DENE THA' FIRST NATION

FINAL REPORT | MAY 2017

Written by: Kyla Mottershead
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ABOUT THE FIRST NATIONS WILDFIRE EVACUATION PATNERSHIP

This partnership brings together researchers, six First Nations communities in Ontario, Alberta and Saskatchewan, and agencies involved in providing assistance during wildfire evacuations in the three provinces. The aim of this partnership is to learn about how First Nations residents and communities were affected by recent wildfire evacuations, and to identify ways to reduce the negative impacts of wildfire evacuations on First Nations people and communities.

FIRST NATIONS COMMUNITIES INVOLVED IN THE PARTNERSHIP

Alberta: Dene Tha' First Nation, Driftpile First Nation & Whitefish Lake First Nation (Atikameg 459)

Saskatchewan: Onion Lake First Nation & Lac La Ronge Indian Band

Ontario: Mishkeegogamang First Nation, Sandy Lake First Nation & Deer Lake First Nation

AGENCIES INVOLVED IN THE PARTNERSHIP

Health Canada, Assembly of First Nations, Aboriginal Affairs and Northern Development Canada, Alberta Emergency Management Agency, Ontario Ministry of Natural Resources, Ontario Office of the Fire Marshal and Emergency Management, Saskatchewan Ministry of Environment, Saskatchewan Ministry of Government Relations, Saskatchewan Ministry of Social Services, Saskatchewan Ministry of Health, First Nations Emergency Services.

RESEARCHERS

University of Alberta, Canadian Forest Service, University of Tasmania

FUNDING

This research partnership is funded by a Partnership Development Grant from the Social Sciences and Humanities Research Council. The Northern Scientific Training Program is funding research with Dene Tha' First Nation in Alberta. The Canadian Circumpolar Institute provided funding to support research travel in Alberta and Ontario.

ADDITIOINAL INFORMATION

Website: http://www.eas.ualberta.ca/awe/

ACKNOWLEDGMENTS

I would like to acknowledge support from Chief and Council and administration of Dene Tha' First Nation, in particular the assistance I received from Councilor Sidney Chambaud and Health Coordinator, Linda Semansha. I would also like to thank my two research assistants Tina Yakinneah and Cameron Chalifoux for their time, support and helpful advice. Finally, I acknowledge the members of Dene Tha' First Nation who shared their experiences with me during interviews.

Figure 5: Wildfire Smoke in Meander River (photo courtesy of Sidney Chambaud)

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RESEARCH SUMMARY

INTRODUCTION

The purpose of this study was to understand how members of Dene Tha' First Nation, Alberta were positively and negatively affected when they were evacuated during the summer of 2012 due to wildfire smoke from the Lutose Complex Fire. This report is a summary of the research background, approach, findings, and recommendations for use by Dene Tha' First Nation.

STUDY BACKGROUND

Wildfires are responsible for burning an average of 2 million hectares of forest, shrub and grassland each year in Canada. They can endanger communities by isolating them from outside access; causing health and safety concerns; and damaging vital infrastructure and property (Beverly & Bothwell, 2011; Natural Resources Canada, 2016). As a result, all Canadian fire management agencies recommend the evacuation of a community when residents are at risk (Beverly & Bothwell, 2011). Canada's Indigenous[7] communities are at a high risk of being evacuated due to wildfire. For instance, although they make up less than four percent of the Canadian population, almost one-third of all evacuees and evacuation events from 1980-2007 involved Indigenous communities (Beverly & Bothwell, 2011). Additionally, 75 percent of evacuations due to wildfire smoke in Canada during this time period involved First Nations (Beverly & Bothwell, 2011).

Wildfire evacuations can be very complex, particularly in isolated areas where access is restricted, which is the case for many Indigenous communities. Research on other hazards indicates that evacuations can cause social, psychological, health, and economic impacts on evacuees, their families and communities (DeSalvo et al., 2007; Sorensen & Sorensen, 2007). For instance, evacuees can experience a disruption in their normal routines and sense of place; a loss of control and uncertainty about the future (Cohn et al., 2006; Hodgson, 2007); and there may be a loss of support and community networks. Wildfire evacuations can be particularly stressful for several reasons. First, large wildfires can affect numerous communities due to fire proximity, and smoke can affect communities up to hundreds of kilometers away. Second, wildfire evacuees may have little advanced warning of an evacuation and evacuations may occur at any point in the day, including the middle of the night. Third, wildfire evacuations may last from a few days up to several weeks and residents may be evacuated numerous times in one fire season, either from the same wildfire or other flare-ups (Cohn et al., 2006; McCool et al., 2006).

Indigenous leaders across Canada have called for improvements to emergency services and have pointed out that Indigenous people suffer more during evacuations than non-Indigenous residents due to pre-existing vulnerabilities, remoteness, and lack of critical security infrastructure, resources, and capacity. (9)

[7] Indigenous People in Canada are comprised of First Nations, Inuit and Métis, as defined in the Constitution of Canada (Department of Justice Canada, 1982).

However, the wildfire evacuation experiences of Indigenous people have received little attention by researchers.

Wildfire evacuations in Canada are likely to increase in the years ahead and may happen more frequently and require longer periods of evacuation, due to factors such as climate change (Flannigan et al., 2006; Gillett et al., 2004; Tymstra et al., 2007), mountain pine beetle(13), and the build-up of fuel from a history of fire suppression increasing the wildfire risk to many communities, particularly remote, isolated Indigenous communities (Christianson, 2011; McFarlane, B.L., 2006; Stocks, B.J. & Wotton, 2006; Wotton & Stocks, 2006). Furthermore, growing fiscal pressures may reduce attention being paid to preparedness planning and development. This makes it even more important to examine how to develop programs to increase resilience and adaptive capacity in susceptible populations.

STUDY OBJECTIVES

This study aimed to understand the summer 2012 wildfire evacuation experiences of residents of Meander River, Dene Tha' First Nation. The objectives were to:

(1.) Document and describe how the wildfire evacuation was carried out and how evacuees defined and framed their evacuation experiences using a case study of a community wide wildfire evacuation.

(2.) Investigate factors that influenced how First Nations and individual members were positively and negatively affected by wildfire evacuations.

(3.) Recommend ways in which Dene Tha' First Nation, other First Nations, and organizations who provide support during evacuations can work to improve wildfire evacuations.

DENE THA' FIRST NATION

The Dene Tha', which in Dene Dhah language means the *people common to the territory*, or *common peoples*, are a First Nation people who live in northwestern Alberta (Goulet, 1998). Band members maintain their livelihood off a combination of wage work, government subsidies, and traditional subsistence activities. Many of the Dene Tha' inhabit three of seven reserves located in northwestern Alberta near the town of High Level. As displayed in Figure 1, the inhabited communities are Bushe River (Bushe River 207), Meander River (Upper Hay River 212, also known as Taché), and Chateh (Hay Lake 209, also known as Assumption).The First Nation has a total registered population of 2971 members with approximately 2000 The population of Dene Tha' First Nation is young with a median age of 26 years compared to 36 years for the rest of Alberta (Aboriginal Affairs and Northern Development Canada, 2011). Current on-reserve facilities vary between the three communities but include First Nation offices, public works buildings, and schools. Dene Tha' First Nation also provides municipal services, including water and sewer systems, a fire truck, a water truck, and a sewer truck. They are affiliated with the North Peace Tribal Council (NPTC) which administers post-secondary education resources in Chateh as well as health and nursing services in Meander River and Chateh. Despite ongoing exploitation of the region's natural resources such as oil, gas, and timber products, Dene Tha' First Nation continues to suffer high levels of poverty and unemployment and has not experienced marked improvements in their social or economic conditions (Ross, 2001). For example, the median individual income as of 2011 was $17,282 compared to $50,956 for the rest of Alberta. Likewise, the unemployment rate of 40 percent in 2011 is substantially higher than the rate of 5 percent for the rest of Alberta (Aboriginal Affairs and Northern Development Canada, 2011). Economic activities within the three communities include a gas station and food store, a laundromat, a post office, a bottle depot, a coffee shop, Dene Tha' construction, and natural gas distribution. There are also band

member-owned businesses that provide a taxi service, home building, electrical services, and small engine repair.

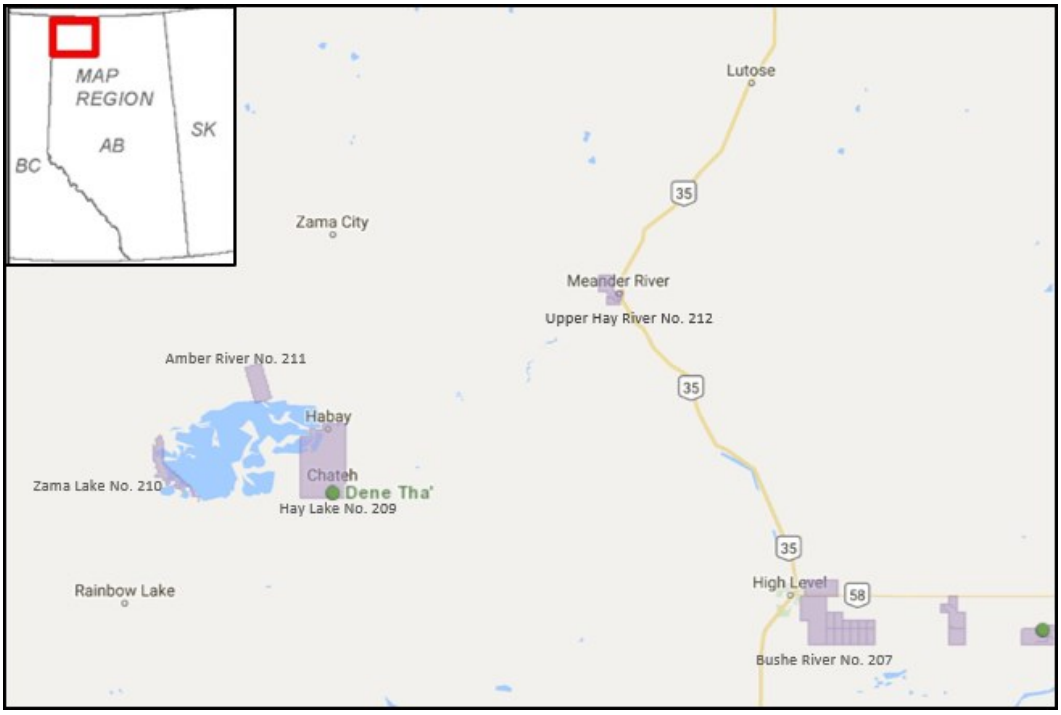

Figure 6: Location of Dene Tha' First Nation communities and reserves in Alberta (created using google maps)

THE STUDY COMMUNITY: MEANDER RIVER

Meander River, also known as Taché, is the smallest of three occupied reserve settlements of Dene Tha' First Nation. It is located 75 km north of the town of High Level on the west side of Highway 35 which is the main route from Alberta to the Northwest Territories. It is also situated beside the confluence of the Meander and Hay Rivers and is surrounded by boreal forest, oil and gas projects, clear-cuts, and a gravel mine. The community has a population of approximately 400 people with many homes occupied by multiple generations of family. Aside from homes, the community has a band complex which is a community building that houses community services such as counseling, social work, and the local radio station. Community activities such as training workshops, band council meetings and other community gatherings also take place at the band complex. The reserve has a small volunteer fire department, a community health centre operated by the North Peace Tribal Council and a primary school (kindergarten to grade 9) operated by Fort Vermillion School District. Children must relocate to High Level or other larger municipalities in northern Alberta if they continue school past grade 9 because grades 10 to 12 are not available in the community. Employment opportunities in Meander River are scarce with only a small number of residents employed at the services mentioned. Some residents also work as seasonal wildland firefighters and others seek work in High Level and beyond. Some members still take part in fishing, trapping, and hunting but increasingly fewer young people participate in these traditional activities (Spyce, 2009). Like other First Nations in Canada, Meander River is subject to challenges associated with postcolonialism including poverty, high unemployment rates, low education attainment, social and chronic health problems.

STUDY APPROACH

This research with Dene Tha' First Nation forms the basis of my thesis submitted in partial fulfillment towards a Master of Arts in Human Geography in the Department of Earth and Atmospheric Science at the University of Alberta. Funding for the data collection phase of this research was provided by the Northern Scientific Training Program Grant and the Canadian Circumpolar Institute CBAR Grant.

This research is also part of a multi-year community-based research program. The study, carried out as part of the First Nation Wildfire Evacuation Partnership (http://www.eas.ualberta.ca/awe/) was developed in fall 2011 to conduct research to understand how First Nations residents and communities in Canada are affected by wildfire evacuations. Funding for the research partnership is provided by the Social Science and Humanities Research Council Partnership Development Program to support the multi-year research that builds on this research with Dene Tha' First Nation, and will include First Nations in Alberta (Whitefish Lake First Nation & Driftpile First Nation), Saskatchewan (Onion Lake First Nation & Lac La Ronge Indian Band), and Ontario (Deer Lake First Nation, Sandy Lake First Nation & Mishkeegogamang First Nation). The First Nations Wildfire Evacuation Partnership brings together researchers and agencies involved in the evacuation of Indigenous communities in Alberta, Saskatchewan and Ontario.

This research project with Dene Tha' First Nation used a qualitative community-based case study approach (22). Qualitative research methods enabled me to make sense of people's experiences by focusing on ordinary events in a natural setting (Longhurst, 2009; Miles & Huberman, 1994) and have also been found to be appropriate for studies with Indigenous communities (Kingsley et al., 2010; Maar et al., 2011; Shahid, Bessarab, Howat, & Thompson, 2009). This research also used a community-based approach where Dene Tha' First Nation was involved throughout the research process. For instance, Chief and Council provided support, community advisors assisted and provided feedback throughout the research process, and two community research assistants were hired and provided crucial assistance during the data collection process. Lastly, research results have been presented to Chief and Council and to the community. While the community was involved in many aspects of this research and findings based on the evacuation experiences of community members, the the final interpretations presented are my own.

DATA COLLECTION

In February 2014, I met with Chief and Council to discuss the research and establish a community advisory committee and to begin the recruitment process of two community research assistants. I travelled to Dene Tha' First Nation in June 2014 to carry out data collection and returned in August 2014 to conduct further interviews. During the second trip, the two community research assistants, Tina Yakinneah and Cameron Chalifoux recruited interview participants, helped to conduct interviews, acted as interpreters during interviews where required, and provide advice to the research team. In total, 27 interviews were conducted with 31 participants. Participants included men (10) and women (21) ranging from 20 – 73 years of age and included people who evacuated, people who did not evacuate, and people involved in organizing the evacuation. Participants were recruited by the research assistants or via referrals from other interview participants and key contacts. Recruitment of participants continued until no new information was emerging from the interviews (22).

During the interviews, residents were asked about their own and family's positive and negative experiences during the 2012 wildfire evacuation, including the evacuation process while they were still in their community, while they were leaving their community, when they were in their 'host' community, and upon returning home to Meander River. They were also asked about any lasting positive or negative effects of the evacuation. Interview participants were also asked for any suggestions about how future wildfire evacuations could be improved.

FINDINGS

Hot and dry conditions led to the start of many wildfires in northern Alberta during the months of June and July 2012. Many fires were ignited by a thunder and lightning storm that occurred on June 21, 2012. Two wildfires referred to as Fire HWF 120 and Fire HWF 106 by Alberta Agriculture and Forestry (AAF) were causing concern for local authorities due to their rapid spread in Mackenzie County and proximity to the hamlet of Zama City (see Figure 2, a map of forest fire history near Den Tha' First Nation). Fire HWF 120 was declared out of control at 1,000 hectares on July 9th, 2012. It was located approximately 30 kilometers north of Meander River and crossed Highway 35 (the main highway leading from Alberta to the Northwest Territories) and resulted in road closures for several days. Meanwhile, Fire HWF 106 was 12,000 hectares and was located 27 km northwest of Zama City. Several smaller fires were in the same vicinity as the two main fires and grew over the following days. Due the numerous fires in one area, they were later grouped together and referred to as the Lutose Complex Fires.

On July 10th, 2012, Fire HWF 106 grew to approximately 12,200 hectares with fire detected less than 10 km from the hamlet of Zama City. Mackenzie County declared a local state of emergency and placed Zama City residents on a 2-hour evacuation notice. Shortly thereafter, strong northwestern winds began to blow towards Zama City, increasing the risk for residents. A mandatory evacuation order was then issued for Zama City with all residents directed to an evacuation reception centre in High Level.

Interview participants in Meander River said they were aware that wildfires were burning near Zama City and causing periodic road closures just north of Meander River. However, Meander River was not placed on evacuation alert like Zama City because at that stage, neither fire proximity nor smoke were affecting he community. Participant 6 recalled seeing a notice in the health centre operated by Health Canada and the North Peach Tribal Council, "*that there was smoke nearby and that if anybody that's chronically ill or whatever to be aware that there's smoke* [but] *that was only thing we had, and other than evacuation I didn't hear nothing*". Similarly, the rest of the interview participants did not recall receiving any official information about the wildfire status or being told to prepare for a possible evacuation.

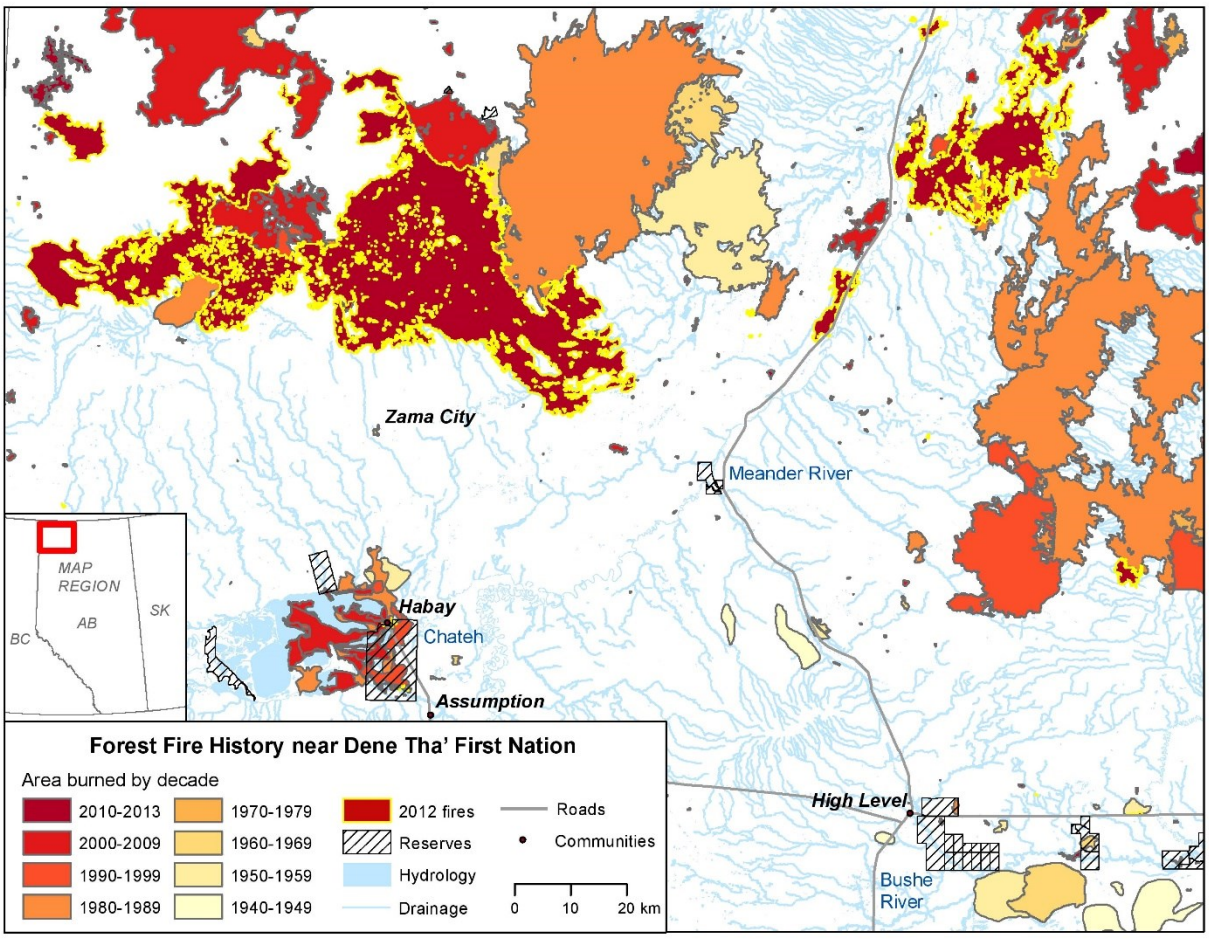

Figure 7: Forest fire history near Dene Tha' First Nation (map courtesy of the Canadian Forest Service).

On the morning of July 10th, 2012, the DEM for Dene Tha' First Nation visited Meander River and observed that the air conditions were relatively normal and proceeded to return to Chateh since no action was required at that time. However, in the afternoon, the strong northwesterly winds that prompted the evacuation of Zama City began blowing heavy smoke and ash towards Meander River. Within an hour, the air conditions deteriorated to the point that breathing and visibility were difficult. Even though an evacuation warning had not been issued for Meander River, a few participants recalled leaving the community early due to the smoke. For example, Participant 5, recalled leaving when the air quality began to deteriorate, *"my daughter phoned me from Bushe River and she said Mom you better get over here, 'cause I'm asthmatic. She said get out of that smoke. So, I just pack a few things and I went".* Similarly, Participant 7 recalled leaving when their daughter grew concerned about their breathing, "*Well when I left here, I left here even before the evacuation started because my daughter said […] you need to get out of here because you're not breathing right, you could hear the wheezing".* Meanwhile, Meander River's volunteer fire chief observed the wildfire smoke and deteriorating air quality. They called the DEM to return immediately to Meander River. After driving 100 km from their home in Chateh back to Meander River, the DEM for Dene Tha' First Nation observed the severity of the air conditions. This assessment was based entirely on personal observations and not by using air quality monitors. Air quality monitors were made available to the community by Health Canada once the community had been evacuated. Shortly the DEM made these observations, they began the first ever community-wide evacuation of Meander River band members. The evacuation began at approximately 9:00 pm and continued until the following morning.

The DEM was familiar with and in possession of a generic emergency plan provided by the Alberta Emergency Management Agency for First Nations which they followed during the Meander River Evacuation. They said that at the time of the evacuation, the plan had not been formally tailored to Dene Tha' First Nation or each of the three reserves. However, their personal knowledge and familiarity with the communities was used in conjunction with the generic emergency plan to make decisions during the evacuation. Initially, the evacuation of Meander River was voluntary; intended for vulnerable residents including small children, infants, pregnant women, people with chronic respiratory problems, and Elders. However, most of the approximately 400 Meander River residents chose to evacuate during the voluntary evacuation. This was due in part to the composition of most households in Meander River: healthy family members chose to accompany residents for whom the voluntary evacuation applied. In addition, since most people learned about the evacuation via word-of-mouth, the detail about the voluntary nature of the evacuation was lost in communication resulting in most people choosing to evacuate as soon as they learned about it. For example, Participant 30 recalled learning about the evacuation from a text message, "*I was at my sister's and then I got a text and then I went to see my boyfriend and […] he's like pack up all your stuff and we have to go like right away".* Most interview participants were told they had 10-15 minutes to pack a bag and leave. Many interview participants said this made them feel rushed and unprepared especially because it was late at night and nobody was expecting to be evacuated. For instance, Participant 13 said they were preparing for bed when they were told to pack a bag and evacuate:

> *"We were puttin' the kids to sleep and everybody had pajamas on. And then somebody bang on my door really hard, and I was wondering what's goin' on? So, I opened the door and they said you got 15 minutes to get everything you need and to meet us at the Band office for evacuation".*

Similarly, Participant 21 said that the last-minute nature of the evacuation combined with a lack of information about the situation caused worry and stress:

> *"But we really didn't get that much information, what was really goin' on, you know. The main thing was people were worried about their houses and all that because it was such short notice that where people had to run around. And they said the fire was just right there. So, a lot of people were worried, that's all".*

Residents with vehicles left on their own while some residents received a ride from family or friends. Otherwise, residents without transportation were told by either the DEM, the volunteer fire chief, family members, or other community residents to gather at the band complex and wait for a charter bus organized by the band to transport them to High Level. Some residents volunteered to help drive band members from their homes to the band complex. The number of evacuees requiring transportation exceeded the bus' capacity so two trips were made to transport all the evacuees.

Although most residents left as soon as they heard about the evacuation, some chose to stay behind. Several hours after the voluntary evacuation began, the air quality visibly deteriorated even more. At this stage, the band Chief had arrived in Meander River. Together, with the DEM, they decided to declare a local state of emergency. This was followed by a mandatory evacuation order for the remaining residents of Meander River. A few interview participants who did not leave during the voluntary evacuation said they were reluctant to evacuate until they were threatened with arrest from the RCMP. Participant 19 recalled his experience:

> "*I was wondering what the hell's happening and then the cops came there,* [saying] *you have to be evacuated. If you don't go through town then we might have to arrest you. I tell them I'm worried about my house but he said no, don't worry about anything 'cause you have to. Everybody's gone he said from Meander".*

Several other interview participants recalled not wanting to evacuate because they either wanted to personally protect their homes if the wildfire advanced toward the community or they did not think the wildfire smoke threat warranted their evacuation. Although almost everyone in the community was required to evacuate, two residents were permitted to stay on the reserve throughout the evacuation. One was a band employee who looked after infrastructure; the other was the volunteer fire chief. Both patrolled the community in case blowing ash or embers ignited a fire, provided security, and fed animals that were left behind. They also provided updates to evacuees through the local radio station, text messages, and social media.

The host communities included High Level and one of the other Dene Tha' First Nation communities, Bushe River. A reception centre for Meander River evacuees was set up at the band complex in Bushe River and operated by local band employees. Due to the simultaneous evacuation of Zama City, Mackenzie County had also set up a reception centre at a school gym in High Level. The existence of the two evacuation centres combined with an initial lack of communication between Mackenzie County and Dene Tha' First Nation caused confusion. Most Meander River evacuees including bus passengers went to the High Level reception centre set up for Zama City evacuees instead of the reception centre in Bushe River. Interview participants who self- evacuated recalled being confused about where to go once they arrived in High Level and being directed to the incorrect reception centre. For example, Participants 25 stated:

> "*And then I was all over the place. Like we had no information where we were supposed to go, who was a contact person. We went through town council and they directed us to the place where there was agencies and then I was all over the place. It was just completely out of it".*

Bus passengers were also mistakenly dropped off at the High Level reception centre and could not make their way to Bushe River once the bus had left. Also, adding to the confusion, the High Level evacuation organizers were initially unaware that Meander River was also evacuating until evacuees began checking in. Once Meander River evacuees began arriving at the High Level reception centre, they experienced delays because High Level evacuation organizers needed to coordinate with the First Nation to ensure that band members and expenses would be tracked separately for the First Nation's reimbursement process. As a result, Meander River evacuees experienced long delays before they were assigned accommodation. Participant 22 recalled the difficult experience they had spending the first night sleeping on the gym floor of the High Level reception centre,

> "*I slept on the floor in the gym with my kids and there was some Elders that were there and there was other families. I kept asking if they had blankets or anything and there was nothing. So, I used my kids' jacket to cover them and tried to make them comfortable as much as I can. They couldn't go to sleep".*

Most evacuees were assigned to motels in High Level by the following day. Some evacuees stayed with friends and family who lived in the host communities. When motels were filled, young single people were provided with tents in Bushe River which interview participants nicknamed 'Tent City'. Some evacuees also decided to leave the area and go camping instead of staying in the host communities.

Two interview participants reported being temporarily separated from their children. This happened in two ways. First, children who were being cared for by relatives when the evacuation occurred ended up staying with the relatives because the parents did not get a motel room themselves. In this incident, the interview participant claimed they had to sleep in their car while their child stayed with extended family because the only accommodation option available was to sleep in a tent in Bushe River which they opposed. Second, one participant reported that their teenaged children were assigned to a different motel than their parents. However, it appears that widespread separation of families did not occur and most were kept together.

Crowded motel rooms were a problem with many interview participants reporting that they had to sleep on the floor because spare cots were not available. For example, Participant 22 recalled the crowded conditions in their motel room, *"The room where we stayed we had to crowd in, there was two beds. There was […] six of us. […] There was no cot or nothing".* Another accommodation related concern occurred a few days after the evacuation when several participants were told their motel rooms were no longer available. Motel staff and evacuation organizers informed them that they would have to find alternate accommodation because the rooms had been previously reserved by government employees. This was an inconvenience for the evacuees but they found rooms at a motel across the street.

Most participants spoke about problems that occurred during the evacuation due to alcohol use in motel rooms by a small group of evacuees, mostly young people. For example, Participant 6 recalled the situation and how this group's behaviour made the community look bad:

> *"They would get kicked out if they were caught drinking or partying in a room. I heard a couple of instances that it happened. […] It was kind of bothersome 'cause we come from the same community and it's kind of making everybody else look bad. That was the only thing that bothered me".*

Following some reported loud behaviour and disturbances, Dene Tha' First Nation evacuation organizers enforced a zero-tolerance policy for disruptive behaviour which, if violated, would result in eviction from the motel. These evacuees were then given the option of sleeping in the school gym or in the tents set up in Bushe River. Two participants also experienced being removed from their motels due to drinking by their family members.

Problems related to pre-existing health conditions were also reported by interview participants. Several participants who had forgotten medications during the evacuation had to wait at the hospital when they arrived in High Level to get their prescriptions re-filled. This was time consuming and was especially difficult for elderly residents and their family caretakers who were already tired and inconvenienced by the evacuation. Many interview participants also experienced difficulties breathing due to their exposure to the smoke before leaving Meander River and the smoky conditions in High Level. Most participants like Participant 13 stayed inside their motel rooms to avoid the smoke, "*Yeah, we all stayed together in one room but I had to keep my grandson in the room most of the time because of the smoke. […] there was smoke all over the place so we mostly stayed in the room and watched TV with him, occupied him".* Participants also recalled that most of the motel rooms were hot since they did not have air conditioning and the smoky conditions outside inhibited the opening of windows. The band provided bottled water to evacuees but many interview participants recalled being hot and having difficulties breathing due to the wildfire smoke in High Level. A few interview participants said they had severe reactions to the smoke and spent time in the hospital on Ventolin.

Most evacuees ate meals at the evacuation reception centre set up at the band complex in Bushe River. Others were given vouchers to eat meals if their motel had an on-site restaurant. However, no money was provided to evacuees to purchase other food or incidentals so interview participants said they had to spend their own money. A few interview participants who stayed in family homes or had family nearby said they had bar-b-ques and trying to make the most of the time together. Aside from meals, most participants said they passed time by taking children swimming at motels that provided free passes. Others said they occupied their time by trying to keep informed about the evacuation and by visiting with other evacuees. This eased the stress of the evacuation. Daily wildfire status meetings were held in High Level and were attended by the DEM and other members of the band's leadership. This information was subsequently passed on to evacuees during meals in Bushe River, over the band's radio station, and when volunteers periodically visited motel rooms. However, most interview participants said they spent most of their time in their motel rooms and watched TV to avoid breathing the wildfire smoke outside and because they did

not know what else to do. Many participants said that being removed from their daily routines was difficult and some had problems coping with the uncertainty caused by the evacuation. Participant 25 recalled the difficult experience they had during the evacuation when they were removed from their routine:

> *"All I did was I stayed there, I just felt frustrated, confused, and lost. […] So overall that, I forget how many days we were in High Level and all I did was I just laid around and I slept. I was depressed […] I was just too depressed […] to go out there and socialize. So, I kind of just isolated myself […] I just didn't want to have anything to do with it".*

Some interview participants said that being with family in their rooms helped the stress and uncertainty caused by the evacuation but that overall, it was not an experience they cared to repeat.

Five days after the evacuation, the band allowed some evacuees to access their homes in Meander River for 45 minutes to pick up personal belongings and check on pets. Since the RCMP blocked the roads into the community, residents had to seek permission at the Bushe River evacuation reception centre. Bus transportation was arranged by the band for residents who wanted to return to their homes in Meander River but did not have a personal vehicle.

The evacuation ended after seven days, on July 17th, when air monitoring machines set up by Health Canada in Meander River indicated that the air quality was safe for residents to return home. Residents learned that the evacuation had ended through a variety of channels including notices sent around to motel rooms, visits to their motels from organizers, word-of-mouth from family, and announcements during meals in Bushe River. Bus transportation was also provided to residents without vehicles to return to Meander River. Prior to returning home, most interview participants reported being put on a list at the local grocery store to receive a purchase order valued at $40 (per person) to replace food lost due to spoil during the evacuation. Electricity was not lost during the evacuation so food loss was minimal. Interview participants who had personal vehicles were also able to obtain a $40 purchase order to replace gas used during the evacuation. However, not all interview participants were aware of this financial compensation and therefore missed out. Once at home, most interview participants said they were relieved the ordeal was over. Although it was an inconvenience, most participants said that the evacuation was worthwhile to protect the health and safety of community members. Participants who helped organize the evacuation recalled being exhausted after everything was finished, having worked as much as 20 hours a day for the duration of the evacuation. These participants said they took their vacation time after the evacuation to recover from the ordeal.

Organizers and band administrators also worked many hours over the months following the evacuation to complete the necessary paperwork and to provide documentation to be reimbursed through the government disaster recovery program. They described the process as complex, requiring many work hours that would have otherwise been devoted to their existing duties. Participant 17 said the difficulties with the process are due, in part, to frequent changes to the application process: "*The process is really slow and then every year they keep changing the way we have to do the paperwork and then we have to make the changes*". Initially, the band was responsible for the cost of the evacuation, and they then applied to the provincial government for reimbursement. Participant 17 noted that it took more than a year to be reimbursed and in the meantime, funds had to come out of the band's administrative budget:

> *"[…] the funding, it takes more than a year to get. What we did with Meander was when we did our evacuation we finally, I think it took almost a year and a half to get our money back because we used the administration, the funds. And then when we get our money back the money goes back to administration*".

At the time of this study, federal and provincial disaster funding did not cover the entirety of evacuation related expenses. A total of $160,762.72 was not reimbursed by disaster funding. The band had to cover these expenses using their administrative budget.

Following the evacuation, there was not a community meeting regarding the evacuation in which residents could discuss their experiences or provide feedback to leadership. Participant 5 expressed frustration that nothing had to been done to improve upon emergency management procedures in Meander River:

> *"And then we never got any report of how it went, how they moved people and all that, so how would I know? [*how it affected community members*] They need to have a report done after everything's done, so this is how we moved people, this is what we did".*

In addition, most participants said that they did not share their experiences with anyone outside their immediate family until the interview for this research. For some participants, such as Participant 25, sharing their experiences about the evacuation was difficult: *"Well to be honest, I don't feel good right now having to go back and over what I experienced. It's just like that happened a couple days ago".* Other interview participants also had difficulties going over their evacuation experiences, stating that they were still struggling with the stress they experienced during the evacuation and were challenged with the lack of resources available to help them cope. For example, Participant 22 shared their experience after the evacuation:

> *"Yeah I still have effects. I feel still stressed. I never dealt with any of it […] and there was no counsel or nothing put in place for people that would have been affected, and how it affected them and how stressful it was, and like it's just they took people and then had them go through all this stress and everything and don't even provide no counsel or nothing to help with things like that, like how it affected people. There was nothing. I don't know how they run everything".*

Some participants reported that certain sights and smells triggered their memories of the 2012 evacuation and made them worry about their ability to cope with a similar situation. For example, Participant 6 reported that seeing helicopters fly over the community made them worry about being evacuated again:

> *"It was quite the experience but I promised myself I will not go through that again. We saw helicopters the other day and we're like oh no, we're gonna get evacuated again. Everybody's like oh no and we all start talking about it again".*

Similarly, Participant 22 said that seeing and smelling wildfire smoke made them experience worry and stress:

> *"Last week was so smoky, I got scared. I did not want to have to leave again and go through all that […] I was panicking and I said like I want all the windows closed and I don't want the kids to go outside. I don't want nobody to go in and out of here, like what if it gets smoky in here. And I said maybe I'll have to go to the hospital and stay there and let them know that I'm there or home because I was scared".*

In contrast to this small group who reported that they continued to struggle with the evacuation two years afterwards, most interview participants said that, for them, the evacuation was an inconvenience but it did not significantly affect them over the long term. Importantly, these participants pointed out that while they did not personally experience any difficulties, they were still concerned about the well-being of other community members such as Elders, children, and members with chronic health conditions. Several participants said they would not evacuate in the future under the same conditions because they did not think the evacuation was warranted for all residents. For example, Participant 15 who had a particularly negative experience during the evacuation reported:

"I would stay back. […] First of all, you tell me how far the fire is 'cause I don't have any health problems. I don't have allergies or any, well I do have allergies but it's controllable. If it's like 200 kilometers or whatever away, I'm gonna stay home, don't tell me to move".

In addition to suggestions regarding who should evacuate and under what circumstances, interview participants provided many recommendations for improving emergency management in Meander River. For example, some participants wanted to see more wildfire mitigation take place around the community such as creating a firebreak. In the event of a future nearby wildfire, some participants wanted more notice to prepare for evacuation. For example, Participant 26 recommended having notices placed around the community:

"Well, yeah, there should be notices up in the office or some place where people can see and read them, just to be aware of emergency or another evacuation or something. […] they should notify people earlier, they should know that the fire is coming up close to Meander, they could have evacuated people 2 or 3 days earlier".

Other participants wanted improved warning communication procedures. Participant 20, for example, suggested the community radio station should have been used more during the warning stage:

"I think they need to have immediate communication with the community. The local radio station is well used during band elections but for other purposes it's not. They need to have immediate communication with the community, let people know, don't panic now but be prepared".

Other recommendations regarding communication of the evacuation notice were provided. Participant 19, acknowledged that many people in the community do not have telephones: *"But a lot of people too, they don't have phones. I just know a few numbers around here".* He said this poses a challenge after hours because there is no public telephone for members to access if they have an emergency: "a*nd the band office too, there's no emergency after hours, it's locked up and you gotta find out for yourself what's going on". P*articipant 20 suggested the community adopt a system in which certain residents are designated as leaders who are responsible for notifying the geographic area around their house:

"Yeah, like, what do you call it? Those fans, you put somebody reliable, the people that came in and woke me up, I should have known they weren't reliable but they weren't working for the band. […] Like put you in charge for this little area here or put somebody else for that little area and just make sure that you let people know".

Other recommendations made during interviews included: improving decision-making by having air quality monitors available in the community; and reducing difficulties on band members with mobility constraints by having universally accessible vehicles available in Meander River. In addition, some participants who were employees of the band, the school or the health centre wanted to be involved in the planning process and assigned roles to improve response and recovery for the members they served.

FACTORS THAT AFFECTED EXPERIENCES

The findings from the interviews revealed a broad range of experiences before, during, and after the wildfire evacuation. Seven key factors were identified as significant for how they positively or negatively influenced participant's evacuation experiences including:

- Wildfire Information: A lack of wildfire information was the first factor that emerged as significant to participants' evacuation experiences. Specifically, information regarding the wildfire's location and the direction of the smoke in relation to Meander River was not communicated to the DEM or to residents in Meander River. The lack of wildfire information triggered a chain reaction of issues that negatively affected participants. First, it limited the ability of organizers and residents to define the

level risk posed to Meander River by the wildfires which caused uncertainty and delayed the initiation evacuation. This subsequently limited the time to prepare for evacuation until the threat caused by the wildfire smoke was present. Last, the limited time to prepare for evacuation resulted in evacuees forgetting important personal items such as prescription medication which caused additional stress and difficulties coping once evacuated.

- Community Emergency Preparedness: Community preparedness includes actions taken before the wildfire to prepare for and minimise potential impacts during the response and recovery phases (Jakes & Nelson, 2007). Inadequate community preparedness was the second factor that negatively affected evacuation experiences. Specifically, not having an evacuation plan tailored to Meander River with roles and responsibilities pre-assigned to specific community residents and employees in Meander River caused disorder. This occurred in several ways. First, evacuees primarily found out about the evacuation from family and neighbours. As the message travelled via word-of-mouth, vague instructions left participants confused and uncertain about what to do and where to go. For instance, even though the evacuation was initially voluntary and intended only for residents considered vulnerable to the wildfire smoke (Elders, infants, children, pregnant mothers, and those with respiratory problems or mobility constraints) most people left when they heard about the evacuation even if it didn't apply to them. This made prioritizing vulnerable residents during the evacuation difficult. Second, evacuees were also confused about where to go and many mistakenly went to the town of High Level evacuation reception center (for Zama City residents) instead of the Dene Tha' First Nation reception centre in Bushe River. In High Level, evacuees experienced a long and uncomfortable overnight delay until they received motel accommodations. Overall, inadequate community emergency preparedness created a sense of disorganization and directly and indirectly led to other problems that arose during the evacuation including the inappropriate sequencing of evacuees, confusion and frustration regarding reception centres, and long delays in receiving accommodation.
- Compromised Sense of Moral Order: Moral order is defined as any system of obligations that defines and organizes proper, right, or virtuous relations among individuals and groups in a community. They are expressed explicitly in rules, laws, moral codes, and the like, as well as implicitly in the various roles, rites, and cultural rituals of social life (J. E. Davis, 2013). Interview participants perceived that the sense of moral order concerning respect for Elders and vulnerable community members was compromised in several instances during the evacuation and this was a significant source of distress for them. First, even though organizers attempted to prioritize the evacuation of Elders and vulnerable residents, communication was unclear and most residents evacuated regardless of health status. As a result, improper sequencing of evacuees occurred. Some interview participants recalled feeling frustrated when they witnessed Elders and young families waiting for motel rooms after younger, healthier residents had been accommodated. Second, a small group of evacuees, mostly young people, engaged in loud and rowdy behaviour due to drinking. This created a disturbance for other evacuees in neighbouring motel rooms. Interview participants and others expressed disapproval toward the people who caused the disturbances due to their disregard for the community's reputation and comfort of fellow evacuees. Favouritism was a third behaviour that interview participants perceived as troublesome. As interview participants attempted to make sense of their negative experiences, many drew on past experiences in which they have perceived a compromised sense of moral order. One such example is the perception that favouritism influences decision-making and the distribution of resources within Dene Tha' First Nation. Interview participants drew on this pre-existing perception of favouritism to make sense of and to hold someone accountable for their negative experiences. For them, the evacuation reinforced this perception when they perceived that the same people benefited from their familial connections to

band employees or leadership. They considered the overt display of favouritism as inconsistent with well-established Dene cultural norms (ideas about how individuals ought to behave) of communal support and respect (Goulet, 1994). Previous research (2016) suggests that a lack of wildfire information combined with a lack of personal control can facilitate discourses of blame and responsibility. These discourses are used as coping strategies and ways of making sense of negative experiences. In my findings, interview participants used discourses of blame and responsibility for what they perceived as inappropriate behaviours that comprised the sense of moral order in their community and left them or others vulnerable to secondary impacts that arose throughout the evacuation.

- Local Leadership: The fourth factor that emerged as significant to participants' evacuation experiences was local leadership and the role it played in mobilizing volunteers and building community capacity. During the Meander River evacuation, the local leadership primarily consisted of the DEM with assistance provided by the volunteer fire chief and members of Dene Tha' First Nation Chief and Council. The coordination provided by local leadership contributed to building the capacity and resilience of volunteers in several ways. First, local leadership was responsible for mobilizing residents to help evacuate the community of Meander River. This cultivated a sense of purpose and accomplishment among volunteers. Second, local leadership was also responsible for mobilizing another team of volunteers in Bushe River to set up a reception centre, register incoming Meander River evacuees, organize accommodation, and provide transportation from High Level motels to Bushe River for meals. Having a band-operated reception centre developed the capacity of band employees because they became familiar in the operation and logistics organizing an evacuation which proved useful during future evacuations. Third, the security of homes and leaving pets behind was a major concern for some interview participants. In response, the volunteer fire chief and a band employee remained in the community to feed pets, to provide security, to turn off natural gas to homes, and to block road access into the reserve. Together, they also provided information on local conditions to evacuees throughout the evacuation by communicating through text message, social media, and over the local radio station. This helped to provide up-to-date and locally accurate information which has been identified as important in previous studies (Cohn et al., 2006; Kumagai et al., 2004; Taylor et al., 2005). Fourth, the DEM acted as a liaison between the various agencies who became involved with the wildfire evacuation (such as the Alberta Emergency Management Agency, Alberta Environment and Parks, The Town of High Level, Mackenzie County, Red Cross, RCMP, etc.) and Dene Tha' First Nation. For example, they attended daily information briefs and relayed the information to evacuees during meals. Fifth, local leadership also demonstrated flexibility in meeting the needs of evacuees when, for instance, evacuees were permitted access to their homes in Meander River to retrieve personal belongings and check on pets. This arrangement enabled community members to save money during the evacuation because they did not have to replace these items and eased anxiety regarding the safety and security of their homes and pets. Overall, local leadership played an important role in the evacuation including mobilizing local volunteers, using local resources, acting as a liaison between external agencies and members of the First Nation, and demonstrating flexibility to respond to the immediate needs of evacuees. This helped evacuees cope during the evacuation and helped develop a sense of agency among volunteers.
- Social Support: The fifth factor that emerged as significant to interview participant's evacuation experience was the social support they received because it helped them cope with the evacuation. First, family provided practical support when they welcomed evacuees into their homes (if they resided in High Level or Bushe River). This reduced the need for some interview participants to sleep in motels or in large evacuation centres and avoid a potentially distressing situation. Second, the spread of information regarding the evacuation and the wildfires from younger family members to

older family members was also a form of practical social support identified by participants. Other examples of practical support provided by family during the Meander River evacuation which were identified by participants included transportation, preparing meals and doing laundry at the homes of family, and caring for children when the parents could not. These acts of support provided by family helped create a sense of order and hospitality in an otherwise disruptive situation. Though more implicit, interview participants mentioned less tangible forms of support provided by family including positive interaction and emotional support. For example, families were kept together in the same motel rooms or motels and were therefore able to socialize, reassure one another and help one another through the stress.

- Familiar Host Communities: The sixth theme that emerged as significant to participants' evacuation experiences was the use of nearby host communities. The town of High Level and the Dene Tha' First Nation community of Bushe River (both located approximately 75 km from Meander River) are regularly frequented by residents for purchasing groceries, accessing services, and visiting family. Therefore, they were a familiar setting. Thus, when participants were evacuated to these communities, they were already familiar with the physical setting, the activities that occur there, and human social and psychological processes (meanings and attachments) that are rooted in those places. During the Meander River evacuation, use of the band complex in Bushe River as the evacuation reception centre reduced the amount of disruption due to differences in culture that could have occurred if evacuees had been sent to faraway towns or cities. In Bushe River, evacuees could communicate in Dene Dháh, were familiar with local volunteers, and could eat culturally familiar meals.
- Wildfire Smoke: The last theme to emerge as significant to interview participant's evacuation experiences was the presence of wildfire smoke in the host communities. While evacuating to High Level and Bushe River removed evacuees from the heavy smoke that prompted the evacuation, interview participants perceived that air quality in the host communities continued to pose a significant health risk. Adding to the difficulties described by interview participants were the uncomfortably hot summer weather conditions. In High Level, most of the motels did not have air conditioning and the smoke levels prohibited the opening of windows. The band made sure that water was distributed to motel rooms but many interview participants recalled being very hot and uncomfortable during their stay in High Level. Interview participants also said that being confined to their motel rooms caused boredom and challenges entertaining children.

CONCLUSIONS & RECOMMENDATIONS

By exploring and documenting how the evacuation took place I identified the factors outlined above and how they came together to positively and negatively affect the evacuation experiences of participants and the community. At Dene Tha' First Nation, factors that positively affected evacuees' experiences included local leadership, social support, and familiar host communities. Factors that negatively influenced evacuees' experiences included a lack of wildfire information, inadequate community preparedness, a compromised sense of moral order, and exposure to wildfire smoke.

Based on these findings I offer the following recommendations to community organizers and government and other agencies in anticipation that they may be useful in reducing distress and increasing the positive outcomes of future evacuations.

EVACUATION PLANNING & PREPARDNESS

- Evacuation plans should be updated, practiced, and disseminated to the community regularly.
- When a First Nation has multiple communities, evacuation plans should be tailored to each one, with roles and responsibilities assigned to trusted residents to assist the Director of Emergency

Management (DEM). The tailoring of emergency plans may require coordination and collaboration between the different employers within the community (such as the band, tribal council, Health Canada, etc.) to assign roles to individuals who are naturally positioned to provide leadership during an emergency given their familiarity with the community and its residents.

- Evacuation plans should make provisions to ensure that timely and universally accessible transportation is available for residents without vehicles and those with mobility limitations.
- Plans should also recognize the special status of Elders in the community with the needs of these individuals prioritized throughout the evacuation. In addition, the identification of vulnerable community members and the extra support they may require during evacuation should be included in plans.
- To improve the safety of First Nations, the DEM position should be converted to a paid position so that this person can devote the time needed for updating and tailoring emergency plans, assisting the community in an emergency, and coordinating resources to prioritize disaster mitigation and preparedness.
- Several measures should be introduced to ensure that accurate, real-time, place-specific wildfire and smoke information which pertains to the First Nation is communicated to both local leaders and to residents.
    - Bring all stakeholders (including local employers, tribal councils, neighbouring municipalities or hamlets, counties, and government agencies) together to discuss how they can support one another's information needs before and during emergencies.
    - Local contextual considerations for information dissemination need to be considered by the DEM. This includes how to improve the communication of information about the wildfire, smoke, and evacuation procedures during an emergency to ensure that everyone in the community is reached.
- Whenever possible, evacuations should be made to nearby communities due to the higher level of familiarity, abundance of social contacts, and ability to return home faster when the evacuation ends. However, the air quality in host communities should be considered when planning for evacuations. When heavy wildfire smoke is present, residents with pre-existing respiratory conditions should be evacuated early with provisions made to ensure exposure to smoke in host communities is minimized. This could include evacuating these individuals and their families to host communities with better air quality or, as a last resort, assigning them to motels with air conditioning. First Nations also require more information to inform decision making about wildfire smoke and additional ways to monitor air quality to protect themselves from excessive exposure.

DURING AN EVACUATION

- Throughout the Meander River evacuation, the DEM mobilized local resources such as local bus transportation and local volunteers to assist. During future evacuations of First Nations, evacuees should also be given the opportunity to volunteer to help pass time, develop a sense of agency, and build community capacity.
- The two volunteers who stayed in Meander River to feed pets, provide security, and provide information about local conditions helped reduce the anxiety of interview participants who worried about leaving their animals and possessions behind. Opportunities for communicating information updates from these volunteers to more evacuees should be explored.
- If conditions allow, community members should be allowed to return to their homes to retrieve belongings for a short period. Findings from this research demonstrated that allowing evacuees to briefly return to their homes saves them money because they did not have to purchase new items such as clothing and toiletries. It also relieved anxiety once they checked on their homes and pets.

- This research identified the importance of keeping families together because they provided practical and emotional support. Organizers for First Nation evacuations should prioritize keeping families together while also avoiding overcrowding in motel rooms. If evacuees do not have family who can support them, then organizers should match evacuees with suitable roommates who can support them.
- Opportunities should also be created for evacuees to gather for social support, to participate in recreational activities for children and teenagers, to receive updated information, and to learn about available resources during the evacuation.

POST EVACUATION RECOVERY & EVALUATION

- Community members should be brought together with Chief and Council and administrative staff shortly after an evacuation for the opportunity to discuss experiences. This could help to identify those community members who need ongoing emotional support and would also be an opportunity to identify how community leadership can make changes to reduce negative impacts of future wildfires.
- The financial and staffing implications of cost recovery on a First Nations band must be considered. Dene Tha` First Nation was required to pay for a significant cost of their wildfire evacuation which remained outstanding after compensation was received. This negatively impacted community budgets for several years after the evacuation. Additional financial support is required to assist First Nations fund the full cost of evacuations and other emergency management related infrastructure, resources, and training.

FURTHER RESEARCH

Further research on the impacts of wildfire evacuation on First Nations communities is being conducted with seven other First Nations communities in Alberta, Saskatchewan and Ontario through the First Nations Wildfire Evacuation Partnership. The diversity of the communities included in the partnership and the ways that the evacuations were carried out will enable us to understand the factors that influence peoples' evacuation experiences. The goal of the First Nations Wildfire Evacuation partnership is to bring together researchers, First Nations communities and agencies involved in wildfire evacuations to learn from each other and identify ways to reduce negative impacts of wildfire evacuations on First Nations people, which will inform the development and implementation of evacuation policies and practices.

ADDITIONAL RESOURCES

First Nations Wildfire Evacuation Partnership website: http://www.eas.ualberta.ca/awe/

Natural Resources Canada: https://cfs.nrcan.gc.ca/series/read/104

Alberta Emergency Management Agency: http://www.aema.alberta.ca/index

Alberta Agriculture and Forestry - Wildfire: http://wildfire.alberta.ca/

Aboriginal Affairs and Northern Development Canada - Emergency Management: https://www.aadnc-aandc.gc.ca/eng/1309369889599/1309369935837

Canadian Red Cross - Planning for Forest Fires: http://www.redcross.ca/how-we-help/emergencies-and-disasters-in-canada/for-home-and-family/make-a-plan/planning-for-forest-fires

Canadian Red Cross - Emergency and Disaster Planning for First Nations, Metis and Inuit Communities: http://www.redcross.ca/how-we-help/emergencies-and-disasters-in-canada/for-first-nations--metis-and-inuit-communities

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Appendix I: Booklet Provided to Residents of Meander River, Dene Tha' First Nation

Meander River. Photo credit: K. Mottershead

The summer 2012 wildfire evacuation experiences of Meander River, Dene Tha' First Nation

DENE THA' FIRST NATION &
KYLA MOTTERSHEAD,
UNIVERSITY OF ALBERTA

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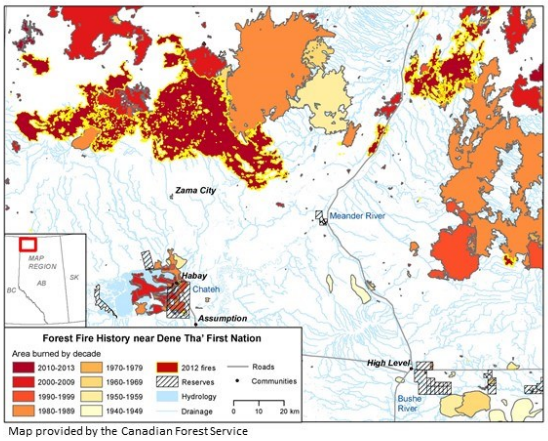
Overview

This booklet describes the story of Meander River's wildfire evacuation that took place in the summer of 2012. This story includes the perspectives of the 31 participants who shared their experiences during conversations with Kyla Mottershead from the University of Alberta in the summer of 2014. Participants included adults ranging in age from 18 to 75 who were evacuated to the two designated host communities (High Level and Bushe River), those who stayed behind, and those who were involved in formal roles during the evacuation. However, not all voices are included in this booklet. It is hoped that the story described in this booklet will encourage further sharing of experiences.

Forest fire history near Dene Tha' First Nation and location of Meander River



Map provided by the Canadian Forest Service

Prior to Evacuation

For 1-2 weeks prior to the evacuation, most residents were aware that fires were burning near Zama City and north of the community alongside Highway 35. However, Meander River was not placed on evacuation alert because fire proximity was not yet a risk and the presence of some wildfire smoke in the summer months was not unusual. Despite the lack of evacuation alert, some residents chose to leave Meander River because the smoke was bothering them.

"The only thing was that there was smoke nearby and that if anybody that's chronically ill or whatever to be aware that there's smoke. That was only thing we had, and other than evacuation I didn't hear nothing".

"My daughter phoned me from Bushe River and she said Mom you better get over here, 'cause I'm asthmatic. She said get out of that smoke. So, I just pack a few things and I went"

"Well when I left here, I left here even before the evacuation started because my daughter said let's get out of here, you need to get out of here because you're not breathing right, you could hear the wheezing"

Highway 35 near Meander River. Photo Credit: K. Mottershead

5

The Smoke

On July 10th, 2012 the wind direction changed and began blowing heavy wildfire smoke towards Meander River. The onset of poor air quality happened quickly and caught everyone by surprise. Within hours, heavy smoke and ash made breathing and visibility difficult. Some participants were worried about the smoke while others were less concerned and wanted to stay at home. However, after witnessing the severity of the smoke conditions, the Director of Emergency Management (DEM) for Dene Tha' First Nation began the voluntary evacuation of band members.

Smoke Approaching Meander River. Photo credit: S. Chambaud

The Smoke in Meander River. Photo credit: S. Chambaud

"It was about 6, supper time. And the smoke was so thick [...] my concern was the elderly [...] we lost visual of the sun, it was just a hot evening. But then the sun disappeared and it [seemed] like midnight, so you couldn't see a good 50 yards."

"There was thick smoke. There was ashes falling".

"I didn't even know how far it was. Some people said Zama burned down and some people were saying it's gonna hit Meander. But based on the way it looks and stuff like that, it was far. I wasn't worried".

"And first [...] was I guess a huge cloud of smoke, a half hour later smoke coming in, and then within the hour or so I guess thick smoke".

6

The Evacuation

The voluntary evacuation began at around 9pm on July 10th, 2012 and continued throughout the night. It became mandatory for all residents to leave by the next morning. Those band members at high risk from smoke were supposed to leave first, followed by the rest of the community. However, most people left as soon as they heard about the evacuation which made it difficult to prioritize band members with health or mobility concerns. Most people learned about the evacuation from family and other community members, while others were told to evacuate by the RCMP. Some residents had little time to prepare while others had a few hours to get ready. Residents without transportation took a charter bus organized by the band or received a ride from family or friends.

"[…] like myself I forgot all about my medication and all that there, you know because my mind was set on just getting out of there. I didn't know really what was going on […] and the only thing was that there was no information".

"That's when I went to the band house and they said we're evacuatin' people's home. I went running around too. I banged on doors there and I told them to go to the band house where the bus is. I told a lot of people by banging on doors there. It was kinda late too. But the smoke was pretty heavy. I'm pretty sure someone with asthma or something like that could have had a hard time. Yeah, that's what I did".

"So all I thought about is my grandson, so I took everything that my grandson needed and I forgot about us."

"We were puttin' the kids to sleep and everybody had pajamas on. And then somebody bang on my door really hard, and I was wondering what's goin' on? So, I opened the door and they said you got 15 minutes to get everything you need and to meet us at the Band office for evacuation".

The Smoke in Meander Rive. Photo credit: S. Chambaud

7

Evacuation Concerns

The main concerns about the evacuation shared by participants included:

- the lack of information about the wildfire and the evacuation;
- the lack of time to prepare for evacuation;
- not being able to choose to stay behind;
- and not prioritizing the evacuation of Elders and members at high risk from the smoke.

"I was wondering what the hell's happening and then the cops came there, [and told me] you have to be evacuated. If you don't go through town then we might have to arrest you. I tell them I'm worried about my house but he said no, don't worry about anything 'cause you have to [go]. Everybody's gone he said from Meander"

"But we really didn't get that much information, what was really goin' on, you know. The main thing was people were worried about their houses and all that because it was such short notice that where people had to run around. And they said the fire was just right there. So a lot of people were worried".

"And then I said holy crap. […] I did not expect this and I don't know what the heck is going on so what else can I take but the only thing I said that I was gonna take was [a] photo album. […] And the rest I said never mind and then there was a lot of fear too. Like what if a fire came to the community and our whole house burned down. I'll have to start from scratch and a lot of things were going through my mind".

"Um, I certainly noticed in this community the elders were not the first to be taken out. Those who could help themselves took off first and they're the ones that should have stayed to help the elders".

8

Arrival in Host Communities

Host communities included High Level and Bushe River. Some evacuees stayed with friends and family but most stayed in motel rooms in High Level or in tents in Bushe River. Some participants experience delays receiving motel rooms. Many evacuees, including those who arrived by bus, mistakenly went to High Level evacuation reception centre rather than the one run by Dene Tha' First Nation in Bushe River. The mix up resulted in many evacuees sleeping on the floor of the High Level evacuation reception centre until the town coordinated with the band. This was described as a very difficult experience due to a lack of blankets and food. Many participants were upset that Elders and families with young children slept in the gym.

"So, they got to town late at night and just dumped them off at the school. So, I'm not too sure if Elders even had a place to stay […], there was moms there with kids. They did not grab anything too, just got their clothes, that was it. No food, no nothing. There could have been a protocol saying that there's a fire and just be heads up that you might be evacuated or something like that would've been more helpful 'cause when I was there, the parents were there and their kids were crying, and some of them looked tired and hungry and they had nothing to eat. And some had no money so they can't get food […]".

"I slept on the floor in the gym with my kids and there was some elders that were there and there was other families. I kept asking if they had blankets or anything and there was nothing. So I used my kids' jacket to cover them and tried to make them comfortable as much as I can. They couldn't go to sleep".

"They know that Elders should have come first. My husband [was] just kind of [like] "honey, honey". And I said what? I said a lot of these Elders are sitting here and it's 2:30 in the morning. And then those [people] are going into a motel? Yeah."

"And then I was all over the place. Like we had no information where we were supposed to go, who was a contact person. We went through town council and they directed us to the place where there was agencies and then I was all over the place. It was just completely out of it".

9

Staying in Host Communities – Good Experiences

Volunteers from Bushe River helped look after evacuees and provide information. Evacuees ate meals at the band complex in Bushe River or at motel restaurants. Some participants kept busy by visiting other evacuees, their family, or going swimming but many passed the time in motel rooms because of the heavy smoke outside.

"Well there was a lot of people from Bushe that come visit us and either that or they'd drive us around. Walked to the hospital once in a while just to go visit patients".

The main road in High Level, Alberta. photo credit: K. Mottershead

"Every day there were reports […] Well, [the fire chief] goes on the radio, and we get it [the radio] in Bushe but I don't get it in the hotel [in High Level], so I ask my daughter to keep checking, leave the radio on, see how the fire is, but I think he did a good job of keeping people update of the fire."

"Every day the workers would come around, give you a heads up on what's happening".

"So I was quite thankful to stay at my brother-in-law's where I didn't have anything to worry about"

"They said that we'll keep an update on you, see what the fire does and you can stay in that room, it'll be paid for. Every day, it wasn't too bad, they came around and gave you water. Yeah, they give you some water and little goodies and they keep you update on what's happening with the fire".

10

Staying in Host Communities – Bad Experiences

Some interview participants had a difficult time being away from home and dealing with the unexpected nature of the evacuation. A lack of money made buying snacks and other personal items difficult. The smoke in High Level was also bothersome for many evacuees so they stayed in their rooms most of the time and some had to visit the hospital due to severe reactions. It was also difficult to pass time and entertain kids inside motel rooms. A group of evacuees who drank alcohol caused a disturbance that interview participants said made coping with the evacuation even more difficult.

"All I did was I stayed there, I just felt frustrated, confused, and lost. […] So overall that, I forget how many days we were in High Level and all I did was I just laid around and I slept. I was depressed […] I was just too depressed […] to go out there and socialize. So, I kind of just isolated myself […] I just didn't want to have anything to do with it".

"And there was no money too, so that was a problem, but they fed us… but we had a hard time going to Bushe for the meal, and I don't know it's not like a home, like home you know nothing like that"

"Yeah, we all stayed together in one room but I had to keep my grandson in the room most of the time because of the smoke. […] there was smoke all over the place so we mostly stayed in the room and watched TV with him, occupied him".

"My kids were stressed. They had no place to play around. […] They had no place to play. […] And then the kids are running around outside in the parking because they needed to tire themselves out. To go to the park with them it was not good for me because [of the smoke]. The smoke was thick and I was going through a lot of stress and I just wanted to go home".

"They would get kicked out if they were caught drinking or partying in a room. I heard a couple of instances that it happened. […] It was kind of bothersome 'cause we come from the same community and its kind of making everybody else look bad. That was the only thing that bothered me. Other than that we were pretty much taken care of".

11

Staying in Meander River & Return Trips

A few residents stayed in Meander River during the evacuation to patrol the community in case blowing ash or embers ignited a fire, provide security, and feed animals that were left behind. They also provided updates via the local radio station, text message, and social media.

Part-way through the evacuation, the band allowed some evacuees access to their homes in Meander River to pick up personal belongings and check on pets. This alleviated stress and reduced the need for evacuees to purchase clothing and other personal items.

Testing fire fighting equipment in Meander River. Photo credit: S. Chambaud

"We came home one time 'cause we needed some clothes, they allow us to come over, they said for an hour, like there was cops on the road, they said they give us just 45 minutes to get what we need. I didn't wanna buy more clothes".

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Going Home

All evacuees returned home after 1 week. The band provided each evacuee with $40 to replace food lost to spoilage and $40 to replace gas. Most participants were relieved to go home but said they had to clean their homes because food was left out and everything smelt like wildfire smoke.

Volunteers were exhausted, having worked as much as 20 hours a day during the evacuation. Organizers and band administrators also worked many hours over the summer to complete the necessary paperwork and to provide documentation to be reimbursed through the government disaster recovery program. The band was responsible for the cost of the evacuation and then applied to the provincial government for reimbursement. At the time of our study, not all costs of the evacuation were reimbursed.

"We came back, house was, it smelled like smoke, so we had to disinfect the house, the walls, the floors. The fridge, 'cause we weren't home for about a week, all the food in the fridge was [rotten]"

"I was so happy to see the elders that really wanted to come home, they're not used to that lifestyle of living in a town and being fed as they're traditional. Traditional food and all that. […] It was a pretty rough experience for them, but as for my knowledge I think it was a good procedure health wise"

"[…] the funding, it takes more than a year to get. What we did with Meander was when we did our evacuation we finally, I think it took almost a year and a half to get our money back because we used the administration, the funds. And then when we get our money back the money goes back to administration".

Highway 35, approaching Meander River. Photo credit: K. Mottershead

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Lasting Effects

Following the evacuation, there was not a community meeting regarding the evacuation in which residents could discuss their experiences or provide feedback to leadership. Many participants had not talked about their experience until the interviews for this study. A few interview participants had difficulties going over their evacuation experiences, stating that they were still struggling with the stress they experienced. Some participants reported that certain sights and smells triggered their memories of the 2012 evacuation and made them worry about their ability to cope with a similar situation. Lastly, some also believed that their physical health was impacted by the wildfire smoke.

"I found that in the last 2 years [since the evacuation] my breathing problems have worsened".

"Well to be honest, I don't feel good right now having to go back and over what I experienced. It's just like that happened a couple days ago"

Burnt forest along highway 35 north of Meander River. Photo credit: K. Mottershead

"Last week was so smoky, I got scared. I did not want to have to leave again and go through all that […] I was panicking and I said like I want all the windows closed and I don't want the kids to go outside. I don't want nobody to go in and out of here, like what if it gets smoky in here. And I said maybe I'll have to go to the hospital and stay there and let them know that I'm there or home because I was scared".

"Yeah I still have effects. I feel still stressed. I never dealt with any of it […] and there was no counsel or nothing put in place for people that would have been affected, and how it affected them and how stressful it was, and like it's just they took people and then had them go through all this stress and everything and don't even provide no counsel or nothing to help with things like that, like how it affected people. There was nothing. I don't know how they run everything".

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Recommendations

Interview participants provided many recommendations for improving emergency management in Meander River including:

- Assigning roles to local employees to improve response and recovery for the members they served.
- More time to prepare for evacuation
- Improved warning communication procedures
- Having air quality monitors available in the community
- Having universally accessible vehicles available in Meander River
- Allowing healthy residents to stay home during future smoke evacuations
- Creating a firebreak around the community, employing local residents

"Yeah, like, what do you call it? Those fans, you put somebody reliable, the people that came in and woke me up, I should have known they weren't reliable but they weren't working for the band. […] Like put you in charge for this little area here or put somebody else for that little area and just make sure that you let people know".

"I think they need to have immediate communication with the community. The local radio station is well used during band elections but for other purposes it's not. They need to have immediate communication with the community, let people know, don't panic now but be prepared".

"Well, yeah, there should be notices up in the office or some place where people can see and read them, just to be aware of emergency or another evacuation or something. […] they should notify people earlier, they should know that the fire is coming up close to Meander, they could have evacuated people 2 or 3 days earlier".

"I would stay back. […] First of all, you tell me how far the fire is 'cause I don't have any health problems. I don't have allergies or any, well I do have allergies but it's controllable. If it's like 200 kilometers or whatever away, I'm gonna stay home, don't tell me to move".

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The First Nations Wildfire Evacuation Partnership

This compilation of evacuation experiences was collected during research with Dene Tha' First Nation through the First Nations Wildfire Evacuation Partnership. This partnership brings together researchers, First Nations communities in Ontario, Saskatchewan, and Alberta that were evacuated due to recent wildfires, and agencies responsible for conducting or providing support during these evacuations. The goal is to examine how First Nation residents and communities have been affected by wildfire evacuations and identify ways to reduce negative impacts of wildfire evacuations on First Nation people.

More information can be found at: https://www.eas.ualberta.ca/awe/

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