

Residents' wildfire evacuation actions in Mishkeegogamang Ojibway Nation, Ontario, Canada

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ABSTRACT

Wildfire evacuations are used to protect lives during wildfires. Existing research has identified that some people stay behind during a mandatory wildfire evacuation and factors that influence evacuation actions, however little is known about how Indigenous peoples respond in the event of a wildfire. This paper presents results of a qualitative study with Mishkeegogamang Ojibway Nation in North-Western Ontario, Canada, that was evacuated due to the SLK 35 wildfire in 2011. Semi-structured interviews were completed to learn how people in Mishkeegogamang responded when they were told to evacuate and factors influencing their actions. Although some participants were willing to leave, some did not want to leave and some stayed behind due to low risk perceptions, and desires to protect dwelling contents, stay home, retain control, and fight the fire. Recommendations are provided for wildfire and emergency managers.

Summary: This study examines wildfire evacuation responses in a First Nation in northern Ontario, Canada that was evacuated due to wildfire in 2011. During the staged evacuation process, some participants left willingly, while others did not. Factors that influenced how people responded during the mandatory evacuation are discussed.

1. Introduction

In many countries around the world, evacuations are used by government authorities to protect lives during wildfires. Many residents will evacuate as ordered, however evidence and research indicates that some people do not. Some of those who stay behind during a mandatory evacuation order do so because they are unable to leave, for example due to lack of transportation. However in other cases people choose not to evacuate. Studies in the United States have found that between 10% and 13% of people living in fire prone areas intend to stay behind during an evacuation [25,34,37]. Researchers have also examined evacuation actions during wildfires. In the United States, many residents refused to evacuate during a wildfire in Montana [35], and McCaffrey and Winter [25] found that 20% of survey respondents in California, Florida, and Montana reported that they had stayed on their property during recent wildfires. Very few evacuation studies have been completed in Canada [29]. In a small Canadian study, Cote and McGee [8] found that 12 focus group participants planned to stay behind in the event of a wildfire evacuation, but eight were concerned about their ability to stay safely if they perceived the threat was too severe.

Scharbach and Waldram [39] examined the wildfire evacuation of remote fly-in Hatchet Lake Denesuline First Nation in Saskatchewan Canada, and found that some mothers did not want to evacuate.

Researchers have examined why some people stay behind during a wildfire when they are ordered to evacuate. Many residents are motivated to stay behind to protect their property [28,30,36,6,8], including home contents [6,8] and animals [34,8]. People may also want to stay behind if they feel it will be difficult for them to evacuate due to limited access or terrain [36]. If people do not feel threatened and believe that they can stay behind safely, they are less likely to evacuate [34,45,6]. A lack of physical cues may also cause people to not obey an evacuation order [26]. Gender also appears to play a role, with researchers in Australia finding that men are more likely to stay behind to protect their property during a wildfire [12,34,38,51,52]. A desire to be self-reliant and make one's own decisions have also discouraged people from evacuating [45]. Communication has also been found to influence evacuation actions, where people who do not receive an official warning or receive a warning from only one source less likely to evacuate [26,37,46]. Strawderman et al. [46] found that residents who had previous evacuation experience were more likely to evacuate.

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Mozumder et al. [34] found that households expecting to stay in a hotel or motel, or stay with friends or relatives, are more likely to evacuate. Since these studies have been completed with non-Indigenous peoples, it is not clear if these factors will influence the actions of Indigenous peoples who are experiencing evacuations in a different cultural context. In their research with Hatchet Lake Denesuline First Nation, Scharbach and Waldram [39] found that some mothers did not want to evacuate with their youngest child if older children could not also leave with them.

This study contributes to existing evacuation literature by examining residents' wildfire evacuation actions in Mishkeegogamang Ojibway Nation, Canada. The three research questions that guide this study are:

1. How did residents in Mishkeegogamang Ojibway Nation respond when they were told to evacuate during the wildfire evacuation in June 2011?
2. What factors influenced wildfire evacuation actions?
3. How would residents who tried to or stayed behind in 2011 prefer to respond in the event of a future wildfire evacuation?

In Canada, the initial emergency response in the event of a wildfire or other hazard rests with municipal governments and First Nations. If there is a wildfire nearby, a voluntary evacuation may be ordered by the municipality or First Nation, where residents can decide if they wish to leave. A mandatory evacuation where residents are obliged to leave may be ordered after a municipality or First Nation calls a state of emergency. A mandatory evacuation may be partial or full, with a partial evacuation including people who are vulnerable to smoke (children under two, the elderly, pregnant women, and people with chronic health conditions), and a full evacuation including all community members. The decision to call a state of emergency and order an evacuation would be made with input from the provincial/territorial wildfire management agency and other relevant government agencies (e.g. emergency management departments, Health Canada). During a wildfire affecting a First Nation, federal and provincial/territorial government agencies provide information to the Chief and Council about the potential threat to public safety, and the Chief and Council may call a state of emergency and issue an evacuation order. The First Nation council and other community members, federal government departments, provincial government departments, police, non-government organizations, and communities that host evacuees may help to carry out the evacuation. If a mandatory evacuation is ordered by municipal government or First Nation leadership, provincial/territorial governments will provide assistance when requested.

First Nations are at high risk from wildfires in Canada. Many First Nation reserves are located in forests that frequently experience fire [53] and where wildfire severity and area burned is expected to increase with climate change [13,49]. A recent analysis by the Canadian Forest Service indicates that 60% of First Nation reserves in Canada are located within or intersect the wildland-urban interface, where communities are at high risk from wildfire. The population of First Nations is growing at a rate four times higher than the non-Indigenous population of Canada [44], therefore a growing population is at risk when a wildfire occurs. First Nations people are also disproportionately affected by respiratory diseases including asthma, which are exacerbated by wildfire smoke [17]. In addition, the Auditor General of Canada [2] found that many First Nations are unprepared for emergencies such as wildfires because they do not have an emergency plan or the plans are outdated or incomplete.

First Nations are also more at risk from wildfire evacuations and evacuation impacts. Beverly and Bothwell [5] found that despite comprising 4.9% of the Canadian population, almost 1/3 of wildfire evacuations between 1980 and 2007 involved Indigenous peoples. Wildfire evacuations of Indigenous communities in Canada are often large-scale with the whole community being evacuated. Due to the isolated

location of many Indigenous communities, evacuated residents are often hosted in towns that are unfamiliar. Researchers have found that wildfire evacuations can affect the health and well-being of Indigenous peoples, particularly when social networks are severed [11,39]. Epp et al. [11] found that the lack of well-developed evacuation plans in three First Nations in Canada led to problems in the evacuations, which put further stress on evacuees.

During the summer of 2011, thousands of residents in 35 First Nation and Métis communities in the provinces of Alberta, Ontario, and Saskatchewan were evacuated for up to three weeks. Some residents were evacuated to nearby host communities, and others were evacuated to towns and cities a considerable distance away. In Ontario, 1330 wildfires occurred during the 2011 fire season, covering 632,533 ha, one of the worst years for wildfires on record. The two largest wildfire were the Sioux Lookout SLK70 which was 141,000 ha in size, and the Sioux Lookout SLK35 which grew to 112,000 ha. Mishkeegogamang Ojibway Nation in northern Ontario was one of the First Nations evacuated in summer 2011 due to smoke and proximity of Sioux Lookout Fire SLK35 to their two reserves. During research to learn about the evacuation experiences of residents in Mishkeegogamang Ojibway Nation, it became clear that many residents did not want to leave during the evacuation, some were successful in staying behind, others left the reserve but stayed nearby instead of being part of the evacuation, and some who evacuated tried to return home.

2. Mishkeegogamang Ojibway Nation

Mishkeegogamang Ojibway Nation is located in the Canadian Shield and boreal forest of northwestern Ontario (Fig. 1). A signatory to Treaty 9, the Mishkeegogamang reserve is divided into two parts, with reserve 63 A on the south shore of Lake St. Joseph, and reserve 63B to the north of the Lake, surrounding Dog Hole Bay. Lake St. Joseph is the source of the Albany River, with numerous smaller lakes, rivers and islands near the two parts of the reserve and within Mishkeegogamang traditional territory which extends beyond the two reserves in all directions. The total registered population (2017) is 1903, with 1074 people living on reserve, and another 829 living off-reserve. 74% of Mishkeegogamang First Nation members speak Ojibway at home [16]. Mishkeegogamang is accessible year round by Highway 599. The nearest settlement is the Township of Pickle Lake (population 425), located 33 km to the north. Pickle Lake is home to the nearest grocery store for Mishkeegogamang residents, an airport, and other services and a small number of stores. The larger town of Sioux Lookout (population 5037) is located 230 km to the southwest and provides health services, grocery and other stores and services. The City of Thunder Bay is located 500 km to the south.

Mishkeegogamang Ojibway Nation is governed by an elected Chief and Council, which serves a 2-year term. Community services include a health centre, family services, churches, police, radio station, K-8 school, and a community centre. Hunting, trapping, fishing, and berry picking are still common activities for residents, and are important sources of food to supplement store bought food [14]. Family members often live close together, and many households include several generations. Like other First Nations across Canada, Mishkeegogamang Ojibway Nation has a young population with a median age of 18.9, compared to a median age of 40 for the province of Ontario [1]. Federal government statistics indicate that there were 125 private dwellings on the two reserves in 2011, with 72% of those requiring major repairs [1]. Household survey data indicates that the average total income of Mishkeegogamang Ojibway Nation residents was \$19,840, compared to an average of \$42,264 for the province [1]. The unemployment rate is high (55.6%), with those aged 15 and over who are employed working in health & education (17%), other services (23%), agriculture/resource based (4%), wholesale/retail (3%) or transportation/warehousing (3%). Mishkeegogamang Ojibway Nation, like other First Nations in Canada, suffers from the legacy of government colonial policies including the devastating impacts of the residential school system which

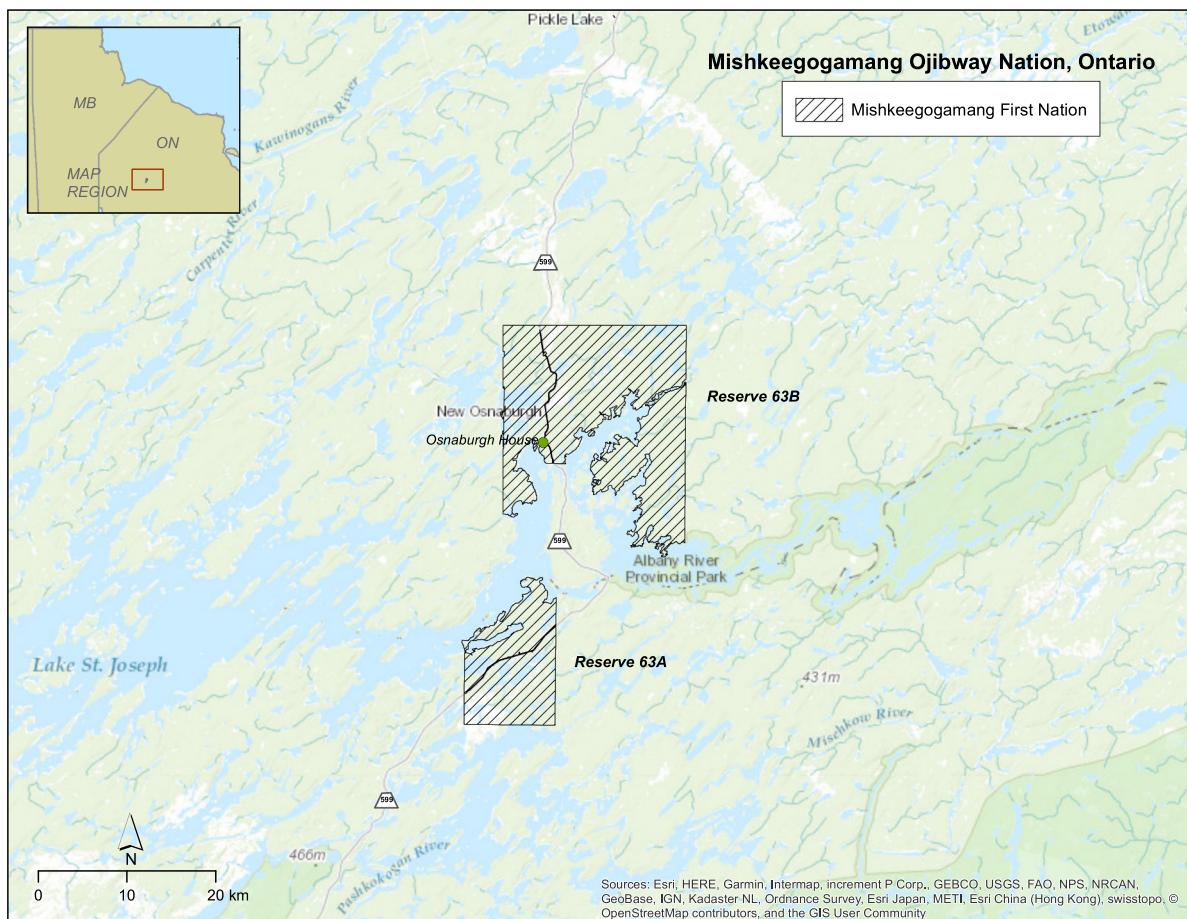


Fig. 1. Mishkeegogamang Ojibway Nation, Ontario.

separated children from their families and communities [48], and the sixties scoop where Indigenous children were taken from their homes by child-welfare workers and put in foster homes or adoption in the 1960s to 1980s [41].

3. Methods

This research is part of the First Nations Wildfire Evacuation Partnership. Prior to the start of this research, Nishnawbe Aski Nation (NAN), a political territorial organization representing First Nations in northern Ontario was contacted to discuss the planned research and help to identify First Nations that might wish to become involved. Upon advice from NAN, the first author contacted Chief Connie Gray-McKay to discuss the proposed wildfire evacuation partnership and identify if Mishkeegogamang Ojibway Nation might be interested in participating. Chief Gray-McKay expressed interest and support for the proposed research. In September 2013, the first author visited Mishkeegogamang to meet in person with Chief Connie Gray-McKay and councillors to further discuss the research, seek advice about the research process, and start to learn about Mishkeegogamang Ojibway Nation and the wildfire evacuation.

This study received ethics clearance from the University of Alberta Human Research Ethics Board 1. The Tri-council [47] guidelines for research involving First Nations, Inuit and Métis peoples of Canada and the Ownership, Control, Access and Possession (OCAP) guidelines developed by the National Aboriginal Health Organization [40] were followed. This research used a qualitative approach to obtain a detailed understanding of the socially constructed experiences of evacuees, to build trust between the researcher and participants and empower residents by enabling them to share their stories, and to understand the context within

which the evacuation occurred [9]. Qualitative methods have been found to be most appropriate for research with Indigenous peoples [20,22], by recognizing the oral nature of Indigenous knowledge as equal to Euro-American knowledge and a valid interpretation of reality [42]. Qualitative methods lend themselves to self-determination, where an Indigenous community has solo input into their destiny [42,50].

Following the first visit in September 2013, fieldwork was completed during three weeks in April 2014. Although a community research assistant was identified by the Chief to work on this project, they were unavailable so the first author completed the research with advice from the Chief and a community advisor. Research participants helped by recruiting other interview participants and in one case acting as an interpreter for an interview with an Elder. Purposive sampling was used to recruit participants who had a variety of experiences, including those First Nation members who were involved in helping to carry out the evacuation, those who evacuated to the three designated host communities, and those who stayed elsewhere. In addition to these different groups, due to the initial meeting with Chief and councillors it was expected that Elders, parents with young children, other adults, and youths may have different experiences, so individuals from each of these groups was included in the study. In total, semi-structured interviews were completed with 28 people in Mishkeegogamang, including four parents with young children, three youths, and three Elders.

Semi-structured interviews were completed with participants to learn about their evacuation experiences. During the interview, participants were asked to describe their experiences during the main temporal periods of the evacuation (when they first heard about or saw the fire, the evacuation process, leaving the community, their time away from the community, returning home, and lasting effects of the

evacuation), similar to the temporal stages identified by Cohn et al. [6]. We also asked if participants had experienced any lasting effects of the evacuation. Interview participants were also invited to provide suggestions for improving a future wildfire evacuation. Interviews were completed until theoretical saturation was reached [33] when no new data was arising from interviews.

Data analysis started during fieldwork and continued after the data was transcribed. Nvivo qualitative data management software was used assist with the data analysis process. Data analysis first involved coding the data using descriptive codes from the interview topics, relevant literature, and words stated by participants; and then developing analytic codes that reflected themes that arose from the data [7]. As part of the data analysis process, source triangulation and negative case analysis [3] were used to enhance credibility. A return visit to the community to present initial findings was planned, however due to a community tragedy this was not possible. Instead, initial findings were sent to the Chief for her review, and she provided positive feedback. The Chief has also reviewed and approved all outputs from this research including conference presentations and manuscripts. Once the research was completed, a community booklet which presents the wildfire evacuation story of Mishkeegogamang Ojibway Nation was prepared and copies were given to the First Nation for distribution to community members.

4. Results

4.1. Before the evacuation

Mishkeegogamang Ojibway Nation was evacuated in June 2011 due to Sioux Lookout fire SLK35, which burned a total of 112,000 ha [19]. For one to two weeks, interview participants were aware of the fire, with some able to see it from the reserve. As one resident explained:

"It was right across here where the fire started. We saw it too, for days... It started small from a distance. It started getting bigger and bigger. They hoped that it would burn itself out. So it just kept getting bigger and bigger until it was out of control. It wasn't smoky at first, 'cause it was in the distance. You could actually see it growing. Getting stronger." (Evacuee, Interview 6)

A week later, smoke started to impact the reserve and people's homes. Chief Connie Gray-McKay called for a full evacuation due to smoke and proximity of the fire. A resident from neighbouring Pickle Lake noted that smoke was strong in parts of the reserve and this caused concerns about the impacts of the smoke on residents:

"And the smoke was different in different areas. Pickle Lake did get smoke but not near as much as Mish[keegogamang]. Sometimes the main reserve would have no smoke and 10 houses would just be blanketed in the stuff. There was a lot of worry about the elders and people in general breathing in the smoke every day. That's why it became so serious." (Pickle Lake resident, Interview 11)

The fire was about 15 km away and 30,000 ha in size at the time the evacuation was called.

4.2. The evacuation process

The nearby towns of Sioux Lookout (230 km away), Ignace (263 km away), and Geraldton (763 km away) were the three designated host communities that were organized in advance where most participants and other First Nation members stayed during the evacuation (Fig. 2). In Sioux Lookout, some evacuees first stayed in an arena and were then moved into hotel rooms, in Ignace evacuees stayed in a hotel, and in Geraldton evacuees stayed in an arena. The local radio station in Mishkeegogamang was used to inform people about how the evacuation would take place. One participant explained how they received information about the evacuation:

"Through the radio, and people would call, telling us what's going to happen. People actually stopped by the house too. Went by every house... [they said] there'll be a bus going around, gather all your stuff for at least a week. At least we had one day to prepare and everything." (Evacuee, Interview 9)

Many participants left the reserve in one of the buses organized by the First Nation council, and some evacuated in their own vehicle.

The evacuation was carried out over three days. On the first day, those at high risk from smoke, including residents with asthma and other health problems, pregnant women, babies and elders, took the first buses and went to stay in Sioux Lookout (Fig. 2). Other community members also went to Sioux Lookout on the first day. The second group, including many families with older children, left on the second day and were bused or drove to Ignace. The third group were 90 evacuees who had not evacuated on the first or second days. These residents were driven to Pickle Lake airport by bus and flown to Geraldton.

There were also First Nation residents who were off the reserve at the time the evacuation was ordered, and were prevented from returning once the road was barricaded. Some of these residents were in towns or cities for medical visits, shopping, or other reasons. Once they contacted the First Nation office, they were told to remain where they were and they would be compensated for their food and accommodation. There was also a group of First Nation members who were living in and around Pickle Lake and were also unable to return home once the road was closed. As one participant explained, "Some of them didn't know their family was evacuated! They didn't find out until they tried to come home and the taxi said we can't take you back!" (Pickle Lake resident, Interview 5) This resident from Pickle Lake who works in Mishkeegogamang led the initiative to look after these First Nation members. She and a friend spent two days giving out food, then advocated for food and accommodation to be organized. As she explained:

"Well I pushed it [to get support from Chief and Council and government agencies for the ones who I knew were First Nation members]. Because they didn't say anything about them in the meetings. And I asked then, why is it? Because they are band [First Nation] members." (Pickle Lake resident, Interview 5)

Although Pickle Lake was not one of the designated host communities for this evacuation, due to the efforts of this participant, arrangements were subsequently made for those First Nation members to stay at the community hall in Pickle Lake. The community hall was open from 6:00 a.m. until 11:00 p.m. with three meals provided and coffee and juice were also available. Staff accommodation at a local mining company was also provided to evacuees, including Elders. Donated clothing was also provided to these evacuees.

4.3. Evacuation willingness and actions

Some interview participants agreed to evacuate after they learned about the evacuation and were told they should leave. Of the 21 participants who live in Mishkeegogamang and did not have leadership roles during the evacuation, 10 indicated that they evacuated when they were told to do so (Table 1).

Two of these 10 interview participants were youths at the time of the interviews and were evacuated by their parents. Three were at high risk from health effects of smoke or had a disability. The other five left when they were told to do so as part of the evacuation, as explained by two of these evacuees:

"Well, all I was told was just to get on that bus [to Sioux Lookout], and that's pretty much it." (Evacuee, Interview 18)

"So the fire was coming this way...and the Elders and the children were evacuated, so they told me to go too. So I packed up my stuff, my papers and pictures and some clothing. It was late afternoon when I started out." (Evacuee, Interview 2)

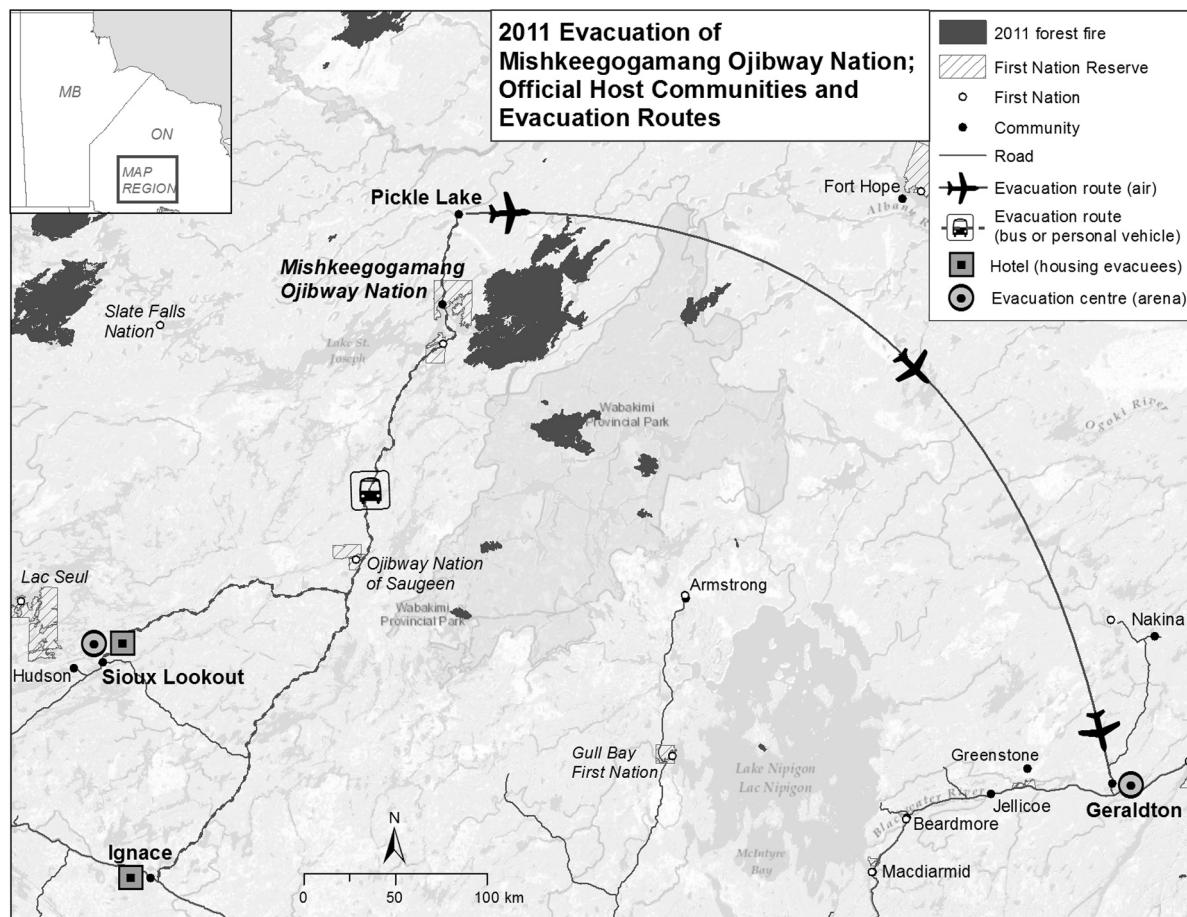


Fig. 2. 2011 Evacuation of Mishkeegogamang Ojibway Nation.

Table 1
Interview participants' evacuation roles and actions.

Interview participants	
Had formal roles during the evacuation	4
Work in Mishkeegogamang but live in Pickle Lake (were not part of the evacuation)	3
Evacuees	21
Evacuation Actions(n = 21)	
Evacuated when told to do so (n = 10)	
• Youths evacuated by parents	2
• High risk from smoke or had a disability	3
• Left when they were told to do so	5
Did not want to evacuate and in some cases actively tried to stay behind (n = 5)	
o Left for health of child	1
o Left when escorted out by police	3
o Left when removed by a friend	1
Default evacuee who tried to return (n = 1)	
Stayed behind on the reserve or nearby (n = 5)	
o Youth stayed with family in Pickle Lake	1
o Stayed behind by mistake	1
o Chose to stay behind	3

Five interview participants explained that they did not want to evacuate and in some cases actively tried to stay behind. The first two were in the high risk group due to pregnancy or having a young baby, and left on the second day of the evacuation to go to Ignace. As explained by one of these participants, she would have preferred not to evacuate, but left for the health of their young child:

"[I] pretty much had no choice to go and for [child's] safety... cause there was so much smoke." (Evacuee, Interview 9)

Table 2
Reasons why interview participants did not want to evacuate.

- Did not want to leave pictures and other precious belongings behind.
- Perceived the risk from the fire to be low.
- Wanted to stay home.
- Wanted freedom to carry out usual activities including hunting & fishing.
- Rarely leave Mishkeegogamang and wanted to control own activities.
- Staying in another community would not feel like home and was not comfortable staying in a town or an evacuation centre.
- Wanted to find work fighting the fire.

The other tried to stay because she did not want to leave pictures and other precious belongings behind (Table 2). She waited until the last bus to Ignace and only left when the police came to the door and told her she had to leave:

"Well I was pregnant at the time and that's why I had to leave. I had no choice. All the pre-natals and all the Elders and people with asthma were the first [buses] that were going out. So I waited 'til the last bus out and then I had to go. I couldn't stay. I had to go.... I didn't leave 'til like when we HAD to go... like leave when the cops came here and told us we had to go." (Evacuee, Interview 28)

This interview participant reflected back on this experience of having to leave her home and said that it felt like being taken away to residential school.

"It made me feel like... you know when long time ago they used to... the residential [school] thing, that's what it felt like... Yeah, it felt like that, but with older people though... Yeah that's how I felt. You had no choice." (Evacuee, Interview 28)

The third and fourth of this group stayed behind until the third day of the evacuation and only left when they were escorted out by the police to Pickle Lake and flown to Geraldton:

"Members were supposed to jump on the first bus to Sioux Lookout. I didn't go on there. The second bus came around that was going to Ignace. I still didn't go on there. Finally, we had no choice. The last bus that was going to [Geraldton], we had no choice to get on. We had to get on or else we would be charged or something like that, get in trouble. So the last bus we had to go... They came and told us we had to leave and they even waited for us outside just to get ready to leave... they wouldn't leave unless we got on." (Evacuee, Interview 13)

"I didn't wanna go.... Yeah, everybody else left. We were the last ones to leave. We were the last plane to load.... We had vehicles to take off towards south and all that, but they said no, you're not going south, you're going that way [to Pickle Lake] 'cause we know you're gonna come back.... These cops knew us. They're from the reserve here... They didn't want us to stick around so they took us to the airport and we took a plane [to Geraldton]" (Evacuee, Interview 12)

Both of these participants planned to stay in a cabin on or near a lake within Mishkeegogamang traditional territory, with one perceiving the risk from the fire to be low and the other not explaining why they did not want to evacuate. The fifth participant in this group of five unwilling evacuees planned to stay in their house, but was taken away by a friend who was living in one of the three host communities. This participant did not want to leave because they did not feel threatened by the wildfire and wanted to stay home:

"My plan was to stay home. I wanted to stay home... I didn't feel threatened and I wasn't having any problems with smoke... And when the MNR came by... they said that they were putting up sprinklers on houses... I have got a canoe so I could tip the boat over in the water and stay there. I could have stayed there... I wanted to stay home because after all I got protection. Fire sprinklers were my protection so I wanted to stay home." (Evacuee, Interview 1)

This desire to stay home may be due to strong attachments to place. A resident from Pickle Lake explained that many residents have rarely if ever left Mishkeegogamang:

"They didn't want to go. And when they got to where they got to, they didn't want to stay there. They wanted to go back home... This is home. A lot of people have never left here. Literally have not left. Here is home. I don't want to leave. [laugh] This is home. Period. The evacuation was tough on them." (Pickle Lake resident, Interview 11)

One participant evacuated by default [10,43] because he was in Thunder Bay when the evacuation was ordered and drove back to the reserve to return home, but was stopped at the police barricade. This participant was told to return to Thunder Bay to stay with family and did so, but tried to return home during the evacuation because he wanted to have the freedom to do the activities that he usually did on the reserve, including hunting and fishing.

"You know, there's nothing to do. I got more things to do over here [in Mishkeegogamang] than over there [in Thunder Bay] 'Cause I don't love to do anything over there because they're a city. But over here, there's a free country for us on our reserve. We can do anything on the reserve... so that's why I try to come home.... [Here] I go out on the lake, go fishing... we can hunt with moose any time of the year... That's the kinds of things we like to do when we stay here. But in Thunder Bay, we stuck there for three weeks maybe more. We had nothing to do there!" (Evacuee, Interview 21)

In addition, this participant had difficulty obtaining food and clothing during the evacuation.

4.4. Staying behind

Five participants did not evacuate and instead stayed behind on the reserve or nearby. The first was a youth who was invited to stay with family in Pickle Lake. The second stayed behind by mistake when family members were unable to return to pick him up after the barricades were set up. The other three chose not to evacuate. The third of this group of non-evacuees did not want to evacuate because they rarely leave Mishkeegogamang and wanted the freedom to be able to control their own actions:

"Nobody to tell me what to do and what time I should go to sleep, and 'don't go over there', and so on." (Non-evacuee, Interview 10)

The fourth explained that staying in another community would not feel like home, and they would not feel comfortable going into a town and staying in an evacuation centre with a lot of other evacuees:

"Just don't like... go to some community. I don't like that, somewhere where it's not for me to live like that.... It's just like when you go out there it don't feel like home you know... That's why I didn't want to [go]...." (Non-evacuee, Interview 26)

Instead of evacuating, these two participants left the reserve and stayed in a cabin on a lake within Mishkeegogamang traditional territory. The fifth was a trained fire fighter who stayed behind because he thought that he might obtain work fighting the fire:

[He was going to evacuate]"and then I turned around and said I'm gonna stay behind and fight this thing. And I told this guy that had a piece of paper with a list of names and I told him to cross my name off and I told him I'm not going. He said 'why?' I'd rather stay behind and go to work I told him." (Non-evacuee, Interview 25)

This decision to stay behind would provide this participant with an opportunity to put his firefighting training to work, and an opportunity for some additional income. Table 2 shows the reasons why interview participants did not want to evacuate.

4.5. Future evacuation preferences

Although participants were not directly asked if they would evacuate in the future, five participants who either did not want to evacuate, or stayed behind or near the reserve during this evacuation talked about what they preferred to do in the event of a future evacuation. Only one of the five said that they were planning to leave in the event of a future evacuation because of the stress they experienced when forced to evacuate quickly:

"I wasn't ready. I wasn't even ready to leave at all when I left. So next time I'll remember to be prepared... I would just be ready. I would just wait for the call to say 'go' and then I would go. Get everything I need and go. 'Cause when I left I felt like I forgot stuff or felt like I didn't do something right, you know that feeling there? And it bothers you. That's how I felt when I left. The whole time I was there... I worried about stuff. I didn't like that. I didn't like the feeling... Yeah, so next time I'm going to be prepared. Get all that ready and make sure everything's good to go before I go." (Evacuee, Interview 13).

The other four, all men, planned to stay behind in their home on the reserve, in a cabin, or at a lake in Mishkeegogamang traditional territory. The first planned to stay behind because he did not feel threatened and wanted to stay home. Experiences during the evacuation including feeling uncomfortable staying outside Mishkeegogamang and the costs

of buying groceries and calling family members staying elsewhere also influenced his future evacuation intentions:

"Well you feel more comfortable [in Mishkeegogamang]. You save more money than you do over there because you have to buy all of your own groceries... [The phone bill] was high. So that's why if there was another evacuation I would rather just stay home." (Evacuee, Interview 1)

The second intended to stay at his cabin again because he rarely leaves and to be able to control his own actions. The third wanted to stay behind because of the freedom of being able to go to a lake or cabin which he felt would be a safe place. The fourth intended to stay behind to fight the fire.

5. Discussion

Interview participants from Mishkeegogamang Ojibway Nation responded in various ways during the mandatory wildfire evacuation in 2011. Many interview participants left willingly when the evacuation was ordered, however more than half did not want to leave. Those interview participants who did not want to leave included people who delayed their evacuation for one or two days, planned to stay behind but were forced to leave by the police or friends, tried to return but were turned back at the police barricades, and stayed behind on the reserve or in the Mishkeegogamang traditional territory. Those interview participants who did not want to leave included residents who did not want to leave pictures and other precious belongings behind; perceived the fire risk to be low; wanted to stay home and carry out their usual activities; felt uncomfortable staying in a town or evacuation centre; and wanted to obtain firefighting work. Four of the five interview participants who stayed behind or did not evacuate during this wildfire said they would not evacuate in the event of a future wildfire evacuation, with only one saying that they would leave willingly next time.

The results of this study confirm that people respond in a variety of ways when ordered to evacuate during a wildfire. In accordance with existing research [28,34,45,6], low risk perceptions led some residents to delay their evacuation and encouraged some residents to stay behind. A desire to stay behind to protect dwelling contents have also been found in other studies [6,8]. The participant who wanted to stay behind to fight the wildfire displayed some of the characteristics of the self-evacuation archetype 'Experienced Independent' identified by Strahan et al. [45], however in Mishkeegogamang the person with firefighting experience wanted to stay behind to protect the community and also to gain employment firefighting. With respect to future evacuation intentions, similar to the Black Saturday wildfires in Australia where a majority of residents who stayed behind said they would do the same again [51], most participants in the present study who tried to stay behind but were forced to leave by the police or friends said that they planned to stay behind in the event of a future wildfire. Gender also appeared to play a role in the present study since those who said they would stay behind in the future were all men, consistent with other studies [12,34,38,51,52].

However several results of this research with Mishkeegogamang Ojibway Nation are new. In this present study, a desire to protect their dwelling was not mentioned by participants as a motivator for staying behind during the evacuation. One possible reason for this surprising finding is that the evacuation of Mishkeegogamang Ojibway Nation started due to severe smoke, and evacuees may not have perceived a threat of their house burning because a lake separated the fire from the reserve at the time the evacuation occurred. Evacuees may also have believed that their house would be protected by the Ontario Ministry of Natural Resources, since there is evidence that sprinklers were being set up in the community during the evacuation. In addition, First Nation residents do not own their homes.

The finding that several participants stayed or planned to stay in cabins on lakes within Mishkeegogamang traditional territory is also interesting. Since Mishkeegogamang is located adjacent to Lake St. Joseph, and many other lakes are located throughout the traditional territory, it is likely that these lakes were believed to be a safe place during a wildfire. Staying within Mishkeegogamang traditional territory also gives residents the freedom and comfort of being home, and the ability to hunt and fish. This reluctance to leave Mishkeegogamang reserve and traditional territory could also be due to strong place attachment, which is greater in Indigenous communities where residents have a deep connection with their culture and the land ([24,4]; also see [21]). Zander et al. [54] found that Aboriginal residents in northern Australia were unwilling to relocate outside of their homelands as a consequence of climate change impacts. In the present study, although the relocation was temporary, there was a similar reluctance by some participants to leave Mishkeegogamang.

Research with non-Indigenous populations have found that evacuations are stressful for evacuees in part due to lack of control [6], therefore it is not surprising that some participants wanted to stay behind to retain control. However in the present study, the desire to retain control may also be due in part to the *Indian Act* (RSC 1985, c.1–5) and colonial legacy of government programs in Canada that were designed to control the movement and actions of Indigenous peoples and remove them from their land, culture, and families [18]. One of these programs was removing Indigenous children from their families and communities and placing them in mandatory residential schools where many children suffered disease, neglect, and abuse, and many died [32]. Indeed, one participant explained that being forced to leave reminded her of children being removed from their homes and taken to residential schools.

Although Strahan et al. [45] found that firefighters were more likely to stay behind to fight a wildfire instead of self-evacuating, the results of this present study indicate that the desire to stay behind during a wildfire also occurs when there is a mandatory evacuation. Indigenous people have also stayed behind to fight wildfires elsewhere in Canada, with a group of residents from Whitefish Lake First Nation in Alberta [27] staying behind during a wildfire in order to protect the community.

6. Conclusions

The results of this study show that while some Mishkeegogamang Ojibway Nation residents were willing to evacuate when ordered to do so during a recent wildfire evacuation, some were not due to a perception that they were not at risk, and desires to protect home contents, stay home in Mishkeegogamang, retain control, and fight the wildfire. While some of these findings are similar to the results of research with non-Indigenous people, the strong desire to stay home in Mishkeegogamang, desire to retain control, and desire to fight the fire may be stronger for Indigenous peoples. The small sample size is a limitation of this study. Additional research in Canada and elsewhere would help to further examine how Indigenous peoples respond to evacuation orders and the factors that influence their decisions and actions. In particular, further research about the desire to retain control and to stay home would build on the results of this research. It would also be valuable to examine further the surprising finding that participants in Mishkeegogamang Ojibway Nation did not wish to stay behind to protect their dwelling. Examining other cases where many Indigenous peoples did not evacuate during a wildfire or other hazard event would also be valuable.

Despite the limitation of the small number of interview participants in this study, there are important implications for authorities. The finding that many community members were off the reserve when the evacuation was ordered and did not receive communication about the evacuation until after the roads were barricaded clearly indicates the

need to identify ways to communicate warnings to people located off the reserve and ensure that they are notified about and included in the evacuation together with residents who are on the reserve at the time of the evacuation. People off the reserve at the time an evacuation is ordered should be incorporated into emergency plans.

Our finding that more than half of interview participants did not want to leave when ordered to do so indicates that a different approach should be considered to respect the wishes of First Nations while ensuring their public safety in the event of a wildfire. Instead of evacuating First Nations to unfamiliar towns and cities, we recommend that emergency managers consider having First Nations stay in their traditional territory if it is safe to do so and providing the resources needed to do this safely, including designated safe havens from wildfire smoke. Indigenous peoples' knowledge that relates to other hazards has received attention by researchers (see for example [15,23,31]). Further research and collaboration between authorities and First Nations is needed to identify Indigenous knowledge that exists in First Nations about how to protect themselves in the event of a wildfire. If it is not safe for a First Nation to stay in their traditional territory due to extreme fire conditions, we recommend that agencies make arrangements for First Nations to stay with nearby Indigenous communities that can provide culturally appropriate accommodation, assistance, and support. Such an approach would make First Nations more resilient in the event of a wildfire, and encourage residents to take protective action by evacuating to a safe place.

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