

A scenic landscape photograph of a lake with a forested hillside and houses in the background under a dramatic, cloudy sky. The sky is filled with large, white, billowing clouds against a deep blue background. The lake in the foreground is calm, reflecting the sky and the surrounding landscape. The hillside is covered in dense evergreen trees, and several houses are visible on the left side. The overall mood is serene yet dramatic due to the lighting and cloud formations.

COMMUNITY VIEWS ON WILDFIRE RISK AND PREPAREDNESS IN THE WILDLAND URBAN INTERFACE

February 2020

This study was conducted by researchers in the Faculty of Forestry at the University of British Columbia. Funding was provided by a Community Solutions Grant from the Peter Wall Institute for Advanced Studies at the University of British Columbia.

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Acknowledgements

We thank the 143 respondents for providing their views and insights. Project partners for this work include: the Union of BC Municipalities (UBCM), First Nations' Emergency Services Society (FNESS), BC Community Forest Association (BCCFA) and BC Wildfire Service (BCWS).

The UBCM, FNESS and BCWS are members of British Columbia's Provincial Fuel Management Working Group, which managed the Strategic Wildfire Prevention Initiative (SWPI), recently replaced by the Community Resiliency Investment Program (CRIP). We thank UBCM, FNESS, and BCCFA for sharing the invitation for this survey to their members via newsletters and their websites.

We thank the following leaders of key agencies involved in various aspects of preventative wildfire management in BC for their constructive feedback on this survey:

- Jeff Eustache, Forest Fuel Manager, First Nations' Emergency Services Society
- Danyta Welch, Policy & Programs Officer, Union of British Columbia Municipalities
- Peter Hisch, Fuel Treatment Specialist, BC Wildfire Service (retired January 2017)
- Al Neal, Provincial Specialist, Ecological Restoration BC
- Greg Anderson, Executive Director (2016-7), Forest Enhancement Society of BC
- Dave Clarke, Executive Director and Tim Ryan, Chair (2014-2017), Forest Practices Board of British Columbia

Funding for this study was provided by a Community Solutions Grant from the Peter Wall Institute for Advanced Studies at the University of British Columbia.

Cover image: Central Cariboo Fire Complex, Williams Lake, BC. Photo by Kelsey Copes-Gerbitz, July 7, 2017.

Citation

Ravensbergen, S., K. Copes-Gerbitz, S. Dickson-Hoyle, S.M. Hagerman, and L.D. Daniels. 2020. *Community Views on Wildfire Risk and Preparedness in the Wildland Urban Interface*. Report to the Union of BC Municipalities, First Nations' Emergency Services Society, BC Community Forest Association and BC Wildfire Service. February 2020. 32pp.

Executive Summary

This report summarizes the findings from a web-based survey of elected officials, managers, fire chiefs and other individuals who are making decisions about and responsible for wildfire preparedness and fuels management in communities across British Columbia (BC) (n = 143). The survey was conducted in June and July in 2018 by researchers in the Faculty of Forestry at the University of British Columbia. The purpose of the survey was to better understand the views of forest managers and representatives of municipalities, regional districts, First Nations communities and reserves about the barriers to and solutions for wildfire preparedness. Reducing wildfire risk in communities will require programs, policies and solutions that are based on an understanding of community needs, priorities and barriers to engagement with existing initiatives. This study addresses these questions and provides recommendations for action moving forward.

The survey reported here used the same questionnaire as a previous 2017 study¹. By using the same survey instrument in two successive years, in between which BC experienced severe wildfire events, we further explore how (indirect and direct) experiences of extreme wildfire events influence perceptions of wildfire risk and support for mitigative policies and actions.

Survey questions covered a range of topics related to wildfire preparedness including:

- community issues and priorities
- perceptions of wildfire risk
- preferences for fuels management and policy
- levels of and barriers to engagement in programs to reduce wildfire risk

A total of 143 community representatives responded to the survey (45% municipalities, 22% regional districts, 13% First Nations communities, 10% First Nations reserves, 10% municipality/First Nations community (e.g. co-managed community forests or woodlots). Most respondents represented communities in the Coastal Fire Centre (44% Coastal, 17% Kamloops, 13% Southeast, 13% Prince George, 7% Northwest, 6% Cariboo). There was high variation within and among regions regarding perceptions and experiences with wildfire; regional summaries are provided in Appendix I.

Overall, the survey found that wildfire preparedness is viewed as an urgent issue, with significant community impacts expected within the next five years. Respondents overwhelmingly agreed that improvements to wildfire preparedness are needed to address key barriers to community engagement with prevention programs, including governance and capacity issues. In addition to more financial resources, a framework for funding and initiatives (with clear directives) and more effective communication and collaboration across agencies and boundaries are needed in order to improve the capacity of communities to respond to wildfire risks in the Wildland Urban

¹Daniels, L.D., S.M. Hagerman and S. Ravensbergen. 2018. Wildfire Prevention and Fuels Management in the Wildland-Urban Interface: BC Community Perceptions. Report to the Union of BC Municipalities, First Nations' Emergency Services Society, BC Community Forest Association and BC Wildfire Service. May 2018. 30pp.

Interface (WUI). This is true across all regions but especially in northern Fire Centres and First Nations communities and reserves where additional jurisdictional and other barriers play a role in accessing funding. Many respondents expressed concern that a significant and disproportionate amount of responsibility for managing wildfire risks is borne at a community rather than regional, provincial, or federal level. Barriers to engagement in government-led wildfire prevention programs are not related to perceptions of risk (which are high), but rather linked with resources, capacity and support.

A summary of key findings is presented below.

Community Issues and Priorities

- 72% of respondents viewed wildfire prevention in the WUI as an urgent or extremely urgent issue. Wildfire prevention in the WUI is viewed as a priority regardless of whether the community they represent has a Community Wildfire Protection Plan (CWPP) or not.
- Responses from communities with a CWPP ranked wildfire prevention as the most urgent issue facing their community. Responses from communities without a CWPP ranked wildfire prevention a close second (behind affordable housing, and ahead of economic development).

Wildfire Risk

- 72% of respondents reported high (50%) or severe (22%) fuel hazard and risk ratings for their community.
- 89% of respondents felt that wildfire in the WUI will impact their community within the next 10 years.
- 93% felt that it is important or extremely important at a personal level to improve community wildfire preparedness.
- Perceptions of risk and importance of preparedness varied with personal experience. Respondents who had personally experienced a wildfire evacuation alert or order, those representing communities with reported high or severe wildfire hazard and risk ratings, and those representing communities that had experienced an evacuation alert or order within the past 12 months (i.e. 2017 fire season) ranked wildfire prevention as a significantly more urgent community priority, and felt that it was significantly more important to be prepared compared to communities with low or moderate hazard and risk ratings. Those representing communities reporting high or severe ratings also indicated that their community would be affected to a significantly greater extent, and in a shorter time frame.
- Respondents who had personally experienced an evacuation or alert, or were representing communities that had experienced an evacuation or alert within the past 12 months (i.e. 2017–2018) indicated that loss of structures, local livelihoods, recreational opportunities and biodiversity, as well as damage to drinking water, were significantly more likely to occur than respondents representing communities that had not experienced an evacuation order or alert within the past 15 years.

- Respondents representing communities with fewer than 5000 residents were significantly more concerned about the loss of livelihoods due to wildfire than those with over 5000 residents.

Preferences for Wildfire Prevention and Fuels Management

- 81% of respondents personally agreed or strongly agreed that fire is an essential component of forest ecosystem function, with variation between Fire Centre regions – perhaps reflecting the diversity of ecosystem types by region.
- 76% personally supported or strongly supported the use of prescribed burning around their community, while 85% supported or strongly supported tree removal.
- Respondents indicated that selective cutting then wood removal; raising awareness of ignition risks; and the enforcement of bans, restrictions and fines were perceived by the community they represent as the most effective mitigation measures.
- Views of effectiveness of management actions were not necessarily the same as perceived community support, and perspectives of effectiveness and support varied greatly among regions, community types, different experiences with fire, community types, and profession. While cutting then removal was indicated to be a highly effective action as perceived by communities, there may be significant barriers to implementing this action; the same is true for the use of prescribed fire. At a community level, raising awareness, enforcement of bans, restrictions and fines, and tree pruning are the mitigation actions with the most perceived public support.
- Respondents representing communities with reported high or severe wildfire hazard and risk ratings, or that had experienced an evacuation order or alert within the past 12 months, indicated that prescribed burning and selective cutting were perceived by the community to be more effective, and were significantly more supportive of these actions, than respondents representing communities reporting moderate or low ratings. The use of prescribed fire was also significantly more supported by respondents representing First Nations communities and reserves than by municipalities.

Reasons for and barriers to engagement in programs to reduce wildfire risk

- 57% of respondents represent communities that have participated in the FireSmart program, 56% that have completed a CWPP, and 46% that have developed fuel management prescriptions using funding from BC initiatives or Indigenous and Northern Affairs Canada's On-Reserve Forest Fuel Reduction Treatment Funding.
- 93% of respondents indicated that a lack of funding from provincial and federal governments moderately or strongly limited progress towards reducing wildfire risk in the WUI; 89% felt that this was the case for a lack of financial resources at the community level, while 84% felt this was the case for a lack of time allocated to staff workloads.
- The most strongly limiting factors listed by respondents from communities that did not have a CWPP or had not participated in any management actions were lack of time

allocated to staff (72% strongly limiting) and lack of financial resources at community level (68% strongly limiting).

- 74% of respondents indicated that a lack of continuous or sustained government funding moderately or strongly limited progress towards engaging with BC's funding initiatives or Indigenous and Northern Affairs Canada's On-Reserve Forest Fuel Reduction Treatment Funding; 68% felt this was the case for cost of participating, while 63% felt this was the case for high administrative burden.
- Communities with high or severe risk ratings have completed comparatively more CWPPs and have a higher rate of participation in any activities, than communities with low or moderate ratings.
- Respondents representing communities with high or severe hazard also felt that the provincial and federal government should be doing significantly more to reduce risk, compared to those from communities with lower hazard and risk ratings.

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Introduction

With successive record-breaking wildfire seasons in 2017 and 2018 in British Columbia (BC) and other regions of Canada, new approaches to fire prevention, preparedness and management are receiving renewed policy attention at community, regional, and national levels. In BC, the Strategic Wildfire Prevention Initiative (SWPI) (2009–2018) and Indigenous and Northern Affairs Canada’s On-Reserve Forest Fuel Reduction Treatment Funding (2004–2019) have been central sources of funding for communities to mitigate risk from wildfire in the Wildland Urban Interface (WUI): areas where combustible wildland vegetation grows adjacent to homes, farm structures or other outbuildings. The Forest Enhancement Society of BC (FESBC) began funding wildfire prevention and mitigation projects in 2017. In late 2018, the SWPI program was replaced by the Community Resiliency Investment Program (CRIP). Although many eligible communities have applied for funds through these programs to develop and implement Community Wildfire Protection Plans (CWPP), only 11,679 hectares of forest were treated between 2005 and 2017 at a cost of \$78 million¹. Most communities in BC remain vulnerable to wildfire despite efforts over the past decade to engage communities in mitigation.

Reducing wildfire risk in communities will require programs, policies and solutions that are based on an understanding of community needs, priorities and the barriers that exist to engage in existing initiatives. This report is the second of two surveys to address these questions². The 2018 survey reported here is the same as conducted in 2017. By using the same survey after the record-breaking 2017 wildfire season, we sought to capture a broader perspective of experiences from across BC. Results presented here reflect community perceptions prior to SWPI’s transition to CRIP.

¹Daniels, L.D., R.W. Gray and P.J. Burton. In Press. 2017 Megafires in British Columbia - Urgent Need to Adapt and Improve Resilience to Wildfire. In: Hood, Sharon M.; Drury, Stacy; Steelman, Toddi; and Steffens, Ron, eds. Proceedings of the Fire Continuum – preparing for the future of wildland fire; 2018 May 21-24; Missoula, MT. Proceedings RMRS-P. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. Online.

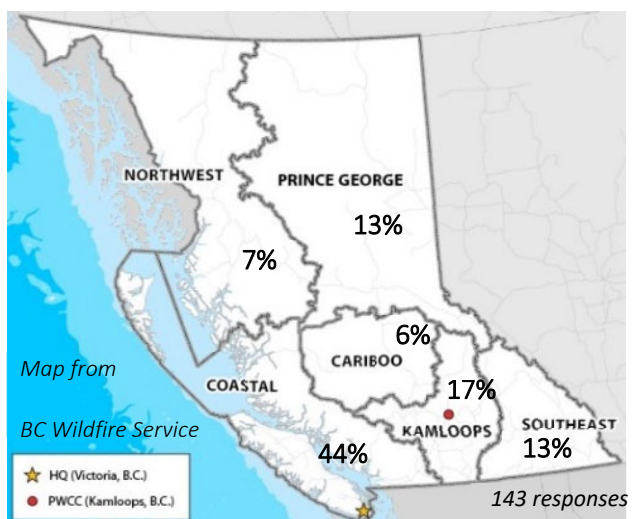
²Daniels, L.D., S.M. Hagerman and S. Ravensbergen. 2018. Wildfire Prevention and Fuels Management in the Wildland-Urban Interface: BC Community Perceptions. Report to the Union of BC Municipalities, First Nations’ Emergency Services Society, BC Community Forest Association and BC Wildfire Service. May 2018. 30pp.

1. Respondent Profile

1.1 Professional Affiliation and Residency of Survey Respondents

Most survey respondents represented communities within the Coastal Fire Centre (44%), followed by the Kamloops Fire Centre (17%), with the fewest respondents representing the Cariboo (6%) and Northwest (7%) Fire Centres.

Forty-five percent of individuals represented municipalities, 22% represented regional districts, 23% represented First Nations communities and reserves, and 10% represented co-managed areas. Over half (59%) of communities represented by respondents have fewer than 5000 residents, and over half (59%) of all communities had population levels which stayed about the same in the past 10 years; 27% had populations which increased by over 20%, and 8% had populations that decreased by less than 20%.

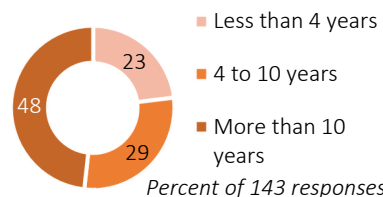


- 22% 🏠 500 residents or less
- 22% 🏠 501 to 2 000 residents
- 15% 🏠 2 001 to 5 000 residents
- 28% 🏠 5 001 to 50 000 residents
- 13% 🏠 50 000 residents or more

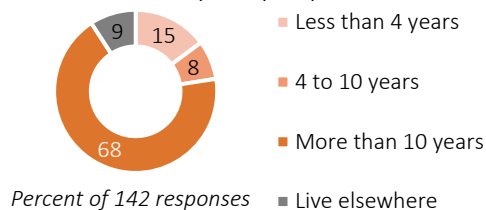
- 45% Municipality
- 22% Regional District
- 10% Municipality/First Nations Community (e.g. co-managed community forests or woodlots)
- 13% First Nations Community
- 10% First Nations Reserve

- 27% Fire Chief (or representative)
- 24% Elected official
- 13% Public safety/emergency services coordinator
- 13% Forester or land manager
- 8% Chief Administrative Officer or Economic Development Officer
- 11% Community forest or woodlot manager
- 4% Other

Respondents Experience with Wildfire Prevention



Time Respondents Have Lived in the Community They Represent



1.2 Individual Experience

Most survey respondents were fire chiefs or their representatives (27%) or elected officials (24%). Seventy-seven percent of respondents had more than four years of experience related to wildfire prevention. More than half (68%) lived in the community they represent for over 10 years.

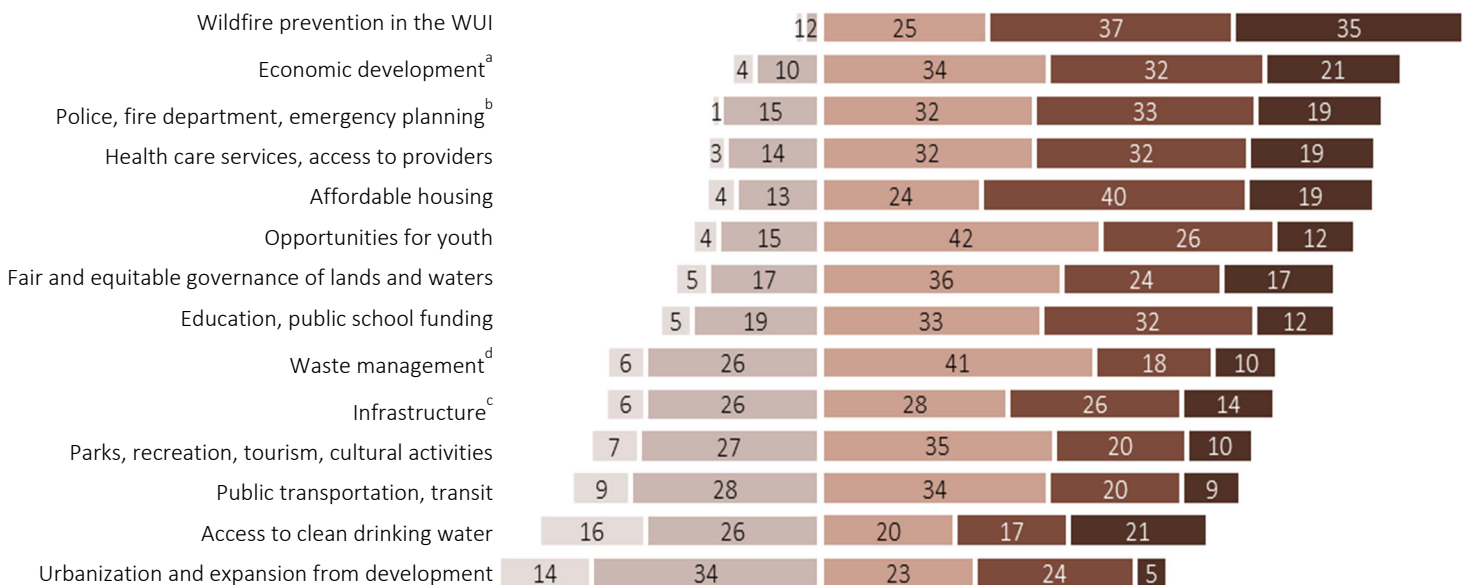
2. Community Priorities

2.1 Issues Facing BC Communities

Wildfire prevention in the WUI; economic development; and police, fire department and emergency services/planning were the top three most urgent issues identified by representatives of BC communities at the time of survey. Seventy-two percent of respondents indicated that wildfire prevention is an urgent or extremely urgent community priority, while 25% indicated it was moderately urgent. After these issues, respondents ranked access to clean drinking water (21%); health care services and access to providers (19%); affordable housing (19%) and fair and equitable governance of lands and waters (17%) as extremely urgent community priorities.

Respondents representing communities with a CWPP (56%) ranked wildfire prevention as the most urgent issue facing their community; police, fire department and emergency services/planning was ranked second and economic development and health care services were equally ranked third. Respondents representing communities without a CWPP ranked affordable housing, wildfire prevention, and economic development as the most urgent issues.

What are your views about the relative urgency of the following issues facing your community today? (Percent of ≥ 132 responses)



^aE.g., businesses and job opportunities

^bE.g., for flooding, earthquakes, etc.

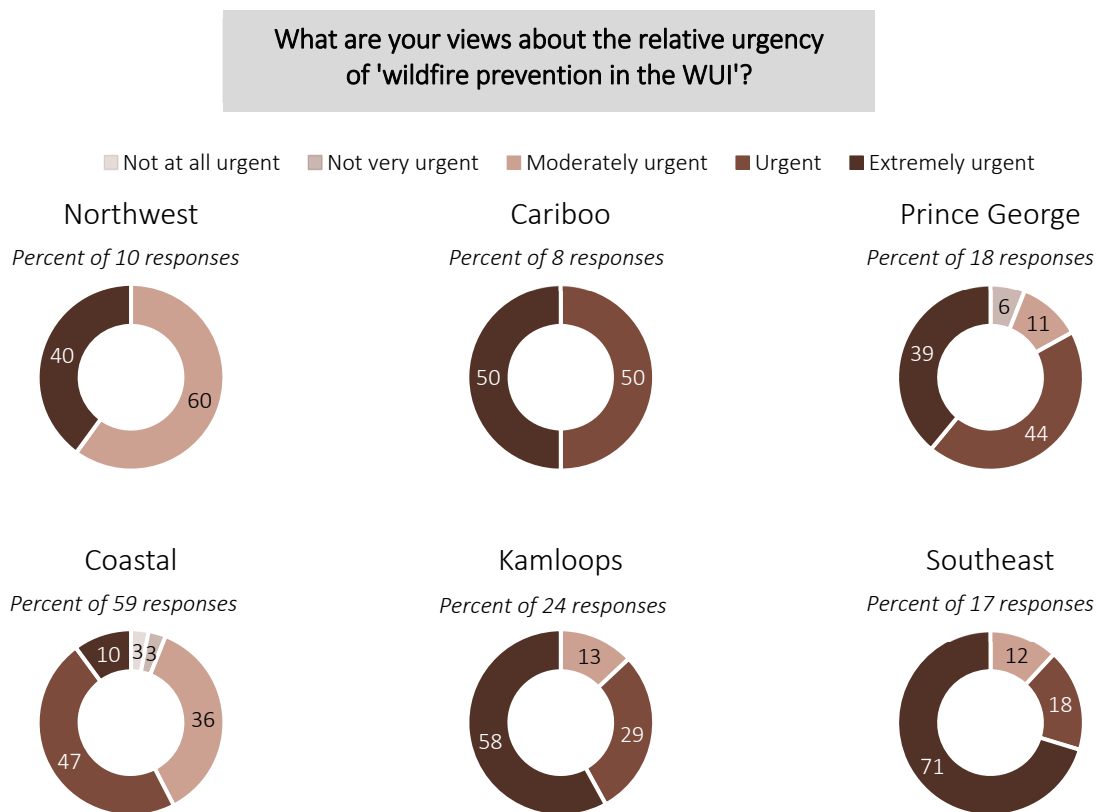
^cInfrastructure (e.g., local roads, sidewalks, street lights)

^dWaste management (sewage, garbage and recycling)

Respondents who had personally experienced a wildfire evacuation alert or order; represented communities identified by respondents as having a high or severe wildfire hazard and risk ratings; or represented communities that had experienced an evacuation alert or order within the past 12 months (i.e. 2017–2018) ranked wildfire prevention as a significantly more urgent community priority than those who had not personally experienced an alert or order; represented communities with moderate or low risk; or represented communities that had not experienced any alerts or orders in the past 15 years (i.e. 2003–2017).

2.2 Regional Comparisons

There was high regional variation in perceptions of the urgency of wildfire prevention. While a number of respondents across all fire centres ranked wildfire as a highly urgent community priority, those representing communities in the SE, Cariboo, Kamloops, PG Fire Centres ranked wildfire prevention as a more urgent community priority than did respondents representing communities in the Coastal and NW Fire Centres. However, additional input from respondents representing communities in the Northwest, Cariboo, PG, and SE Fire Centres is needed to represent and compare their views.

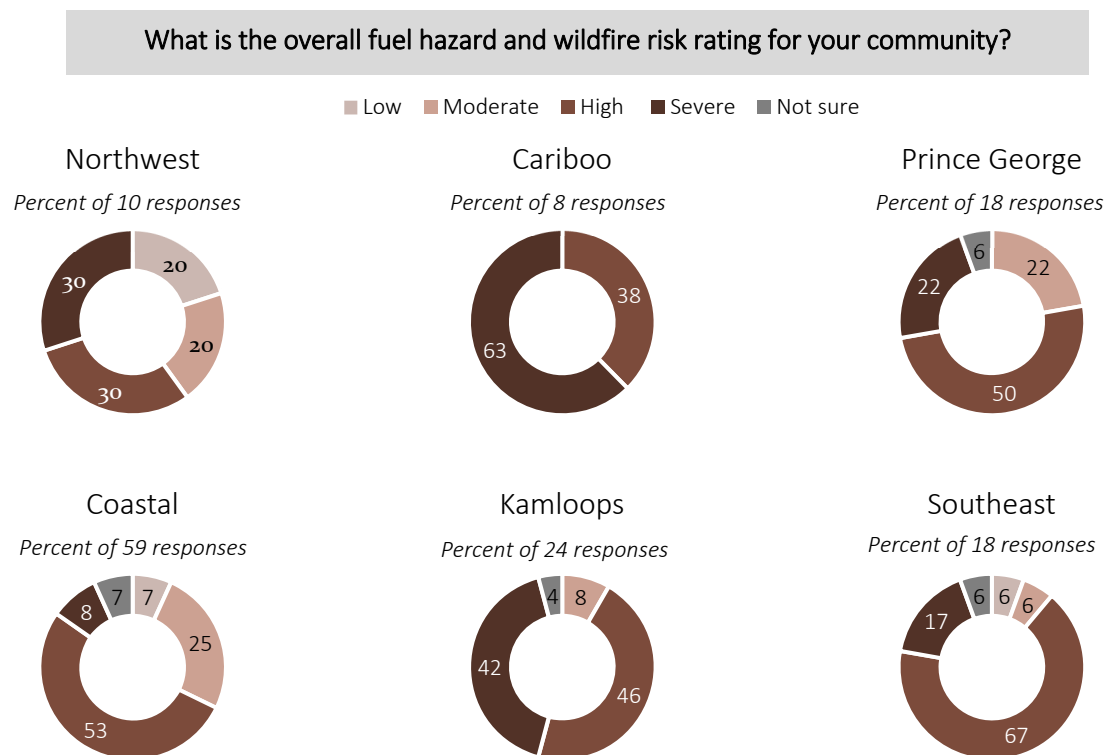


3. Wildfire risk

3.1 Community Fuel Hazards and Risk and Fire Evacuation Experience

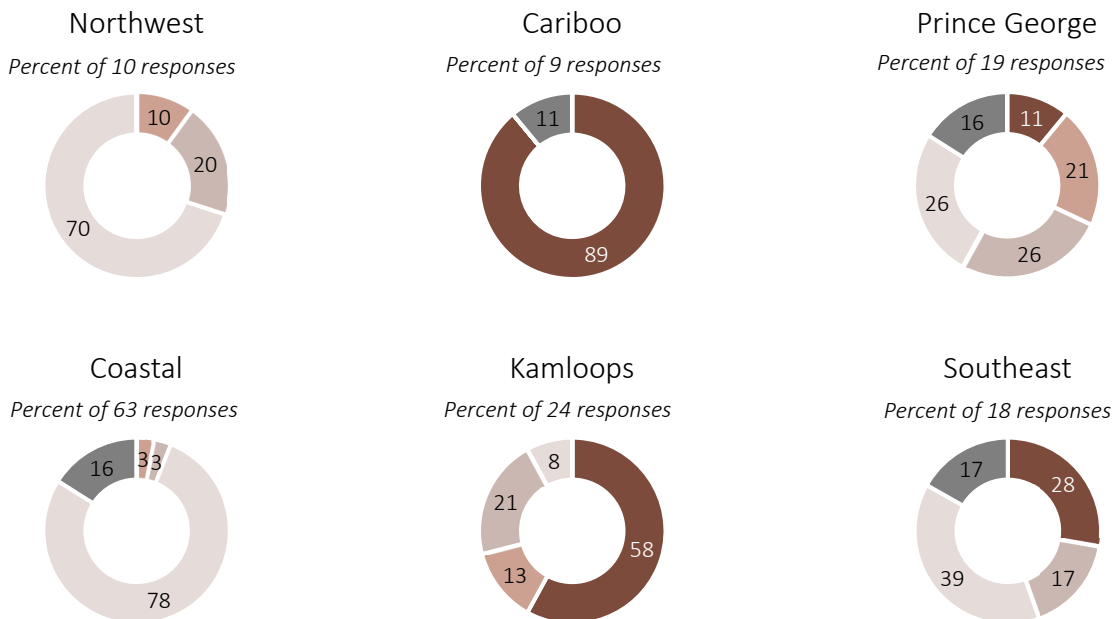
Fifty percent of survey respondents reported their communities as having high fuel hazard and wildfire risk ratings, while 22% reported severe ratings. Respondents representing communities with high or severe fuel hazard and wildfire risk ratings were very concerned about impacts from wildfire. Compared to communities with low or moderate hazard and wildfire risk ratings, those representing communities with high or severe ratings felt that their community would be affected by wildfire to a significantly greater extent and within a shorter time frame. These respondents also reported that it was significantly more important to improve wildfire preparedness in their community.

Twenty percent of communities represented have experienced an evacuation order or alert within the past 12 months (2017–2018), 7% within the past three years (2015–2017), and 12% within the past 15 years (2003–2014). Forty-nine percent of communities have not experienced an alert or order at all within the past 15 years (2003–2017), while 12% of respondents were unsure. There is very high regional variation in experiences of evacuation alerts or orders; of those respondents representing communities that experienced an evacuation alert or order in the past 12 months, 48% were located in the Kamloops Fire Centre, 28% in the Cariboo Fire Centre, 17% in the Southeast, and 7% in Prince George.



When was your community last on wildfire evacuation alert or order?

- Within the past 12 months (e.g., 2017-2018)
- Within the past 3 years (e.g., 2015-2016)
- Within the past 15 years (e.g., 2003-2014)
- Not at all in the past 15 years (e.g., 2003-2017)
- Not sure



3.2 Individual Perceptions of Fire Risk and Preparedness

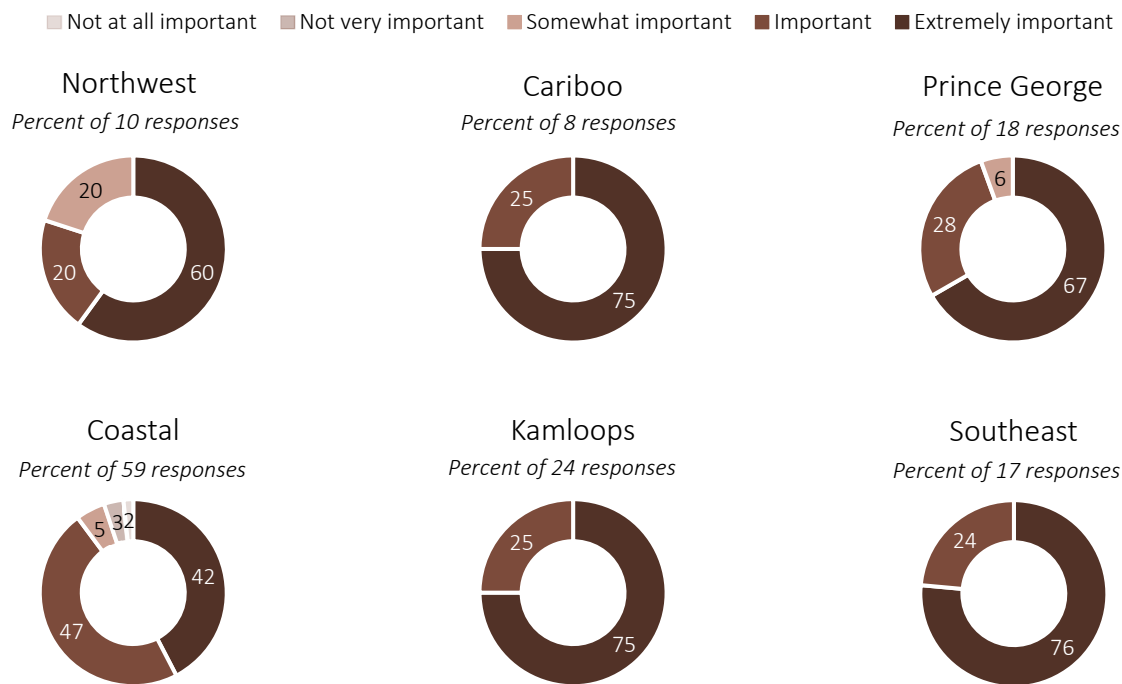
Eighty-nine percent of respondents thought that wildfire in the WUI will impact their community within the next 10 years (58% within 5 years, 31% within 5-10 years). Forty-five percent of respondents indicated they had personally been impacted by wildfire (through an evacuation alert or order) while 93% of respondents felt that it is important or extremely important to improve community wildfire preparedness. Of respondents from the Coastal Fire Centre, 25% indicated they have been personally impacted; this compared to 28% in the Southeast, 44% in Prince George, 60% in the Northwest, 71% in Kamloops and 100% in the Cariboo.

The Cariboo and Kamloops Fire Centres had significantly more respondents who felt that their communities would be impacted within five years, while the Southeast, Kamloops and Cariboo Fire Centres had proportionally more respondents who felt it was extremely important improve wildfire preparedness in their communities, compared to other Fire Centres.

Respondents representing communities that had participated in any wildfire management or planning actions felt that they would be impacted within a shorter time frame, as did individuals that had personally experienced a wildfire evacuation alert or order. Respondents representing communities that had experienced an evacuation alert or order within the past 12 months, or respondents who had personally experienced evacuation alerts or orders indicated that it was

significantly more important to be prepared than those who had not experienced an evacuation order or alert in the past 15 years. Similarly, respondents representing communities with high or severe risk and hazard ratings also indicated it was significantly more important to be prepared than those representing communities with low risk and hazard ratings.

How important to you personally, is improving wildfire-preparedness in your community?

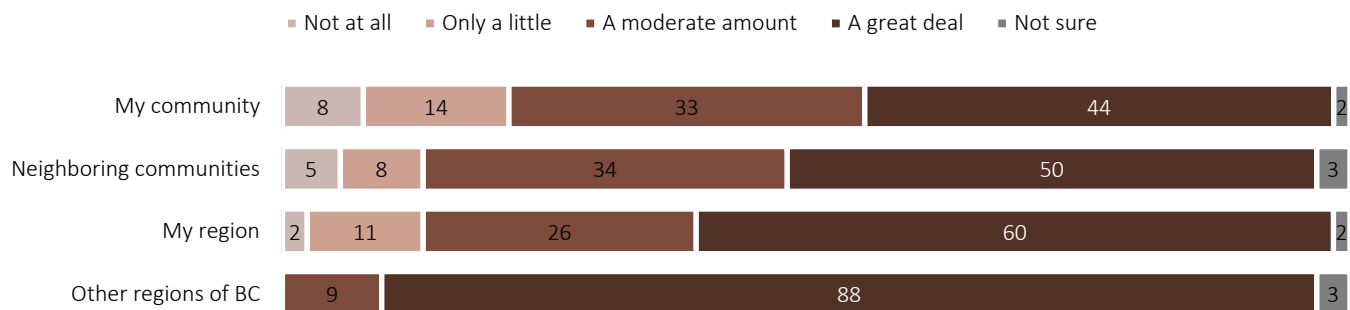


3.3 Who Will Be Affected?

Seventy-seven percent of respondents felt their community would be moderately or greatly affected within the next five years; 84% felt this was the case for neighbouring communities, 86% for their region and 97% for other regions of BC.

Respondents representing communities in the Kamloops and Southeast Fire Centres generally indicated greater concern about the potential impacts of wildfire compared to respondents representing communities in the Coastal Fire Centre. Respondents representing communities with a CWPP, with high or severe hazard and risk ratings, or that had experienced an evacuation or alert within the past 12 months or within the past 3 years, felt that they were more likely to be significantly impacted than those who had not participated in any actions, with moderate or low risk ratings, or that had not experienced any alerts or evacuations in the past 15 years.

To what extent do you think each of the following areas will be affected by wildfire within the next 5 years? (Percent of ≥ 129 responses)



3.4 What Will Be Affected?

Respondents thought that wildfire was most likely to cause loss of structures, loss of recreational opportunities, or loss of livelihoods in their communities. However, this varied greatly among regions and communities of different population levels and different fuel hazard and fire risk ratings. On a personal level, concern varied most depending on personal or community experience with wildfire.

Respondents representing communities with fewer than 5000 residents felt that loss of livelihoods due to wildfire was significantly more likely to occur than respondents representing communities with more than 5000 residents.

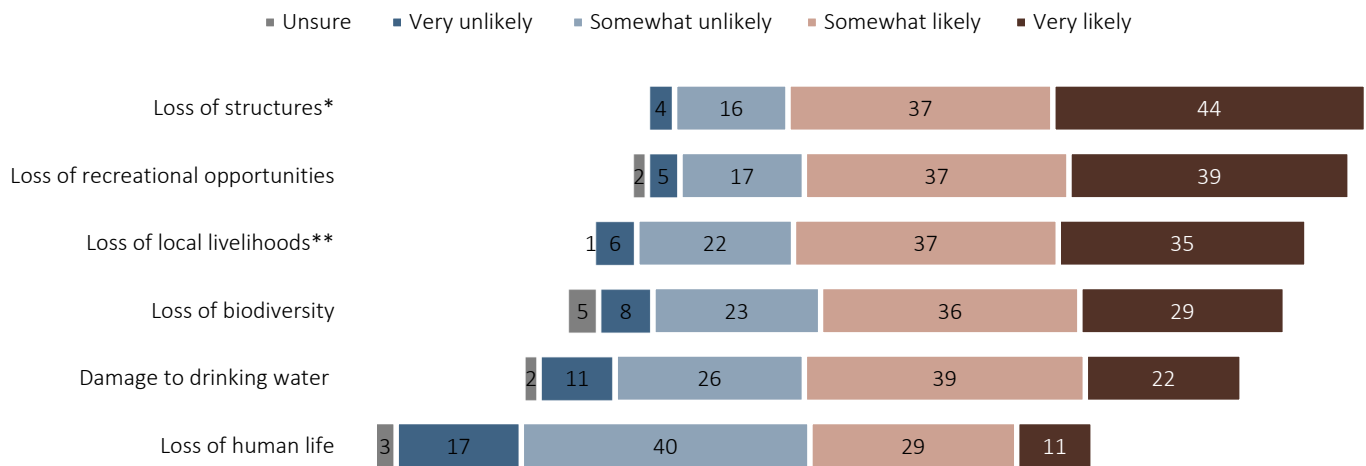
Respondents representing communities with high or severe hazard and risk ratings felt that loss of structures, local livelihoods, human life, and biodiversity, as well as damage to drinking water, were significantly more likely to occur. Respondents that had personally experienced an evacuation or alert, or were representing communities that had experienced an evacuation or alert within the past 12 months (i.e. 2017 fire season) felt that loss of structures, local livelihoods, recreational opportunities, and biodiversity, as well as damage to drinking water, were significantly more likely to occur than communities that had not experienced an evacuation or alert within the past 15 years. There were no significant differences in perceptions about the potential loss of human life.

Respondents representing communities in the Cariboo and Kamloops Fire Centres felt that loss of local livelihoods was significantly more likely to occur compared to respondents in the Coastal Fire Centre. Respondents representing communities in the Kamloops Fire Centre felt that damage to drinking water was much more likely to occur than those representing the Coastal Fire Centre. Respondents representing the Prince George Fire Centre felt that loss of biodiversity was significantly more likely to occur than respondents representing the Coastal Fire Centre.

Respondents representing communities with a CWPP felt that damage to drinking water and loss of biodiversity were significantly more likely to occur than those without. Respondents

representing communities that had participated in any management or planning activities felt that loss of structures, local livelihoods, and biodiversity, as well as damage to drinking water, were significantly more likely to occur than those who had not.

Over the next 5 years, how likely do you think it is that wildfire will cause the following in your community? (Percent of ≥ 132 responses)



*E.g. homes, community services, infrastructure

**E.g. jobs, businesses, access to resources

3.5 What Potential Impacts are of Greatest Concern?

In answer to this open-ended question, respondents most frequently listed concerns about potential impacts of wildfire to structures and livelihoods (including both socio-cultural and economic impacts), as well as impacts associated with public safety and emergency response. Of particular concern was potential loss of life or other impacts to public and emergency responder safety. Associated with this were concerns over a lack of evacuation or emergency response plans; evacuation challenges such as road closures; and inadequate emergency response training and capacities. Respondents highlighted the potential for greater impacts to smaller or more isolated communities due to limited road access or the potential for their community to be completely “wiped out by wildfire”.

Potential impacts to structures included loss of both private property and community level infrastructure (including roads, sewers and water systems). Respondents identified a range of potential impacts to livelihoods including economic disruption to tourism and resource-based industries, as well as impacts to communities through displacement and loss of recreational, traditional and cultural values. Within this, a number of respondents raised concerns about potential long-term impacts to community viability or stability, and the capacity of communities and economies to recover following a wildfire.

The final area of major concern was potential ecological impacts, including impacts to biodiversity (such as habitats and wildlife), watersheds and water quality, and air quality (through smoke and carbon emissions).

4. Wildfire Preparedness and Fuels Management

4.1 The Role of Fire

Overall, 81% of respondents agreed or strongly agreed that fire is an essential component of forest ecosystem function, 13% were neutral, and 6% disagreed or strongly disagreed. Community forest or woodlot managers agreed significantly more with this statement than did elected officials. While diversity of opinions within and between Fire Centres is high, the Kamloops and Southeast Fire Centres had significantly more respondents who agreed with this statement than the Coastal Fire Centre.

Respondents representing communities with a CWPP, or those who have undertaken preventative management actions, agreed significantly more with this statement than those without.

Respondents representing communities with high or severe risk ratings, or communities that have experienced an evacuation order or alert within the past 12 months, agreed significantly more that fire is an essential component of forest ecosystem function than those representing communities with moderate or low ratings, or communities that have not experienced any evacuation orders or alerts in the past 15 years.

4.2 Prescribed Burning to Mitigate Wildfire Risk

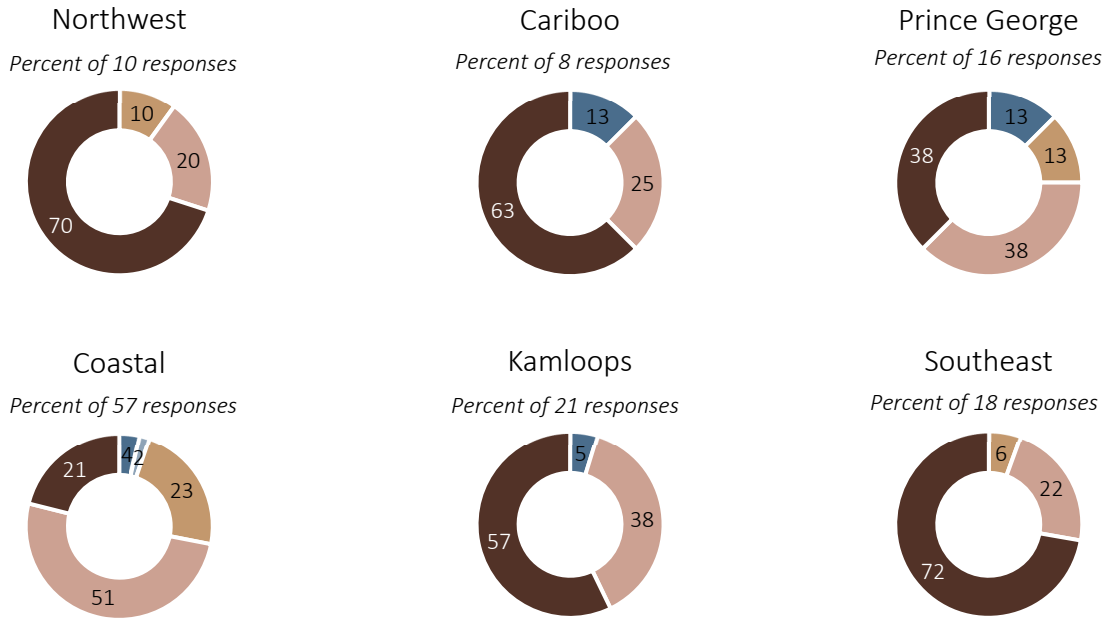
Overall, 76% of respondents personally supported or strongly supported prescribed burning, 18% were neutral, and 6% were opposed or strongly opposed. Ninety-six percent of respondents who strongly agreed that fire is an essential component of forest ecosystem function also strongly supported prescribed burning. Respondents representing the Kamloops, Northwest, and Cariboo Fire Centres supported the use of prescribed burning significantly more than respondents in the Coastal Fire Centre.

Respondents representing communities with high or severe fire hazard and risk ratings, or that have experienced an evacuation order or alert in the past 12 months, supported the use of prescribed fire significantly more than those representing communities with moderate or low risk ratings or that have not experienced an evacuation order or alert in the past 15 years. Respondents that were more concerned about imminent impacts of wildfire (i.e., who felt that their community would be impacted a great deal by wildfire within the next five years) or who had been personally, directly impacted by wildfire in any community, also had higher support for prescribed burning than those who had not been personally impacted or who thought that their community would only be impacted by fire in more than 10 years or not at all.

Public safety coordinators and community forest or woodlot managers also supported prescribed burning significantly more than elected officials and fire chiefs.

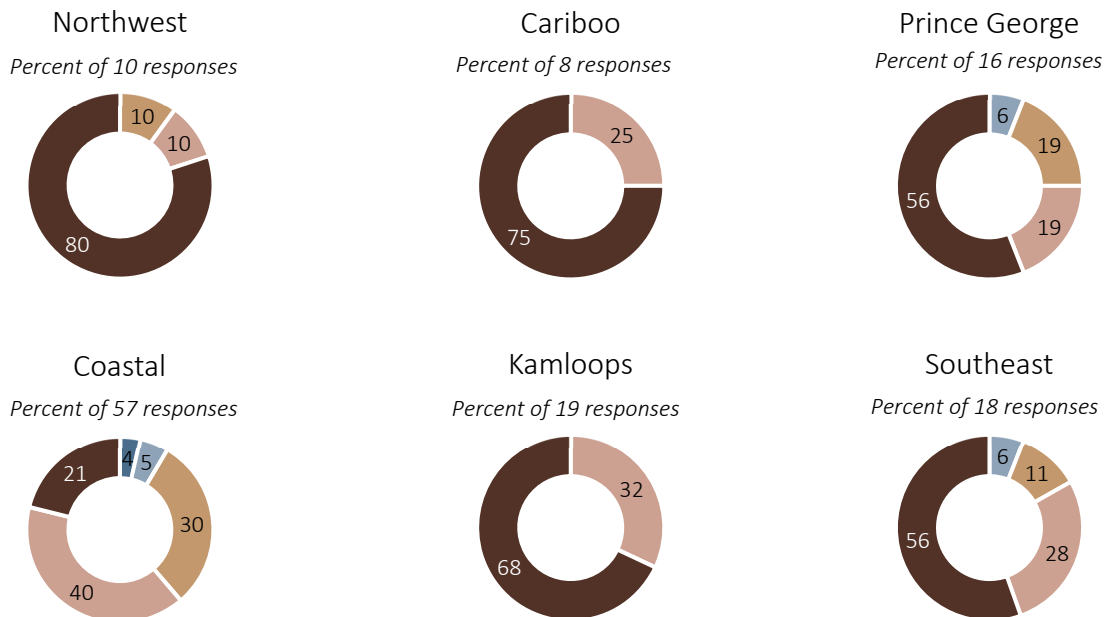
To what extent do you agree/disagree with the following statement?
 “Fire is an essential component of forest ecosystem function.”

Strongly disagree Disagree Neutral Agree Strongly agree



Overall, to what extent do you support the use of prescribed fire (e.g., a controlled application of fire) to reduce fuels around your community to mitigate wildfire risk?

Strongly oppose Oppose Neutral Support Strongly support

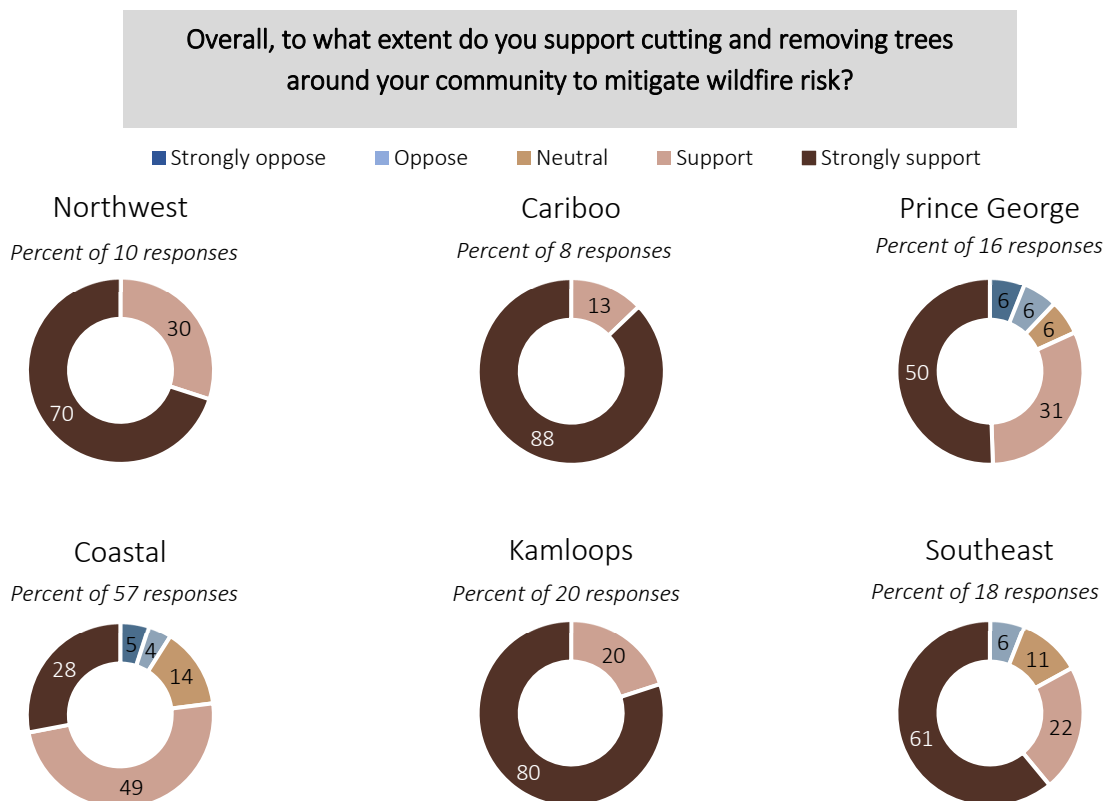


4.3 Tree Removal to Mitigate Wildfire Risk

Overall, 85% of respondents personally supported or strongly supported tree cutting and removal, 9% were neutral, and 6% opposed or strongly opposed this measure. Among Fire Centres, respondents representing communities in Kamloops and Cariboo were significantly more supportive than respondents representing the Coastal.

Respondents representing communities with high or severe risk ratings were significantly more supportive of tree cutting and removal than communities with low or moderate ratings. Respondents representing communities that had experienced an evacuation order or alert within the past 12 months, individuals who had been personally, directly impacted, and those who felt that their community would be impacted by fire within the next five years, all had significantly higher support for tree cutting and removal than respondents representing communities with no evacuation in the past 15 years, who felt they would not be impacted, or who were not personally impacted.

Community forest or woodlot managers were significantly more supportive of tree cutting and removal than elected officials.



4.3 What are the most important actions your community should take to prevent wildfire impacts?

To this open-ended question respondents identified key actions to prevent wildfire impacts in their community, including fuels management (such as prescribed burning, mechanical treatments and construction of landscape level fuel breaks), public education and raising awareness, adoption of the FireSmart program and associated actions, and improving emergency preparedness and response capacities. Actions falling under this final category were proposed by the vast majority (n=138) of respondents and included recommendations for better risk assessment and coordinated emergency planning at both community and landscape levels, and emergency response training and equipment.

Additional actions identified as important in preventing wildfire impacts included stricter enforcement (such as of fire bans and building code regulations) and implementation of existing plans, such as FireSmart or CWPPs.

4.4 The Effectiveness of Management Actions

From the perspective of respondents, the management actions perceived by their communities as effective or very effective to mitigate wildfire risk included selective cutting then wood removal (90%); raising awareness (85%); and enforcement of bans, restrictions and fines (83%).

Among Fire Centres, respondents representing Kamloops and the Northwest indicated that their communities thought that the action of selective cutting, leaving wood, then prescribed burning on ground was significantly more effective compared to respondents from other regions.

Respondents representing communities with high or severe risk ratings, or communities that had experienced an evacuation order or alert with the past 12 months, indicated that their communities thought that the following actions were significantly more effective than communities with moderate or low ratings, or with no evacuations in the past 15 year: grazing; tree pruning; selective cutting of small understory trees and some large overstory trees; selective cutting, leaving wood, and prescribed burning of wood on the ground; selective cutting then removal; and prescribed burning (without cutting).

Fire chiefs indicated that the communities they represented viewed raising awareness as significantly more effective a management tool than did foresters/land managers (not including community forest or woodlot managers). Fire chiefs also indicated that the communities they represented thought that enforcement of bans, restrictions and fines was significantly more effective than did community forest or woodlot managers. Community forest or woodlot managers indicated that the communities they represented thought that selective cutting then chipping and spreading woodchips on ground was significantly more effective than did Chief Administrative Officers, and elected officials.

Respondents further emphasized the importance of education and enforcement, as well as fuels mitigation treatments such as prescribed burning, chipping and tree pruning and thinning (open-ended questions). In addition to the actions presented in the survey, respondents also proposed new actions such as strategic logging; creation of both shaded fuel breaks and more extensive crown breaks; and allowing “natural fires to go unless near property or infrastructure” (known as a modified response or managed wildfire). Some respondents emphasized the importance of applying multiple treatments in combination across a landscape scale.

However, respondents also identified barriers to effectively implementing these actions. Some barriers were related to specific geographic contexts or locations: for example, that prescribed burning may have less application or be less feasible on the coast than in the interior, in areas with “heavy deciduous components” surrounding towns, or close to large urban areas. Other respondents indicated that steep slopes and visual quality objectives pose constraints to selective cutting for fire mitigation purposes and that it is important to consider potential environmental impacts of actions such as riparian damage from livestock grazing or additional flooding due to extensive tree removal.

4.5 Community Support for Management Actions

At a community level, respondents indicated that raising awareness, enforcement of bans, restrictions and fines, and tree pruning, are the mitigation actions with the most public support.

Among Fire Centres, respondents representing the Coastal, Southeast, and Kamloops indicated that their communities supported selective cutting of only small understory trees significantly more than respondents in the Prince George Fire Centre. Selective cutting then chipping was perceived as having significantly more support in the Northwest Fire Centre compared to the Prince George Fire Centre. Selective cutting, piling the wood, and prescribed burning piles, as well as selective cutting, leaving the wood on ground and then prescribed burning was perceived as having significantly more support in the Kamloops Fire Centre than in the Prince George and Coastal Fire Centres. Prescribed burning (without cutting) had significantly more support in the Kamloops and Northwest Fire Centres than in the Coastal and Prince George Fire Centres.

Respondents representing municipalities, regional districts, and community forests/woodlots indicated that their communities supported enforcement of bans, restrictions and fines for violating the BC Wildfire Act to a much greater extent than did respondents representing First Nations communities and reserves. Grazing had significantly higher support from community forests/woodlots than in First Nations communities. Selective cutting, piling wood, then prescribed burning piles was perceived as having significantly more community support by respondents representing First Nations reserves and communities compared to respondents representing municipalities, regional districts, and community forests/woodlots. Respondents representing First Nations reserves in particular (and First Nations communities to a slightly lesser extent) indicated that their communities supported selective cutting, leaving wood on ground, then prescribed burning of wood on the ground significantly more than respondents representing municipalities, regional districts, and community forests/woodlots. Prescribed

burning (without cutting) was also perceived as having significantly more community support by respondents representing First Nations communities than those representing municipalities. However, there were no differences in terms of perceived effectiveness between these groups.

Respondents representing communities with a CWPP and that had participated in any wildfire mitigation actions (vs. those who had not) indicated their communities had significantly more support for the following actions: tree pruning; selective cutting of only small understory trees; selective cutting of small understory trees and some overstory trees; selective cutting then wood removal; selective cutting then chipping; and selective cutting, piling the wood, then prescribed burning piles.

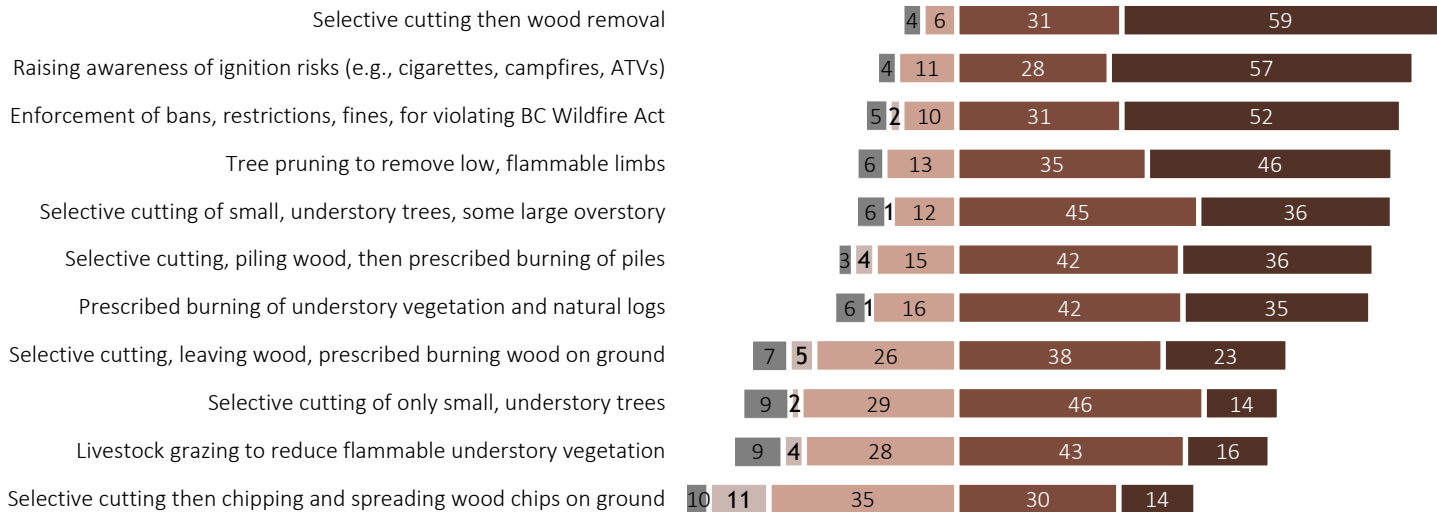
Finally, compared to respondents representing communities who had not experienced any evacuation orders or alerts in the past 15 years, respondents representing communities that had experienced an evacuation or alert within the past 12 months indicated their communities had significantly more support for the following actions: selective cutting, piling the wood, then prescribed burning piles; and selective cutting, leaving the wood on the ground, then prescribed burning.

In a number of cases, however, respondents indicated that they did not know what the public in their community would prefer or that they have never run studies to determine public perception. Others felt that the communities they represented may support these actions more if there were greater education of the risks in the area; an example of this is respondents that indicated increased levels of support and acceptance of actions such as prescribed burning and other fuel treatments following concerted education efforts.

Some respondents linked community support for actions to community industries or economies. For example, strong connections to forestry or other resource extraction industries was associated with stronger support for fuel removal, while another respondent said that treatments were welcomed “especially if they provide local employment opportunities.” Other factors that were perceived as affecting community support included the proximity of actions to the community itself; the suitability of actions to local ecosystems (e.g. whether in a “suitable grazing ecosystem” for livestock grazing); and the challenge of long timeframes required to obtain permits for activities such as timber removal.

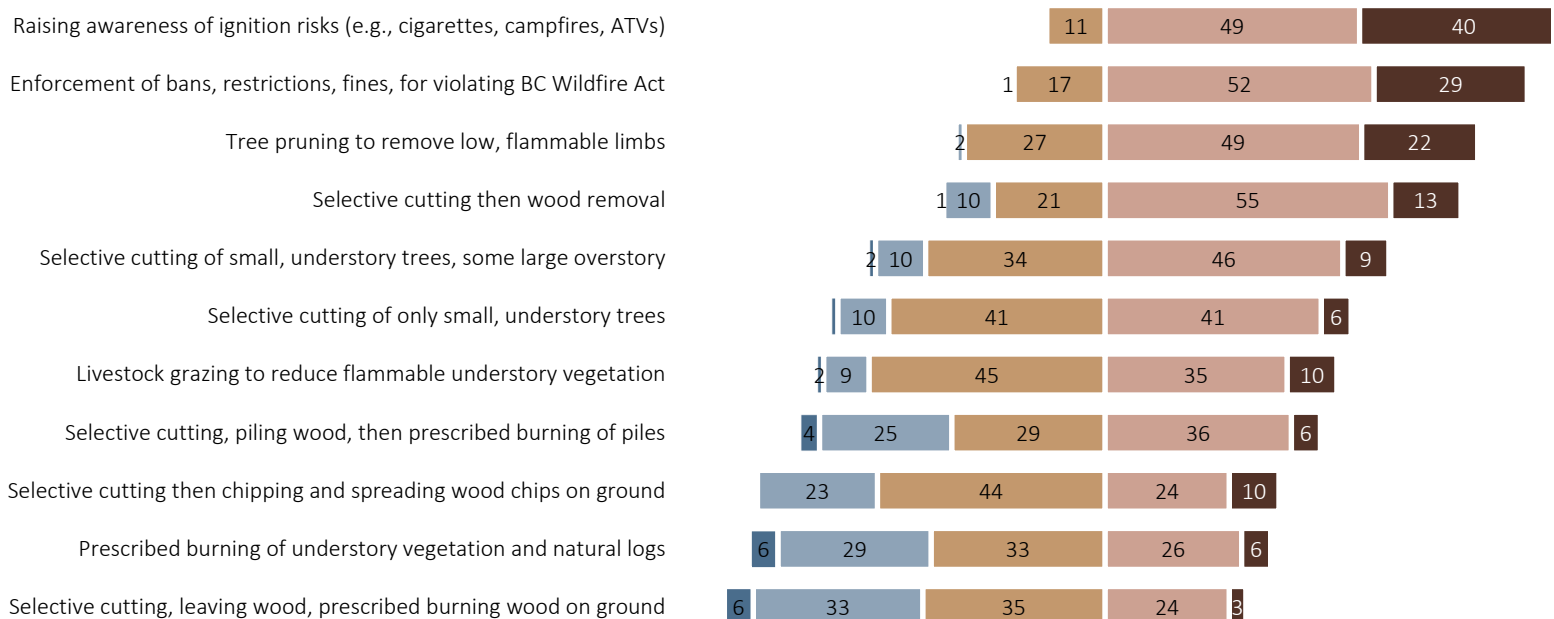
In general, how effective do you think the following actions are in terms of mitigating wildfire risk? (Percent of ≥125 responses)

■ Not sure ■ Not at all effective ■ Not very effective ■ Effective ■ Very effective



In your view, how much public support/opposition is there to these same actions for mitigating wildfire risk in your community? (Percent of ≥ 123 responses)

■ Strongly opposed ■ Opposed ■ Neutral ■ Supported ■ Strongly supported



5. Planning and Mitigating Wildfire Risk

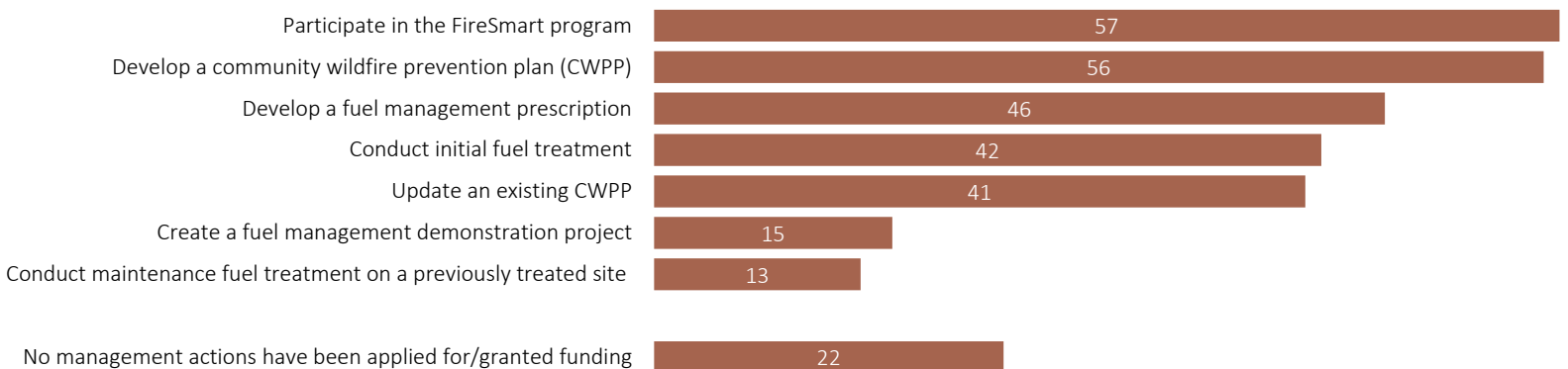
5.1 Engagement with Wildfire Prevention Actions

For communities that had applied for or received funding from BC’s Strategic Wildfire Prevention Initiative or Indigenous and Northern Affairs Canada’s On-Reserve Forest Fuel Reduction Treatment Funding, participating in the FireSmart program was the most common activity undertaken (57% of respondents), followed by developing a CWPP (56%) and fuel management prescriptions (46%); 22% of respondents represented communities that have not participated in any activities.

Fewer respondents representing communities in the Cariboo, Kamloops, and Southeast Fire Centres indicated their community had a CWPP compared to respondents representing communities in the Northwest, Prince George, and Coastal Fire Centres. No significant differences in responses based on population size or community types were found.

A significantly higher proportion of communities where respondents indicated high or severe risk ratings had completed CWPPs and had a higher rate of participation in any activities, than communities with low or moderate risk ratings.

For which management actions has your community applied for/received funding from BC’s SWPI or Indigenous and Northern Affairs Canada’s On-Reserve Forest Fuel Reduction Treatment Funding? (Percent of 120 responses)



5.2 Factors Limiting Progress Toward Reducing Wildfire Risk

Ninety-three percent of respondents indicated that a lack of funding from provincial and federal governments moderately or strongly limited progress towards reducing wildfire risk in the WUI while 89% indicated that this was the case for a lack of financial resources at the community level. Eighty-four percent of respondents indicated that a lack of time allocated to staff workloads moderately or strongly limited progress towards reducing wildfire risk.

The most strongly limiting factors listed by respondents from communities that did not have a CWPP or had not participated in any wildfire mitigation actions were lack of time allocated to staff workloads (72% strongly limiting) and lack of financial resources at community level (68% strongly limiting). Although there were no significant differences between community types, the following groups showed significant differences in opinion regarding barriers:

Fire Centres: Respondents representing communities in the Northwest and Coastal Fire Centres identified that a 'lack of need, wildfire risk is not a problem' was significantly more limiting than respondents representing the Kamloops Fire Centre. Other regions ranged between these contrasting opinions.

Participation: Respondents representing communities without a CWPP indicated that 'lack of public support for fuels management' and 'lack of staff knowledge of fuels management' were significantly more limiting factors than did respondents from communities with a CWPP.

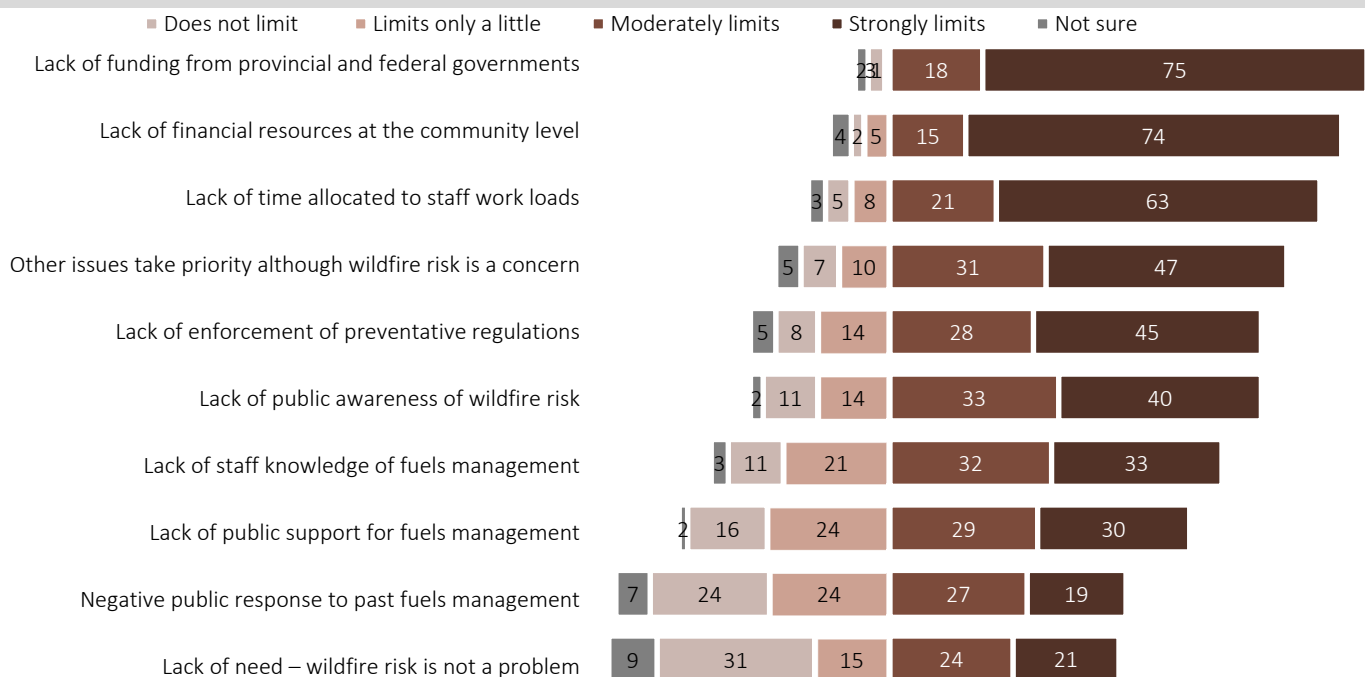
Risk/hazard and wildfire experience: Respondents representing communities with high or severe hazard/risk ratings indicated that a 'lack of funding from provincial and federal governments' was a significantly more limiting factor than for communities with low or moderating ratings. Respondents representing communities that had not experienced an evacuation order or alert in the past 15 years indicated that 'lack of need, wildfire risk is not a problem' was a significantly more limiting factor than those communities that had experienced an evacuation order or alert in the past 12 months.

Risk perception: Respondents that indicated that their community would likely be impacted in a shorter time frame also indicated that a 'lack of financial resources at the community level' and a 'lack of funding from provincial and federal governments' were significantly more limiting barriers than for those who indicated their community would be impacted in more than 10 years, or not at all.

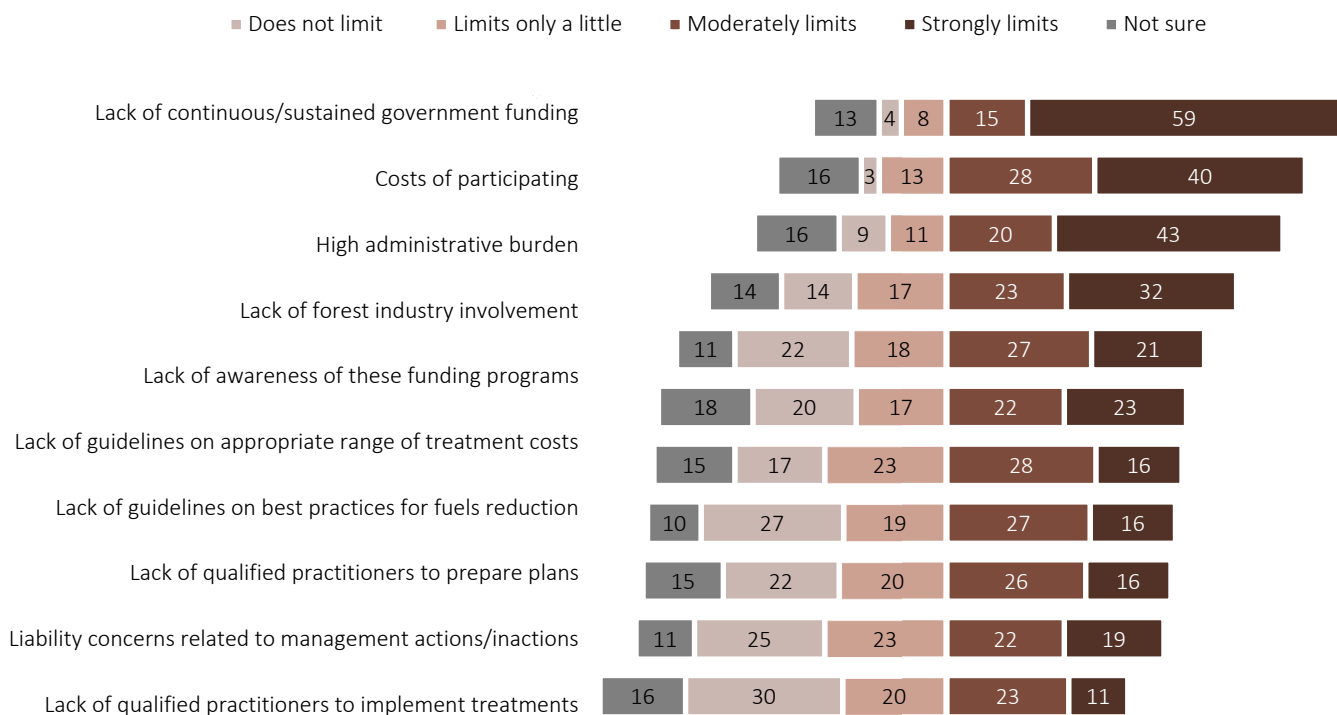
Consistent with the closed-answer survey responses, the open-ended responses identified lack of funding as a strong factor limiting progress, including a lack of sustained funding and geographic limitations on where funding can be used. In addition, several respondents highlighted the lack of public support within their community: there is a "general lack of appreciation of the scale of the problem/hazard as well as the inevitability of wildfire" and a "lack of understanding [of] the horrors of wildfire."

Many respondents offered additional factors that limited progress towards reducing wildfire risk, including cross-scale management issues (e.g. among multiple jurisdictions) and specific issues navigating bureaucratic processes. One respondent highlighted there is a "lack of truly coordinated/collective understanding of the scale of analysis and fuel treatments needed to have impact. Need a paradigm shift in how we view wildfire and fuel management."

**To what extent do the following factors limit progress towards reducing wildfire risk in the WUI in your community?
(Percent of ≥116 responses)**



To what extent do the following factors limit your progress towards engaging with BC’s SWPI or Indigenous and Northern Affairs Canada’s On-Reserve Forest Fuel Reduction Treatment Funding? (Percent of ≥ 115 responses)



5.3 Factors Limiting Engagement with Existing Funding Programs

Seventy-four percent of respondents indicated that a lack of continuous or sustained government funding moderately or strongly limited progress towards engaging with BC's SWPI or Indigenous and Northern Affairs Canada's On-Reserve Forest Fuel Reduction Treatment Funding; 68% indicated this was the case for cost of participating and 63% indicated this was due to a high administrative burden.

One respondent said: "Our experience here has shown that the high administrative burden created by the current provincial funding programs is the single biggest factor in slowing progress on fuel management."

Among the 25 respondents representing communities with no CWPP and no participation in any other activities, the most strongly limiting factors were a lack of continuous or sustained funding from provincial and federal governments (44%) and lack of awareness of these funding programs (40%).

Opinions on barriers differed among many groups, although the largest differences in opinion were between respondents representing communities with different hazard and risk ratings.

Risk/hazard: Respondents representing communities with a high or severe hazard risk rating indicated that 'high administrative burden', 'costs of participating', 'lack of continuous or sustained government funding', 'lack of guidelines on best practices for reduction treatments and costs', 'forestry industry involvement' and 'concerns about liability' were all significantly more limiting factors than did respondents representing communities with moderate or low risk ratings. On an individual level, respondents who felt their communities would be impacted by wildfire in a shorter time frame also indicated that a 'lack of continuous or sustained government funding' was a significantly more limiting barrier than those who felt their community was less likely to be impacted in the near future.

Fire Centres: When compared to the Southeast, Coastal and Kamloops Fire Centres, respondents representing communities in the Northwest, Cariboo and Prince George Fire Centres indicated 'high administrative burden' was a significantly more limiting factor to engaging in these funding programs.

Community type: Respondents representing community forests/woodlots indicated that a 'lack of awareness of funding programs' was a significantly more limiting barrier to SWPI participation than respondents representing municipalities and regional districts.

Evacuation: Respondents representing communities that had experienced an evacuation order or alert in the past 12 months indicated that 'high administrative burden' was a significantly more limiting barrier compared to respondents representing communities with no evacuation orders or alerts in the past 15 years.

Profession: Fire chiefs indicated that a ‘lack of awareness of funding programs’ was a significantly more limiting barrier than did foresters or land managers. Public safety officers and CAO’s felt that a ‘lack of qualified practitioners to prepare plans’ was a significantly more limiting barrier than did foresters or land managers. Public safety officers indicated that a ‘lack of forestry industry involvement’ was a significantly more limiting barrier than did foresters or land managers.

In the open-ended responses, many respondents provided additional context for why the factors listed were limiting their progress towards engaging with existing funding programs. A number of respondents highlighted that the administrative burden was very high and made the funding application process difficult to navigate. This burden was made worse by the lack of staff capacity indicated by several respondents. Despite the lack of sustained funding having the highest percentage of moderately or strongly limiting progress in the survey responses, only three respondents provided additional comments on this, two of which were coupled with other concerns.

One respondent noted: “Staff capacity at our First Nation is a limiting factor also. We have full-time jobs in other fields/professions and in addition we are expected to be experts at Emergency management, forestry and community wildfire protection too! There are not enough administrative resources to fully staff all the programs and positions we need, such as Community Wildfire Protection”.

In addition to the listed factors, respondents noted several other factors limiting progress, including the funding structure and timing of the funding. The main concerns with the funding structure included the geographic scale of treatments (limited to 2km WUI buffer), excessive management burdens such as coordination with different agencies with limited staff capacity, and a lack of funding for specific programs (including the Indigenous Guardians program, a society-held community forest, and funding for basic fire prevention and mitigation planning).

One respondents highlighted that a key factor slowing progress in fuel management “is the grant funding structure which requires the province to give funds to local governments who then have to lead the projects. [This] puts local and provincial staff in opposing positions debating costs instead of working collaboratively. This current structure is inefficient.”

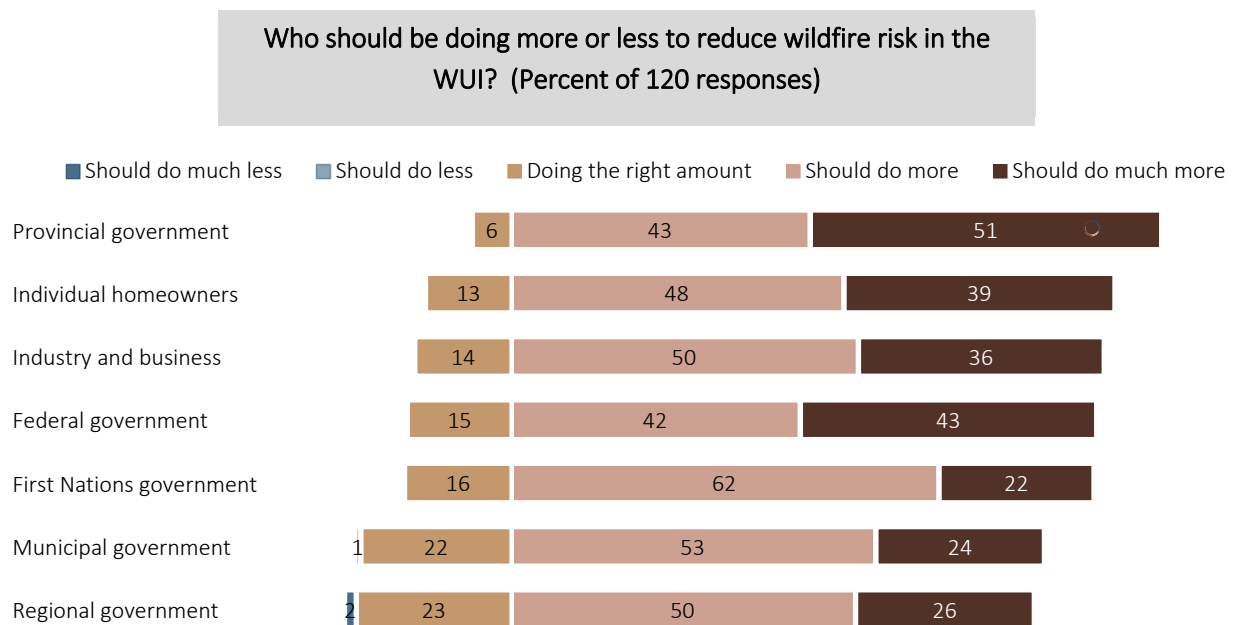
Another noted the “SWPI program is...limited to the WUI when we need to really expand the scale of our treatments significantly. Process, money, buy-in, legislation provincial and federal support for this scale of work is needed.”

5.4 Responsibility for Managing Wildfire Risk

While many respondents indicated that everyone should be doing more, overall, respondents believed that provincial and federal government, and individual homeowners should be doing much more.

Respondents representing communities with high or severe hazard ratings were significantly more likely to indicate that the provincial and federal government should be doing much more to reduce risk compared to respondents representing communities with lower hazard and risk ratings. On a personal level, respondents who indicated their communities would be impacted a great deal (compared to those who felt it would be impacted only a little) felt that the federal government and industry should do much more to reduce risk.

Those respondents who indicated that their communities would be impacted in a shorter time frame (within five years, as opposed to more than 10 or not at all) felt that the provincial government should be doing much more to reduce risk.



For those respondents who answered the open-ended portion of this question (n=45), many felt that the responsibility to reduce wildfire risk in the wildland-urban interface should be shared: “Everyone is responsible because everyone would be affected by a catastrophic wildfire.” The responses were generally consistent with the ranking: the provincial government, private property owners, industry/licensees, and the Federal government were all identified as groups that could play a greater role in supporting communities to reduce wildfire risk. Respondents generally felt that more funding was needed to support private property owners in undertaking activities to reduce wildfire risk. In addition, many felt that the provincial and federal government could engage as coordinating and funding bodies to work with other agencies and levels of government to support community wildfire risk reduction.

One respondent noted the challenge of disjointed efforts: “Currently there are too many silos...In some areas regional districts are taking the lead, in others community forests. Funding is usually only for one year and needs [to be] multi-year funding. BC government has not taken the lead.

[There] should be one agency in charge, [with] regulation to support it and funding to be effective.”

5.5 Additional Challenges for Communities

Forty-two respondents provided additional comments at the end of the survey, ranging from specific comments about the available funding programs to other challenges that were not captured by the survey questions themselves.

For those who commented on the available funding programs, some respondents highlighted their successful engagement with the SWPI funding stream and appreciation for the staff that support it. Others provided additional context for some of the barriers to community engagement with these programs, including a lack of resources (such as limited staff time or “expert” personnel), limited access to opportunities (e.g., through lack of awareness), a lack of sustained funding and bureaucratic issues with the application process. One respondent noted that liability issues around the use of prescribed fire needs further clarification, because their situation resulted in a large amount of funding spent on planning but not on implementation of the treatments.

Respondents that detailed other challenges not captured by the survey itself spoke primarily about governance conflicts, including conflicts across different agencies, different types of land ownership, and conflicts between local versus provincial decision-makers. Some of these conflicts are perceived as resulting from different priorities on the land; for example, the need to protect local lives and property versus requirements for land-use objectives (e.g. Old Growth Management Areas and Mule Deer Winter Range). One respondent representing a coastal community noted that they had a problem accessing funding because “SWPI and FESBC compare our fuel treatment costs against work done in the interior which is much less expensive due to easier terrain, better access and lower density forests that have less debris to remove from the sites.”

One respondent highlighted the challenges of focusing funding only on the WUI area: “funding should be based on the effectiveness and priority of treatment areas, not land status. Provincial, municipal, and federal lands should not dictate what areas get prescribed and treated. It should be based on risk rating, fuels, and proximity to structures and infrastructure. Cross jurisdictional issues greatly limit the effectiveness of these programs”.

Another respondent identified the need for increased participation and benefit for local communities:

“The geographic sections of the province that are covered in forests are the 'bread and butter' for our province. Although we are diversifying our economy provincially, forestry is still "number one". The south coast cities are not at the same risk of forest fires and yet they derive at least equal benefit, housing the head offices and staffing many of the larger forestry businesses. We all need to be aware of wildfire risks when working, living, or recreating near forests and

grasslands. We all need to share the cost of wildfire mitigation and treatment. We need a return to the provincial/local collaborative approach to wildfire management that existed 20 years or more ago when the province kept a registry of local businesses and equipment and contacted them to respond to fires; also contacted them to identify and mitigate risks. The risks cross local government boundaries and it is therefore more appropriate to have a provincial lead, through Wildfire Service, with strong local input and participation rather than having this downloaded to local governments and licensees.”

6. Summary and Lessons Learned

This survey was conducted after the 2017 wildfire season and early in the 2018 wildfire season (June and July). The number of respondents nearly doubled between the 2017 (n=77) and 2018 (n=144) surveys; while this may in part be due to greater outreach in survey distribution, it also suggests an increased awareness of the issues around wildfire prevention, preparedness and fuels management in the WUI. There was an overall increase in the number of respondents representing each Fire Centre in the 2018 survey, but a greater proportion of respondents representing communities in the Coastal Fire Centre (dominated by more mesic forests) compared to the Kamloops and Southeast Fire Centres (dominated by drier forests) than in the 2017 survey.

This 2018 survey strongly reflects the key findings of the 2017 survey in that wildfire preparedness is an urgent issue facing communities across BC. Furthermore, it similarly indicates that capacity is a major factor limiting communities' participation in wildfire prevention and fuel mitigation activities. In addition, most respondents in 2018 indicated that a lack of funding from provincial and federal governments has limited progress towards reducing wildfire risk in the WUI. This survey also highlights the additional challenges for First Nations communities and reserves, where jurisdictional and governance barriers limit their ability to access funding.

With the higher number of overall responses in 2018, including extensive open-ended responses, this survey provides a more nuanced understanding of community priorities (Section 2), perceptions of wildfire risk (Section 3), wildfire prevention and fuels management (Section 4), and planning and mitigating wildfire risk (Section 5). Personal or community experience with wildfire, or a high perception of risk and hazard, led to a higher awareness of the importance of being prepared. Perceptions of effectiveness and community support for wildfire preparedness actions varied greatly among regions, community types, experience with fire, and profession; prescribed burning was more supported in communities with a high or severe wildfire risk rating, that had experienced an evacuation order or alert in the past 12 months, and in First Nations communities and reserves.

Many respondents expressed concern that a significant and disproportionate burden of responsibility for managing wildfire risk is borne at the community-level, and most believe that the provincial and federal government, individual homeowners, and industry and business should be doing much more. In terms of existing structures for support, conflicts of governance between different agencies, land ownership types, and local versus provincial-level decision-makers were viewed as major challenges to progress towards wildfire preparedness.

Future work will explore these themes in more detail with community forests across the province, which represent a diversity of experience, challenges, and successes towards wildfire preparedness and fuel management. We anticipate that this work will provide additional insights and lessons learned from the perspective of individuals tasked with managing land often located in the WUI where wildfire has impacted or has the potential to impact significant and varied community values.

Appendix I: Regional Summaries

Coastal Regional Fire Centre (63 responses)

- Top three most urgent issues facing communities in the Coastal region today: 1) Affordable housing; 2) Wildfire prevention in the WUI; 3) Police, fire department, and emergency services/planning.
- Twenty-seven (43%) communities have participated in the FireSmart program; 21 (33%) have developed a CWPP; 15 (24%) have not applied for or received funding for any actions; 13 (21%) have updated an existing CWPP; 11 (18%) have developed a fuel management prescription; 6 (10%) have conducted initial fuel treatment; 3 (5%) have created a fuel management demonstration project; 1 (2%) have conducted a maintenance fuel treatment on a previously treated site.
- Rated as the top three most effective actions in the region: 1) Raising awareness of ignition risks/Enforcement of bans, restrictions and fines; 2) Tree pruning to remove low, flammable limbs; 3) Selective cutting then wood removal (e.g. use for timber or energy production).
- Rated as the top three most supported actions in the region: 1) Raising awareness of ignition risks; 2) Enforcement of bans, restrictions and fines; 3) Tree pruning to remove low, flammable limbs.
- Top three factors limiting progress towards reducing wildfire risk in the WUI in the region: 1) Lack of time allocated to staff workloads; 2) Lack of financial resources at the community level/Lack of funding from provincial and federal governments; 3) Lack of enforcement of preventative regulations.
- Top three factors limiting progress towards engaging with BC's SWPI or Indigenous and Northern Affairs Canada's On-Reserve Forest Fuel Reduction Treatment Funding in the region: 1) Lack of continuous or sustained funding from provincial or federal governments; 2) High administrative burden/Costs of participating; 2) Lack of forestry industry involvement.

Kamloops Regional Fire Centre (24 responses)

- Top three most urgent issues facing communities in the Kamloops region today: 1) Wildfire prevention in the WUI; 2) Health care services and access to providers; 3) Police, fire department, and emergency services/planning.
- Eighteen (75%) communities have developed a CWPP, conducted an initial fuel treatment and participated in the FireSmart program; 17 (71%) have updated an existing CWPP and developed a fuel management prescription; 10 (42%) have conducted a maintenance fuel treatment on a previously treated site; 8 (33%) have created a fuel management demonstration project; no respondent communities reported not applying for or receiving funding for any actions.
- Rated as the top three most effective actions in the region: 1) Tree pruning to remove low, flammable limbs/Selective cutting then wood removal (e.g. use for timber or energy production)/Prescribed burning of understory vegetation and natural logs on ground/Selective cutting of small, understory, and some large overstory trees; 2)

Selective cutting, piling the wood, then prescribed burning of wood piles/Raising awareness of ignition risks/Selective cutting, leaving wood on the ground, then prescribed burning of wood on ground; 3) Enforcement of bans, restrictions and fines.

- Rated as the top three most supported actions in the region: 1) Selective cutting then removal; 2) Tree pruning to remove low, flammable limbs/Selective cutting, piling the wood, then prescribed burning of wood piles; 3) Raising awareness of ignition risks.
- Top three factors limiting progress towards reducing wildfire risk in the WUI in the region: 1) Lack of financial resources at the community level; 2) Lack of funding from provincial and federal governments; 3) Lack of time allocated to staff workloads.
- Top three factors limiting progress towards engaging with BC's SWPI or Indigenous and Northern Affairs Canada's On-Reserve Forest Fuel Reduction Treatment Funding in the region: 1) Lack of continuous or sustained funding from provincial or federal governments; 2) High administrative burden 3) Costs of participating.

Southeast Regional Fire Centre (18 responses)

- Top three most urgent issues facing communities in the Southeast region today: 1) Wildfire prevention in the WUI; 2) Opportunities for youth; 3) Affordable housing.
- 14 (78%) of communities have developed a CWPP; 13 (72%) have developed a fuel management prescription and conducted initial fuel treatment; 12 (67%) have participated in the FireSmart program; 11 (61%) have updated an existing CWPP; 3 (17%) have conducted a maintenance fuel treatment on a previously treated site and created a fuel management demonstration project; 1 (6%) has not applied for or received funding for any actions.
- Rated as the top three most effective actions in the region: 1) Selective then wood removal (e.g. use for timber or energy production); 2) Selective cutting of small, understory and some large overstory trees/Enforcement of bans, restrictions and fines; 3) Raising awareness of ignition risks/Selective cutting, piling the wood, then prescribed burning of wood piles.
- Rated as the top three most supported actions in the region: 1) Raising awareness of ignition risks/Enforcement of bans, restrictions and fines; 2) Selective cutting of only small, understory trees; 3) Tree pruning to remove low, flammable limbs.
- Top three factors limiting progress towards reducing wildfire risk in the WUI in the region: 1) Lack of financial resources at the community level/Lack of funding from provincial and federal governments; 2) Lack of time allocated to staff workloads; 3) Other issues take priority although wildfire risk is a concern.
- Top three factors limiting progress towards engaging with BC's SWPI or Indigenous and Northern Affairs Canada's On-Reserve Forest Fuel Reduction Treatment Funding in the region: 1) Lack of continuous or sustained funding from provincial or federal governments; 2) High administrative burden/Lack of forestry industry involvement; 3) Costs of participating.

Northwest Regional Fire Centre (10 responses)

- Top three most urgent issues facing communities in the Northwest region today: 1) Economic development; 2) Access to clean drinking water; 3) Wildfire prevention in the WUI/Fair and equitable governance of lands and waters/Waste management/Infrastructure/Affordable housing.
- 4 (40%) of communities have developed a CWPP; 3 (30%) have conducted initial fuel treatment and participated in the FireSmart program; 2 (20%) have developed a fuel management prescription; 2 (20%) have not applied for or received funding for any actions; 1 (10%) has created a fuel management demonstration project; no communities have updated an existing CWPP or conducted a maintenance fuel treatment on a previously treated site.
- Rated as the top three most effective actions in the region: 1) Prescribed burning of understory vegetation and natural logs on the ground; 2) Selective cutting then wood removal (e.g. use for timber or energy production); 3) Selective cutting, piling the wood, then prescribed burning of wood piles/Selective cutting, leaving wood on the ground, then prescribed burning of wood on the ground.
- Rated as the top three most supported actions in the region: 1) Enforcement of bans, restrictions and fines/Raising awareness of ignition risks/Selective cutting then wood removal (e.g. use for timber or energy production); 2) Tree pruning to remove low, flammable limbs; 3) Prescribed burning of understory vegetation and natural logs/ Selective cutting then chipping and spreading wood chips on the ground/Selective cutting of small, understory and some large overstory trees/Livestock grazing to reduce flammable understory vegetation.
- Top three factors limiting progress towards reducing wildfire risk in the WUI in the region: 1) Lack of funding from provincial and federal governments; 2) Lack of financial resources at the community level; 3) Lack of public awareness of wildfire risk/Lack of enforcement of preventative regulations/Other issues take priority although wildfire risk is a concern.
- Top three factors limiting progress towards engaging with BC's SWPI or Indigenous and Northern Affairs Canada's On-Reserve Forest Fuel Reduction Treatment Funding in the region: 1) Lack of continuous or sustained funding from provincial or federal governments; 2) Costs of participating; 3) High administrative burden.

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Cariboo Regional Fire Centre (9 responses)

- Top three most urgent issues facing communities in the Cariboo region today: 1) Wildfire prevention in the WUI; 2) Economic development; 3) Fair and equitable governance of lands and waters.
- 6 (67%) of communities have updated an existing CWPP, developed a fuel management prescription, and conducted initial fuel treatment; 5 (56%) have developed a CWPP and participated in the FireSmart program; 2 (22%) have created a fuel management demonstration project; 2 (22%) have not applied for or received funding for any actions; 1 (11%) have conducted a maintenance fuel treatment on a previously treated site.

- Rated as the top three most effective actions in the region: 1) Selective cutting then wood removal (e.g. use for timber or energy production)/Selective cutting of small, understory and some large overstory trees; 2) Tree pruning to remove low, flammable limbs/Selective cutting, piling the wood, then prescribed burning of wood piles; 3) Raising awareness of ignition risk/Enforcement of bans, restrictions and fines.
- Rated as the top three most supported actions in the region: 1) Tree pruning to remove low, flammable limbs/Selective cutting of small understory and some large overstory trees; 2) Selective cutting then wood removal (e.g. use for timber or energy production)/Raising awareness of ignition risks; 3) Livestock grazing to reduce flammable understory vegetation/Selective cutting, piling the wood, then prescribed burning of wood piles.
- Top three factors limiting progress towards reducing wildfire risk in the WUI in the region: 1) Lack of financial resources at the community level/Lack of funding from provincial and federal governments; 2) Lack of public awareness of wildfire risk/Lack of time allocated to staff work loads/Other issues take priority although wildfire risk is a concern; 3) Lack of public support for fuels management/negative public response to past fuels management/Lack of enforcement of preventative regulations.
- Top three factors limiting progress towards engaging with BC's SWPI or Indigenous and Northern Affairs Canada's On-Reserve Forest Fuel Reduction Treatment Funding in the region: 1) Lack of continuous or sustained funding from provincial or federal governments; 2) High administrative burden; 3) Costs of participating/Lack of guidelines on appropriate range of treatment costs.

Prince George Regional Fire Centre (19 responses)

- Top three most urgent issues facing communities in the Prince George region today: 1) Wildfire prevention in the WUI; 2) Health care services and access to providers/Police, fire department and emergency services/planning/Economic development; 3) Infrastructure/Affordable housing/Fair and equitable governance of lands and waters/Education and public school funding.
- 8 (42%) of communities have not applied for or received funding for any actions; 6 (32%) have developed a fuel management prescription; 5 (26%) have developed a CWPP; 4 (21%) have conducted initial fuel treatment; 3 (16%) have participated in the FireSmart program; 2 (11%) have updated an existing CWPP; 1 (5%) have created a fuel management demonstration project; 0% have conducted a maintenance fuel treatment on a previously treated site.
- Rated as the top three most effective actions in the region: 1) Selective cutting then wood removal (e.g. use for timber or energy production)/Raising awareness of ignition risks; 2) Enforcement of bans, restrictions and fines; 3) Tree pruning to remove low, flammable limbs.
- Rated as the top three most supported actions in the region: 1) Raising awareness of ignition risks; 2) Enforcement of bans, restrictions and fines; 3) Tree pruning to remove low, flammable limbs.

- Top three factors limiting progress towards reducing wildfire risk in the WUI in the region: 1) Lack of funding from provincial and federal governments; 2) Lack of financial resources at the community level/Lack of time allocated to staff workloads; 3) Other issues take priority although wildfire risk is a concern.
- Top three factors limiting progress towards engaging with BC's SWPI or Indigenous and Northern Affairs Canada's On-Reserve Forest Fuel Reduction Treatment Funding in the region: 1) High administrative burden; 2) Lack of continuous or sustained funding from provincial or federal governments; 3) Costs of participating.

Appendix II: Survey Methods

This survey was conducted in June and July of 2018 using Qualtrics Survey Software. The objective of the survey was to better understand the views of decision makers, planners or managers (e.g., Chief Administrative Officers, public safety or emergency services coordinators, foresters, land managers etc.) working at the level of individual communities. Accordingly, our sample was selected from 446 communities in BC, identified using multiple, current directories. One initial survey invitation and one follow-up reminder were emailed to 203 First Nations bands, 161 municipalities, 54 community forests, and 28 regional districts.

Earlier drafts of this survey were reviewed and revised in response to feedback from an expert advisory panel including leaders of key agencies involved in all aspects of preventative wildfire management in BC.

To protect respondents' privacy, the survey was anonymous. The completion rate³ was 79% (an increase of 10% from 2017) while the response rate⁴ was 32%. One hundred and forty-three valid responses to the survey were completed; valid surveys are defined as ones where the respondent completed at least the first five questions. Where percentages are displayed, values may not sum to 100% due to rounding.

Microsoft Excel and SPSS Statistics software were used to analyze data.

The survey is approved by UBC's Behavioural Research Ethics Board.

³ Number of completed surveys divided by the number of respondents who opened the online survey page.

⁴ Number of completed surveys divided by the sample size, or number of people we tried to contact (446).

