



# **Kootenay Wildfire & Climate Change Conference**

*Ecosystem Resiliency, Community Protection and Landscape Level Management*

June 26 -28, 2018 in Nelson, BC

## **Conference Input Compilation**

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## Table of Contents

Background .....	2
CALL TO ACTION.....	2
Conference Input .....	3
A. Climate Change .....	3
B. Landscape Wildfire Risk Reduction .....	4
C. Forest Carbon Management .....	14
D. Community Wildfire Risk Reduction .....	16
E. Emergency Management .....	25

## Background

Our forests are changing and so too must we change. Adapting to new challenges posed by wildfires and the other effects of climate change requires a concerted effort by community members, governments and land managers.

The new [BC Flood and Wildfire Review](#) states we have entered an era of a “new normal” in climate conditions. This brings new challenges that require creative solutions to manage all resource values and public safety while addressing the environmental, social and economic aspects of natural disasters. Solutions that reduce wildfire risks while limiting carbon emissions and supporting carbon storage will be most beneficial in the long term.

On June 26-28, an unprecedented gathering of over 200 delegates in Nelson, B.C. shared information about these challenges and explored possible solutions. Throughout the conference delegates were invited to post challenges and solutions as they see it on wall charts. The facilitators recorded the same types of information from the presenters. Input was also provided during two workshops during the morning of the last day of the conference – one for forest managers and the other focused on community delegates. This document compiles the input from these three sources. There are many insights and excellent ideas in this compilation for consideration as actions progress.

The key messages from the conference input are the foundation for the conference CALL TO ACTION below. This is a mobilizing statement for the delegates and others involved in wildfire and climate change risk reduction.

The conference [website](#) hosts the presentations, including videos of some presenters, information about the speakers, and the schedule.

## CALL TO ACTION

This is a summary of key recommendations from over 200 delegates who participated in the "Wildfire and Climate Change Conference" June 26-28, 2018 in Nelson B.C.

***ACTION IS URGENT – It's not IF but WHEN wildfires will burn.***

- **Wildfire risk reduction is a community safety and ecosystem resilience issue**, not *just* a forest management issue.
- **Collaboration, relationship building and leadership at the community and landscape scales** are essential, across jurisdictions and interests.
- **Swift actions are needed to remove identified policy barriers:**
  1. Legal forest management objectives should be expanded to include wildfire risk reduction and community safety.

2. Forest tenures adjacent to communities should be reformed to fully incorporate wildfire risk reduction priorities.
3. Reforestation stocking standards should be modified to align with the goal of wildfire risk reduction.
4. Liabilities and other issues associated with prescribed burning should be addressed to allow for expanded use of this practice.

**WHAT CAN WE ALL DO NOW?**

- **Fire Smart our homes, our communities, our critical infrastructure and private lands** by implementing community wildfire risk reduction activities and building FireSmart community knowledge and capacity. Let's all become recognized FireSmart Communities!
- **Develop Landscape Level Operational Plans** to add mitigating the effects of climate change, reducing wildfire risks, ensuring ecosystem resilience and beneficially managing forest carbon while maintaining attention to other landscape values.
- **Prepare for natural disasters** with home and business emergency plans; critical infrastructure protection; right-sized community protection equipment and sprinkler units; and community-based emergency and evacuation plans.

**Conference Input**

This section summarizes the input from the delegates on the wall charts, from the presenters and during the workshops. Five conference themes provide the framework for this summary: climate change, landscape wildfire risk reduction, forest carbon management, community wildfire risk reduction and emergency management.

This is a verbatim transcription– the input has been sorted into common themes only and is provided without further editing or compilation.

**A. Climate Change**

**Wall Chart Input**

Challenges	Solutions
Summers are getting hotter and drier +4.9 degrees C in 2050 in Basin.	
Climate change will bring increase in insects and disease.	
Lack of good tools for incorporating climate change into planning.	Can the consequences/outcomes of climate change be leveraged in some way? i.e. how can we us high precipitation periods to work for periods of drought.

	Build changing climate into all planning. Put planners in touch with modelers and scientists - Figure out what is needed.
Lack of input regarding impacts on wildlife habitat.	
Decision-makers don't know what they don't know.	
	Scale – Global/local challenges and local/global solutions.

## B. Landscape Wildfire Risk Reduction

### Wall Chart Input

*Note: Roughly ordered based on amount of input*

Challenges	Solutions
<b>1. Landscape Values and Planning</b>	
<p>How can water resource management be integrated into wildfire management?</p> <p>How do we factor changing water regimes into future wildfire scenarios?</p> <p>Impacts of fire breaks on small watersheds. Water quality and quantity e.g. Ymir. In future low flow in streams in summer.</p> <p>Lack of input on wildlife habitat impacts. Access for wild fire protection = more roads which conflicts with wild life management. How do we maintain biodiversity? Maintaining all ecosystem values (e.g. biodiversity, wildlife habitat, Species At Risk) while managing fuel reduction.</p> <p>Cumulative impacts – change won't be fire regimes alone.</p> <p>How do we prioritize overlapping values? WUI, Ungulate Winter Range, H2O, Old Growth Management Areas, Wildlife Tree Patches?</p> <p>How to align: - ecosystem - climate change - community values?</p>	<p>Strategic landscape level approach for recovery. Partnership for landscape planning. Collaborative planning across jurisdictions High priority to high hazard areas. Best practices for old growth and wildlife habitat management. See forests as dynamic ecosystems not static. Not just fuel reduction we need ecosystem and habitat resilience. Can't just rely on model and short time series - create past, present, future data continuums. Zones would identify goals and quantity objectives for zones (i.e. visual quality objectives) specifying range of fuel loading for surface stocking and crown bulk density to meet goal. Incorporate in Timber Supply Review and establish legal objective. Can then identify areas throughout landscape with similar overlapping or exclusive land management objectives. This will result in consistency in fuel treatment prescriptions which is an issue. Adaptation for low elevation forests similar to Wildland Urban Interface.</p>

How to prioritize to maximize investment benefit on land base?	
No good information on scope/amount of FN prescribed and fire.	<p>Blend indigenous people history in fire management.</p> <p>John Bailey talked about history. It was also brought up regarding traditional knowledge and inferred regarding vegetation and climate change. More historical insight (paleoecology and paleoclimatology) is needed to understand change processes and the upcoming transformation.</p> <p>Blend indigenous people history in fire management.</p>
<b>2. Wildfire Risk</b>	
<p>It's going to burn anyway.</p> <p>California is +/- \$ 50 billion cost for 2017 wildfires.</p> <p>Lazy river jet stream extremes.</p> <p>Earlier fire season start.</p> <p>1% increase temp equals 12% increase in lightning.</p> <p>Fewer days when aircraft can fly due to smoke = increased fire intensity size.</p> <p>Ecosystems are changing over time. Low elevation = hot and dry.</p> <p>Fuel hazard never existed before in terms of amount + connectivity.</p> <p>Area with stacked fuels more connected now.</p> <p>Wildfire (area burn) will increase to 1930 levels by 2050. Fire area burned will double by 2100. 75-120%+ increase in area burned by 2100.</p> <p>Landscape fire frequency will increase 5 fold.</p> <p>Anomalies - ignore role of fire elevated hazard, elevated risk.</p>	
<b>3. Wildfire Management</b>	
<p>Topography in basin makes fire prediction very hard.</p> <p>Canadian fuel classification is outdated.</p> <p>Suppression increases biomass reservoir.</p> <p>Fires getting hotter &gt; intensity &gt; 10,000 kw/m.</p>	<p>Stop suppressing so much fire – kick the can.</p> <p>“Appropriate response” wildlife management.</p> <p>Use science and innovations to improve decisions.</p> <p>Better prevention of fire - Artificial intelligence,- early warning.</p> <p>Improved early warning system.</p> <p>Anticipate high intensity fires earlier.</p> <p>Predictive Service Unit.</p>

	<p>Improved fire occurrence prediction system.  ID fire behavior paths with fire behavior modelling.  Design RPODS (Response Operations Delineations)  Update Canadian Forest Fire Danger System:  - \$ to Canadian Forestry Service  - Solar radiation included  - No fuel types now - need to improve.  Inventory of understory fuels needed:  - LIDAR?  - Selkirk BioGeo?  Manage human-caused fires.  Mandatory registration of all harvesters with BC Wildfire Service.  Preplan fire preparedness  - Roads  - Fuel breaks  - Fire guards</p>
<p><b>4. Fuel Management</b></p>	
<p>Best Fuel Management Treatment?</p>	<p>Evaluate the effectiveness of the different fuels management treatments. Decision support.</p>
<p>Lack of productivity with conventional harvest systems for thinning operations.</p>	<p>Explore European Cut-To-Length systems  -Incentives to cover incremental costs.</p>
<p>Does fuel management make our forest drier and windier?  Clarify please that logging without fuel mitigation does reduce the risk of wild fire?  Timber licensees, forest extraction and forest practices leave high risk areas.  Fuel management reduce temp &lt;2000 kw.  Reduce intensity.  30-60% fuel treatments – location is key.</p>	
	<p>Incorporate climate change and fuel treatment prescriptions.  Healthy young forests can be fuel breaks.  Recreation opportunities with fuel breaks being trails. User fees = \$ for maintenance.  Fuel management with harvesting, grazing, carbon management.  Implement strategies for maintaining biodiversity and habitat features during planning implementation of fuel treatments.</p>

	<p>Fuel treatment is good Return On Investment/\$ investment.</p> <p>To reach a balance between high density and low density stocking standards. Determine the “threshold” where the younger stands stop being as fire resistant and thin/partial cut. Therefore initial densities planted can be higher to address forest health and natural mortality.</p>
<p><b>5. Complex Systems</b></p>	
<p>Complicated system. If government changes, the rules we operate under also change.</p>	<p>Involve First Nations from start. Include FN woodland tenures in the mix. Ecosystem Restoration needs resources in order to work – Government must coordination to succeed. Build good relationships with w/municipalities. Streamline processes for effective prevention. Implementation i.e. tenures, permits, funding. Adaptive management. Legislation needs adjustment for big fire seasons and climate change. Add forest health objective to Forest and Range Practices Act. Forest and Range Practices Act objective for fire.</p>
<p><b>6. Information/Training</b></p>	
<p>Retiring workforce “brain drain” of important knowledge/experience.</p>	<p>Post conference Kootenay wildlife task force. More education. Best practice informed by science vs community (education focus!). Learn from other experts plus jurisdictions. Create a network for people to discuss fuel management treatments and operational learnings. Community of practice. Relearn silvics. Yield modelling in multi-layer partial cut practice. Protecting and learning from historical silviculture trials. Have all interested parties, coordinate/ cooperate to identify (and prioritize) research needs and data gaps (all topics). Request for annual wildfire conference from a landscape architect student.</p>

<b>7. Prescribed Burning</b>	
<p>Not enough BCWS staff available for prescribed burns (often crews are on flood response during burn window).</p> <p>What actions are required to introduce prescribed fire onto private conservation lands?</p> <p>Regulatory framework making prescribed burning very complicated:</p> <ul style="list-style-type: none"> <li>- Liability of non BCWS staff wants to burn</li> <li>- Restrictive venting indexes – exemptions needed</li> <li>- Non BWFS burn bosses needed.</li> </ul> <p>How do we achieve acceptable fuel reduction with today’s smoke management rules (i.e. venting)?</p>	<p>Broadcast burning satisfies hazard reduction, landscape fuel breaks and carbon storage.</p> <p>Prescribed fire is most effective treatment.</p> <p>Broadcast burning is the only attainable form of large scale prescribed fire.</p> <p>Prescribed burn program with:</p> <ul style="list-style-type: none"> <li>- \$</li> <li>- Local teams</li> </ul> <p>Field teams being consistently available for our prescribed burning.</p> <p>Public buy-in for prescribed burns and more tolerance for smoke associated with it.</p>
<b>8. Utilization</b>	
No stable funding sources or certain timber income to fund capital investment.	
<p>Fuel reduction -over story removal before planting e.g. dead pine.</p> <p>Pulp price drives utilization.</p> <p>Bureaucratic barriers.</p> <p>No market.</p> <p>No mills.</p> <p>No trucks.</p>	<p>Create fiber utilization zoning at economically feasible distance and encourage business to business between primary harvesters and secondary users.</p> <p>Delay waste and residue surveys until after secondary utilization done.</p> <p>BCTS fiber pilot = increased utilization.</p> <p>Opportunities for fiber reclamation projects from thinning – energy/carbon -resource material.</p>
<b>9. Silviculture Standards</b>	
<p>Stocking standards - there is a lack of full <u>scientific</u> knowledge of stocking standards (existing)stand dynamics, and how things are playing out over time e.g. mortality rates.</p> <p>Need to redefine “free to grow” in light of climate changes in the broad sense (not just silvics).</p>	<ol style="list-style-type: none"> <li>1. Need to resurrect silviculture stand dynamics course.</li> <li>2. Circulate Stand Development Monitoring (FREP) info inventory young stands monitoring info.</li> <li>3. Show powerpoints of these findings e.g. what do stands using existing standards look like?</li> <li>4. Mini-workshop? The Interior Cedar-Hemlock is not the Interior Douglas Fir.</li> <li>5. Consult Wildfire Management Branch.</li> </ol> <p>Adjusted stocking standards – reduced numbers and deciduous.</p> <p>Climate change may be happening faster than trees adapt. Consider land use “Conversion” on Crown interface i.e. convert Interior Cedar</p>

	Hemlock to Ponderosa Pine/Bunchgrass minimal regeneration.
<b>10. Post Fire</b>	
Timber pricing doesn't reflect burned wood value. Volume based tenure not well adapted to post wildlife - Salvage/FTG - Stumpage - Replanting	Need to have government policy to <u>urgently</u> do post fire recovery of forest. Post fire recovery plans urgently needed. Anticipate fir beetle outbreak after burns.
<b>11. Public Confidence</b>	
Lack of public confidence in licensees or even MOFLNRORD for that matter reduces our ability to take meaningful action on a large scale.	Communication structure within neighbourhoods and communities. Forest managers changing language used to help change attitudes towards climate change and community values and less polarizing.

## Forest Managers Workshop Input

### *Landscape Scale Wildfire Risk Reduction Station*

#### **Knowledge gaps**

- Past/present/future date knowledge continuum including traditional ecological knowledge and utilization
- Fire modelling
- Fire research including:
  - Fire regimes with BC species,
  - Ecosystem transformation with climate change
  - Fire modelling with climate change
- Increase understanding of ember transport
- Increase research (at multi-scales) of:
  - BC specific fuel types
  - Post treatment fuel types
  - Need private land fuel inventory

#### **Challenges**

- Unified strategy/approach with milestones and SMART objectives
  - Prioritization of risk
  - Provincial, regional and local
  - Value identified/resilient = treatment
    - Lack of understanding effects of fire on H2O
    - Severity of hydrophobic impacts
  - Determining appropriate risk reduction response
- Common understanding
  - Science of effectiveness of fuel management

- Temporal effectiveness with climate change
- Need a coordinated approach
  - Funding efficient
- Capacity
  - for planning (especially) and prescriptions
- Implementation – knowledge, experience, infrastructure (e.g. cogen)

Also: RISK MANAGEMENT

- \* Institutional
- \* Risk intolerance to the solution
  - Means accepting fire risk
  - Current tenure system: TSA's mean no ability to direct; impediment to efficient/effective solution; FIRE DOESN'T DRIVE PLANNING

### Solutions

- Plans/strategies
- Multi-scale for response funding and policy
  - Include multi agency stakeholders, including First Nations, land managers, forest sector
  - Provincial
  - Regional District as the Local authority
- Change the way we manage for deciduous in the WUI; leave veterans in stand
- Exploit the synergies with ecological resilience and wildfire risk reduction
- Maximize Regional District network – wildfire risk reduction - shut, leave or widen
- Fill private land fire threat knowledge gaps
  - Incentive private landowners for assessments
  - Conservation convent (large plots)??
- Educate - forest sector, public – about forest types: historical vs present due to fire suppression
- Reduce human caused fires
- Engage traditional ecological knowledge

### 3 KEY ACTIONS:

1. Education about risks and solutions
2. Collaborative landscape scale planning
3. Wildfire research for BC forest types

### *Ecosystem Resilience Station*

#### Knowledge gaps

- Infrequent fire regimes – HRV vs FRV
- Patch size of fire vs harvesting at landscape patch size and stand
- Is harvesting setting up HRV – FRV appropriately?
- Are patch sizes the right size and place?

- What is the “real normal” and challenge to communicate to community - HRV and natural desired condition
- Define resiliency
- How will ecosystems respond to CC regardless of fire and CC
- First Nations role
- How do we measure resiliency to know we are successful
- Are we mimicking natural disturbance/ecological processes w/current harvesting practices?
- Why do we stop applying prescribed fire?
- Is broadcast burning ecologically resilient?
- Where will we have viable forests in the future?
- Forest inventory done continuously
- Understand future potential new stable states (shrub dominated)
- Natural variability of lifeform patchwork going into the future

### **Challenges**

- How do methods differ for very dry, dry, moist, and wet forest types, at stand (site series) and landscape (subzone/variant) scales?
- Spacing too even in fire-maintained - Need more patchy/resilient stand patterns (fire maintained/frequent stand replacing)
- How to communicate “real normal” to communities?
- Economics of managing a very large area w/a small population and tax base – can’t do it all
- Measuring resiliency
- Areas outside of THLB that aren’t going to be harvested very often
- How rapid are changes
- Current species won’t grow now but will be suited later
- TIME
- How does wildlife movement over time relate to resilience? E.g. ecosystems move/mobility of spp.
- Risk intolerance for fire in parks ...Especially from forest industry
- We manage our land base for timber and economic opportunity not resilience
- Poor inventory – poor fuel, structure data
- Poor maintenance of planning information
- Continuity of knowledge and data through generations of managers
- Forest “culture” of wanting trees where maybe shouldn’t
- Integration of forest health

### **Solutions**

- Apply what we know to the land base
  - More engagement with First Nations
  - Planning at bigger scales
- Understanding ecological capability
  - Species and provenances that are adapted to CC

- Recognize alternate stable ecosystem states even where it has AAC impacts
  - Accept change
  - ID priorities and look for compatibility and conflicting
  - Not same thing everywhere
- Least regrets solutions - consider solutions for all possible futures
- Integrated responses with Parks, BCWS, FLNR, industry
- Use economics of salvage/planning/timber development to create opportunities at landscape scales
- Re-introduction of fire where ecologically appropriate
- Productive plans and partnerships before fires
- Research and extension of research
- Collaboration w/ US research (we aren't at square 1)
- Protect high value habitats (e.g. OGMAS) and make more where limited -Be ecosystem specific
- Encourage biodiversity

### **3 KEY ACTIONS**

1. Collaborative, integrated planning at larger scales
2. Research and extension of results
3. Protect high value habitats

### *Prescribed Fire Station*

#### **Knowledge gaps**

- Education about the prescribed burning system – selling the use of prescribed burning
- Cooperation of all agencies – more strategy
- Need for more fire on the ecosystem
- Re-burn interval
- Training for ignition specialists
- RPF needs training on use of broadcast burning
- How to incorporate wildlife and habitat values into burning
- Training to establish burn bosses
- Where do we find qualified personnel

#### **Challenges**

- Currently fuel types are not sufficient for BC
- Broadcast burn seasonal window variable every year
- Barrier to re-burning inclusion in prescription
- Mop up for 3 days requirement?
- Smoke management
- Social license of broadcast burn
- Communications on new prescribed burn initiatives – not great
- Internal and external capacity
- Licensee capacity/knowledge in design

- Need confidence in government that Best Management Practices and professionals have considered all potential risk to people (community)
- Certified burn bosses/Certification process/ Losing certified burn boss staff due to retirement and turn over. Lag time to certify
- Overlap of flood and fire season and impact on crew availability
- Flood is interfering with broadcast burn window in spring
- Liability can only be fully covered by BCWS
- Layout with considering prescribed burning logistics
- Impacts on aquatic ecosystems (short, med and long-term)/Impacts on water sources – quality, quantity esp. small user groups
- How forest licensees pay for prescribed burn
- Cost - 72 hr rule to have fire out. Unnecessary - ups cost
- Remove access post-burn
- Burning w/o fuel treatment - need more of this
- BCWS ability to work on private and conservative lands
- Invasive plants/Invasive plants post burn
- Certification requirements (EMS)
- Monitoring - who will do it; what standards; where will data go?

### **Solutions**

- Public buy in
- Demonstration of broadcast burning successes
- Prescribed fire is more beneficial than wildfire in watershed
- Prescribed burn is usually low intensity fire
- Prescribed fire cheaper than some site prep
- First Nations traditional burning insights
- Provide more certification training opportunities
- Non-Canadian fire experts
- Involve burn boss during the harvest planning phase
- Burn planning with pre-harvest prescription
- Best management practices from examples that already have happened
- New Standard Operating Procedures for FLNRORD coming soon
- Integrate Emergency Response practitioners with fuel treatments
- Have to take the risk to broadcast burn
- Need intensive treatment of invasives pre-burning
- GIS layer for treatment history in BCGW
- Can we get to modified response on previous sites instead of reburn

### **3 KEY ACTIONS**

1. Increase government and licensee capacity for planning and as burn bosses
2. Communicate with public to get social license

3. Do it!

## C. Forest Carbon Management

### Wall Chart Input

Challenges	Solutions
Not #1 on radar – wildfire is first.	
Meet BC carbon emissions reduction target.	
Challenge of short term focus.	
Why is burning biofuel considered carbon neutral?	
Seems to be site specific.	
	Fund research for conclusive data on long term forest management carbon sink benefit in northern BC – include in carbon incentives.
	Incent carbon to licensees on Crown land/Incentives for licensees to do carbon management.
	Eligible treatments?
	- With climate change can we start planting x-tundra types? - Increase planting density.
	- Rehabilitation. - To rehab dysfunctional/stagnant stands...is logging to establish a vigorous stand carbon neutral?
	- Thinning repressed stands?
	- Fertilization.
	- Catastrophic wildfire risk reduction?
	Add diversity to increase ecosystem services.
	Encourage large Coarse Woody Debris to stay on land instead of burning in slash piles – soils need respect.
	Improve biomass utilization on cutblocks/fuel break units. Increase utilization; reduce residue burned; increase pulp. Policy for forest waste and facilities to use waste. Gary Bull, UBC Forestry modelling transport of biofuels <a href="mailto:gary.bull@ubc.ca">gary.bull@ubc.ca</a> . Biodiesel/hog fuel from wood residue. Market for residue for carbon benefits. Consortium/Coop to set up fibre utilization facility

	regionally – cost neutral facility? Or profit based?
	Long term FESBC funding - \$2 billion over time.

## Forest Managers Workshop Input

### Forest Carbon Station

#### Knowledge gaps

- State of science
  - Summaries needed
  - Help forest managers make trade-offs
- Funding clarity
  - What will be supported and where
- Effectiveness of different measurement procedures e.g. LIDAR
- Market knowledge of credits
- What are the alternatives to burning residues? How to pay for?
- Assess options for residues –1) burn, 2) LLWP (long lived wood products), 3) bioenergy, 4) leave to decay
- Implementation opportunities for:
  - dragging back to create microsites,
  - long-butt at stump beyond obligation
- Knowledge to local governments to access provincial program on building capacity for bioenergy
  - Synergy with hazard reduction
- Look internationally for carbon management solutions e.g. global review of residue management; amending soil with powdered charcoal – Swedes, Saskatoon, Cornell University

#### Challenges

- Lacks of markets and facilities for residues:
  - Need long term solutions
  - Lack of equipment to haul chips from block to facility i.e. chip trucks need paved roads
- Lower densities wanted to meet wildlife and/or wildfire suppression values in some places
- Some sawlogs chipped for paper lose opportunity for carbon storage
- Stumpage system doesn't provide flexibility for carbon management
- BC Hydro moving away from bioenergy
- Tenure system doesn't consider carbon management
- Link fuel management to electricity

#### Solutions

- Quick win broadcast burn versus slash pile burn means more storage in soil carbon
- Ensure pile burns are worked during burning to increase heat and efficiency so less CH4 and N2O
- Fossil fuel efficiency - is there a certification program?
- Incentives to get residues to market

### 3 KEY ACTIONS

1. Broadly available research compilations
2. Incentives for forest licensees to engage
3. Residue/biomass utilization solutions

## D. Community Wildfire Risk Reduction

### Wall chart input

*Note: Roughly ordered based on amount of input*

Challenges	Solutions
<b>1. Public Perception</b>	
<p>Human psychology resistant to wildfire risk reduction - “pathology”.</p> <p>Myths &amp; Misconceptions: About fire, How homes ignite, How fire spreads.</p> <p>Public more fearful of landslides than wildfire and wants viewscapes.</p> <p>Poor communication - move past “telling”. Roll up our sleeves.</p>	<p>Wildfire is not a forestry issue but a public safety issue.</p> <p>Now a public safety issue.</p> <p>Communicate to the public that some trees may need to be sacrificed now in order to save lives and property in the future.</p> <p>Wildfire is a relatively easy natural disaster to mitigate.</p> <p>Community fire <u>resistance</u> can't be fire <u>proof</u>.</p> <p>Learn 2 live with fire.</p> <p>Communicate fire is not bad.</p> <p>Start community dialogue early with partners.</p> <p>Find “trusted messengers” in communities to promote the need to manage the forests in the WU1 differently and become more FireSmart.</p> <p>Wildland fire education in schools K-12:</p> <ul style="list-style-type: none"> <li>- Fire behavior</li> <li>- Wanted vs unwanted fire</li> <li>- Feeds to general buy-in over time</li> </ul> <p>Use fire behavior modelling to communicate risks.</p> <p>Use predictive modeling to show people what is likely to happen if a fire starts close to the community.</p> <p>Get community buy-in:</p> <ul style="list-style-type: none"> <li>- Exceed expectations</li> <li>- Lots of field trips</li> </ul>
<p>Public perception that mature forest is natural vs mix of age classes/mosaic.</p> <p>Need to support a diversity of age classes over the</p>	<p>Education on how forests grow and re-grow to illustrate the time span impact of logging on visual values (and other values - recreation, hunting,</p>

<p>landscape mature forest is not natural &gt; fire suppression.</p> <p>Misconception that our forests are “natural” when they are managed cultural/landscapes.</p> <p>Misconception that all logging is “bad” (that it only has one focus – financial gain). People don’t understand that logging = landscape and <u>forest management</u>.</p>	<p>etc.).</p> <p>Education on the burn/logging/growth history and cycles of the local area to show that the land hasn’t always been the way it is now.</p> <p>Show ingrowth photo progression.</p>
<p>Recognize there is a limited time to maintain support for what needs to be done. Memories are short after bad fire season 2-3 years.</p>	<p>Keep momentum on treatments between big fire years.</p>
<p><b>2. Programs/Funding</b></p>	
<p>Lack of \$\$.</p> <p>Government invests lots in response and little in preparedness.</p> <p>Reliance on grants.</p> <p>Program requirements.</p> <p>No clear priority for funding program.</p> <p>Funding limiting/mandating/driving activities, rather than science and comm priorities driving activities.</p> <p>No one size fits all.</p> <p>Disconnect between long timelines for action and bureaucratic cycles.</p>	<p>New Community Resiliency Investment Program.</p> <p>Can some WUI stumpage go to community?</p>
<p><b>3. Collaboration</b></p>	
<p>Overlapping jurisdictions – partnership.</p>	<p>Partnerships with indigenous nations.</p> <p>Clear leadership in WUI areas:</p> <ul style="list-style-type: none"> <li>- Engagement</li> <li>- Landscape level planning.</li> </ul> <p>Partnerships and solutions activities ready and formed prior to funding.</p> <p>Encourage individual and community “agency” to do it.</p> <p>Wildland interface forester.</p> <p>Community collaboratives:</p> <ul style="list-style-type: none"> <li>- Establish communication</li> <li>- Public hearings bring out common concern/message/voice in community</li> </ul>
<p><b>4. Fuel Management Practices</b></p>	
<p>Fire Smart problem: timing window – is vegetation removal occurring during bird nesting</p>	<p>Ecosystem restoration:</p> <ul style="list-style-type: none"> <li>- Province wide</li> <li>- Already integrates wildlife range interface issues</li> </ul>

<p>season? Contravenes Migratory Bird Act. Lack of input of impacts on wildlife habitat. WUI treatment can damage biodiversity and habitat.</p> <p>Shaded-fuel breaks = reduced timber supply, reduced stumpage, reduced jobs. WUI treat will reduce future timber supply.</p> <p>Appearance of some “resentment” towards “engaged” communities and dismissing of some valid community (and FRPA) value as less than “equal” to timber and FRPA equal values.</p>	<ul style="list-style-type: none"> <li>- Can be tweaked to address more issues</li> <li>- Mobilizes community, licensees, agencies into coordinated plan.</li> </ul> <p>Use ecosystem restoration program to upgrade interface prescription/projects to more comprehensive plans.</p> <p>If treatment is Ecosystem Restoration then biodiversity can be enhanced.</p> <p>Relax Visual Quality Objectives to achieve wildfire objectives.</p> <p>Use local knowledge.</p> <p>Long term prescriptions:</p> <ul style="list-style-type: none"> <li>- Spacing</li> <li>- Thinning</li> </ul> <p>Ensure that timber harvest with WUI reduces fire hazard to greatest degree in short –med term.</p> <p>Grazing for maintenance in thin from below WUI treatments.</p> <p>Haul route/timing of operations to minimize community impacts.</p>
<p><b>5. Training/Resources</b></p>	
<p>Inexperienced unskilled land owners. Limited FireSmart training opportunities.</p>	<p>FireSmart = 7 different <u>disciplines</u>:</p> <ul style="list-style-type: none"> <li>- Fire adapted</li> <li>- Fire hardened</li> </ul> <p>FireSmart neighbourhoods with FireSmart champions.</p> <p>Train more FireSmart reps! Do it through local College!</p> <p>2 FireSmart reps in each community.</p> <p>Expand FCCRP training, support efficiency info.</p> <p>Regional coordination of training.</p> <p>Expand WUI expertise and resources.</p> <p>Workshops with landscapers, developers, realtors.</p> <p>Contractor certification for FireSmart services.</p>
<p><b>6. Wildfire-Urban Interface (WUI)</b></p>	
<p>Need to refine WUI to better reflect values at risk and wildfire factors with zoning. WUI is a 2000 meter GIS generated buffer currently. Only good for first approximation. WUI treatments are more expensive = uneconomic. How does risk rating by BA Blackwell compare to</p>	<p>WUI is a set of conditions “Dr. Jack Cohen”- Not just a linear distance on the landscape. Anywhere the combination of human development and vegetation can have an influence on wildfire. Need WUI plan with all participants. Develop WUI plan w/all stake holders and FN -</p>

Province?	Like KLHLP. Convert WUI forest to agriculture? Dairy cows, sheep ... (like Switzerland, subsidy required). More Woodlots and Community Forests in WUI.
<b>7. Private Lands</b>	
Inclusion of private land in WUI treatments. Who will fund private land for protection and/or recovery? Complex human systems -Private land is not fully supported. If my neighbour is not FireSmart then I'm in trouble. Community inaction: -afraid of risk to homes and land -if neighbour isn't doing it why should I? Small projects - little benefit	Do FireSmart your property and encourage neighbours. New Community Resilience Investment Program.
<b>8. Fire Suppression</b>	
Fire Departments can only fight 1 to 3 house fires at the same time. Limited water sources/supply. Steep terrain. Access into WUI. Gating roads - Often residents don't want access opened up for hunters or the general public. Fire control/mitigation requires access. The Ministry don't like to "do" gates would rather de-activate We need policy change allowing gates.	2 Sprinkler Protection Units per Fire Department. Focus on community zones (sprinklers). Trained community members to fight fire within the WU1 zone. Fire retardant coatings. Fire access roads access to WUI areas.
<b>9. Insurance</b>	
Fort Mac = largest natural disaster in Canada and about 50 <sup>th</sup> largest disaster in the world. During active wildfire some folks cannot buy/renew home insurance.	What are FireSmart incentives from insurance companies? If none, government intervention should be used to promote them. Move insurance anniversary to winter – not renew in fire season. Home fire mitigation tied to insurance? Happening in California and Tennessee now. I learned this from Kelly Johnston.
<b>10. Utilization</b>	
Chipping fuel treatment residue limited on steep slopes. Economics a challenge in WUI. Ground fuel mitigation: - Responsibility - Funding	Access mats for oil and gas sector.

Communities lack affordable fuel for home heating. Firewood harvesters target dead trees with high biodiversity when there are too many live trees.	
<b>11. Community Infrastructure</b>	
How to best protect community infrastructure from wildfire?	Local governments make wildfire risk reduction a strategic priority. Objective: safe resilient communities. Community focus on WUI and WII for fuel reduction. Bury power lines.
<b>12. Burning</b>	
Smoke from fires is a very serious health concern. Liability issues when controlled burn areas are in proximity to private structures/ property.	
	Focus on re-burn of existing cut blocks w/ sufficient residual fuel loading.
<b>13. Water</b>	
Limited water sources/supply. Lack of info on water management in changing climate.	Drip rather than spray irrigation. Watershed based – water accumulation during wet season – <u>uphill</u> .

## Community Workshop Input

### Breakout Group Reports

#### GROUP 1

##### Barriers to Success

- Rosemont – Who owns vacant land? Is it City owned? Is there a plan
- Getting neighbourhood buy in between those that are individualistic and the community good
- Given unpredictable nature of fire and embers there is need to be collaborative
- Communicating what is available
- Incentives are not in place
- Capacity – physical and financial to act
- Reliance on authorities
- Water availability for prolonged ember showers - people hide from water treatment

##### Priorities

- Significant population centers
- Need access to encourage water in an emergency – pumps, identification of water sources and condition of creeks, lake, river access
- Water shed based storage in rain and melt season for use in drought – fire cistern
- Water bladder and sprinkler money reduction incentive

- Drip irrigation
- Do FIRST - Building a culture of fire and water awareness
- Incentive - brush deposit for free fire communication methods
- Incentives for neighborhood collaboration
  - Bulk purchasing (discounts) of land management (trees, brush, fire smarting, grass etc.) and subsidy for doing it as a group > to pay contractors to cover costs
  - I've had discussions with CBT and favourable but require society to champion/manage and project Selkirk College HARROP-Procter Community Forest
    - Subsidy for licensees to work together on rainy/melt season accumulation safely, hydrology, engineering, rain event risk mapping, organizational facilitation including legal aspects if necessary
    - Interface with Interior Health re: water treatment fears – establish the individual right to waive any legal liability by I.H.
    - Amnesty for unlicensed works

## GROUP 2

### Barriers to Success and Priorities

#### #1 - Funding

- Imbalance
- \$\$\$ Suppression
- \$ Fuel treatment
- Cent-FireSmart/HIZ ignition
- Various capacities in communities

#### #2 - Cross jurisdiction issues

- For who delivers prevention efforts – various funding sources, SWIPI, FNES, UBCM, CRIP

#### #3 - Public misconceptions

- Getting public to think FireSmart first
- Access to data and data integration on mitigative initiatives

#### #4 - Long range planning – lack of land use planning US example CPAW for planning too

- Beyond 5-10 years
- Need long range, secure funding
- Limitations of Development Permits
  - Mitigations not enforced after implementation e.g.
    - bldg. on site, maintenance to FireSmart guidelines
    - opposition to non FS covenants
    - currently complaint driven– not effective
  - Fire Departments are involved in approval process – but landscape guidelines difficult to implement (hazard would develop in 10 years)

## **GROUP 3**

### **Barriers to Success**

- What is our measure of success?
  - 100% participation
  - Conveying message
  - Receiving message
  - Acting on message
- Shift of societal norms – Fire Smarting as the norm
  - Nudge factor
  - Building into community culture

### **Priorities**

- Finding community leaders/champions
- Respected/trusted
- Creating compelling story which will be well-received:
  1. Lead to action
  2. Help to shift societal norms
  3. Collaborative group
- Potential leaders champions (influencers)
  - Bill Metcalf
  - Mayor Koz
  - Fire Chiefs/officials – credibility
  - Prevention Officer

### **Actions**

- Identify participants from your community from the conference to kick-start actions
- Individual action – in your backyard
- Get Fire Smart into local media – press buy-in

## **GROUP 4**

### **Barriers to Success**

- Lack of education
- Lack of participation - procrastination
- Areas of rapid growth
- Funding - Seeking grant funding/applications etc.
- Proactive vs reactive

### **Priorities**

- Identifying community champions and providing them support
- Social media outreach
- Community engagement Programs - Hands on learning

## **Actions**

- Region-wide co-ordinator - Establish a network/hub
- Encourage developers to build Fire Smart subdivisions

## **GROUP 5**

### **Barriers to Success**

- Costs/funding
  - Need better Development Permit Areas/Best Practices – include FireSmart Principles
  - Incent's
- Science/Research - Needs to be exposed to the public
- Misconceptions/myths - Safety health y forest vs not; that all logging is bad

### **Priorities**

- Changing perceptions – education
- Trusted messengers within the communities - Fire Dept./Service Clubs/Community Forest

### **First Actions**

- Visual aids for public - Like flooding/tsunami info. coast-modelling
- EDUCATION - Field trips – industry, local government, science, etc . (all food groups)
- Snowball from other communities – show case good examples Fernie, Rossland

## **GROUP 6**

### **Barriers to Success**

- Cost, time, daunting
- Need assistance, education, multi-level elementary school up, forestry students, general public
- No personal experience w/tools
- Getting started
- Inertia
- Not enough political pressure
- Messaging – not just a “landscape” problem
- Leadership – who does it
- Lack of role clarity and coordination
- Choose opportunities – timing – hot dry summer
- Money incentives –insurance, taxes, by-laws (fines)
- Higher profile in community – prioritize it

### **Actions**

- Create incentives
- Community water assessments and solutions
- Protecting communication systems
- Emergency response plans and facilities

- Political pressure to assist and act
- Train FireSmart reps – expand

### Breakout Summary

Note: Items in bold were starred in red

Barriers/Challenges	Solutions
<b>Costs/Funding Imbalance</b> - Suppression -\$500,000,000 - Fuel Treatments \$10,000,000 - Fire Smart \$10-\$100,000	Incentives Better information provided Seismic-like programs Education
<b>Lack of Political/Leadership</b>	Political engagement
<b>Water Availability</b> Unlicensed Wild West	<b>Incentives to reward collaboration</b> Water bladders Cisterns Incent sprinkler and drip irrigation Identify existing sources and conditions Access points F/S – proactive Humidity dome – No Wet it down 2 hours in advance
<b>Empty Lots</b> Rural/urban divide	City lots- policy to fix Distant owner-Bylaw <b>Incentives to reward collaboration</b>
Social norms status quo thinking e.g. - Drunk drive - Recycling - Smoke detectors > Sarah McAffrey, Tera McGee	<b>“Do”, Don’t “Tell”</b> Leadership/inspiration Trusted messenger Community champ FS CRP Fire fighters are trusted

### Priority Actions

- Assess and promote Best Management Practices – Government
- Break down silos between groups/interests (service clubs)
- Region governance structure
  - Management
  - Preparedness – FireSmart Canada
  - Administration
  - Leverage funding
  - Look to RDCK flood model – funders love this
- Build culture of water and fire awareness
  - Climate sustainability plans like water sustainability plans
  - Education

- Field trips w/all groups
- Champion success
- Tell good stories
- Convert unused land to agriculture – irrigation
- Better clarity – who does what
  - Define roles
  - Avoid gaps and redundancy
- Train more FireSmart Representatives
  - Selkirk College!
- Call to Action to Ministers and Senior Government staff

## E. Emergency Management

### Wallchart Input

Challenges	Solutions
Concerned that fire management is changing from land management to emergency management.	
Lack of preparedness	Invest more in planning/preparedness. Plan for most credible worst case. Collaboration. Local knowledge supports emergency preparedness.
	Home emergency kit/Make an emergency preparedness kit.
Communications	Need for the Incident Command Structure to be understood by a wider range of people to have a smoother experience/participation during crisis. Alert systems via cell towers and audible alert. FireSmart cell towers.
Evacuations during emergency situations are hazardous and can result in fatalities or injuries.	Consider using large fuel free areas in communities as refugia e.g. airstrips, playgrounds, golf courses.