



Wildfire Risk Reduction in the Communities Affected by the 2003 Lost Creek Fire

Tara McGee, University of Alberta

Bonnie McFarlane, Natural Resources Canada

Jeji Varghese, University of Alberta

Wednesday, April 27, 2005

Edmonton, AB



Natural Resources
Canada

Canadian Forest
Service

Ressources naturelles
Canada

Service canadien
des forêts

Canada



Lost Creek Fire

- July 23th - fire in MD of Pincher Creek
- July 26th - state of emergency declared for the Municipality of Crowsnest Pass
- August 25th - state of emergency lifted



- ~3 communities at risk
- ~2,000 residents evacuated
- 22, 000 ha burned
- No homes lost



Questions

1. How did residents and community leaders perceive risk from wildfires after the 2003 Lost Creek fire?
2. To what extent were risk reduction activities applied by residents and communities before and after the 2003 fire?
3. What factors influence adoption of risk reduction activities?
4. What are the implications of the study findings for wildfire risk management?

Methods

Semi-structured interviews

- Municipal leader interviews lasted 30-60 minutes and took place in their workplace
- Residential interviews lasted 30-90 minutes and took place in their home

Qualitative data analysis

- Interviews transcribed
- Thematic coding with NVivo
- Compare across attributes and themes



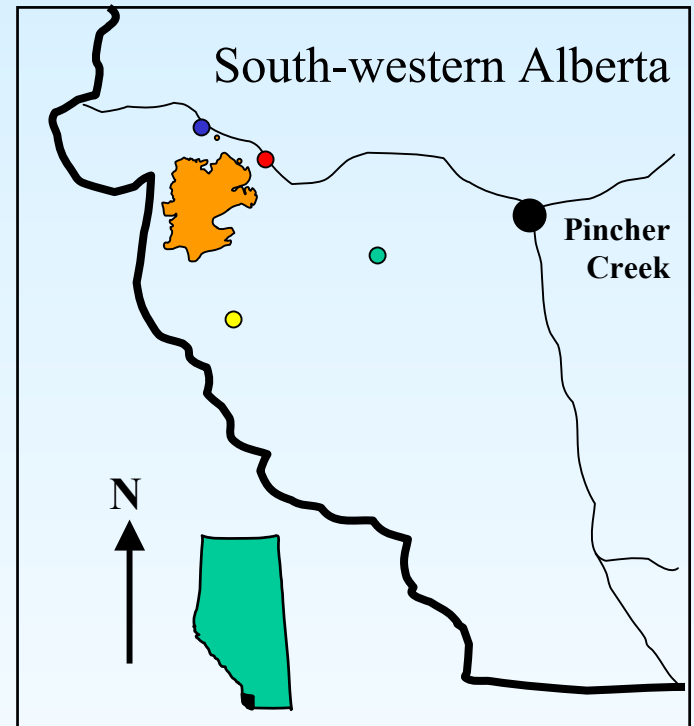
The Study Sites

Municipality of Crowsnest Pass

- Blairmore
 - 2, 078 residents
 - WUI residents evacuated twice
- Hillcrest
 - 751 residents
 - WUI residents evacuated

Municipal District of Pincher Creek

- Beaver Mines
 - Hamlet near the fire
 - Homes not directly at risk
- Castle Mountain
 - Mainly seasonal residents
 - Permit required to enter area



The Study Participants



20 resident interviews including...

- 11 residents with homes within forested areas or backing into forested areas;
- 10 residents who evacuated and 9 residents who did not evacuate;
- 3 residents with homes businesses;
- 8 long-term residents (~20 years) and 7 newer residents (<5 years);
- 10 residents in large homes and 9 residents with smaller homes;
- 5 seasonal residents and 15 permanent residents; and
- 1 resident who was not in their seasonal residence during the fire.

13 municipal officials interviews

Perceptions of Risk after the 2003 Lost Creek Wildfire



**No. of
Residents**

n=20

**No. of
Municipal
Officials**

n=13

High risk (age of forest, unburned areas, global warming, forest density- high underbrush)	8	10
Reduced, yet prevalent risk (remaining fuel)	6	1
Minimal or low risk (high moisture levels, low fuel, infrequency of large fires)	6	0

Which Household Risk Reduction Activities Were Undertaken?

Before the Wildfire

- Landscaping such as mowing lawns, de-limbing trees (n=8)
- Practicing responsible burning (i.e., not being a source of fire) (n=6)
- Metal roofs or fire resistant decks (n=4)
- Storing firewood and flammables away from structures (n=2)

During the Wildfire

- Installing sprinkler systems (n=9)
- Storing firewood and flammables away from structures (n=6)
- Landscaping such as mowing lawns, de-limbing trees (n=3)

After the Wildfire

- Landscaping such as mowing lawns, thinning and de-limbing trees, gravel around home etc. (n=9)
- Storing firewood and flammables away from structures (n=4)
- Practicing responsible burning (i.e., not being a source of fire) (n=3)

Factors Influencing Risk Reduction: Perception of Risk/Extent of Knowledge

- Minimal or no risk perceived

There've been certain little threats... that probably should have warned people but... I think being rural you don't worry about what's not there at the present time, really.

- Low levels of knowledge

- 12 of 20 participating residents indicated receiving none to minimal information related to the local wildfire risk before the Lost Creek fire.

...do common sense things, clean things up, take trees that are laying up against them, take them off. I mean it was a lot of common sense stuff, but no one distributed a booklet and said here learn this.

- 8 of 20 participating residents indicated no knowledge of risk reduction activities before the Lost Creek fire.

Factors Influencing Risk Reduction Values



Forest values:

Yes, I could make this very safe from a fire, but I wouldn't have the trees so I might as well stay in Saskatchewan or somewhere like that.

...we're not prepared to cut down trees even though that has been suggested, that's part of the reason that we moved here.

Factors Influencing Risk Reduction Values

Rural lifestyle values:

...as a person growing up in an agriculture community and raised in a rural setting you're probably a little more sensitive to the need to take precautions and the need to be careful.

[I like living here because of] access. The fact that there's no real control, like there's no rules.. You know, you can do whatever you want, basically.

Factors Influencing Risk Reduction Values

Environmental/wildlife values:

Well it all makes sense but it would be a little hard on the natural environment...I don't cut this [grass] because the wildflowers grow and then come back every year but I do keep it well watered and green... I've worked hard to bring this back to more natural conditions and so, I understand what they're saying, but I'm not utilizing every step. I'm doing the ones that make sense.

Factors Influencing Risk Reduction: Perceptions of Risk Reduction Activities

Impact on aesthetics:

...how do you trim your trees so that they don't touch when you've got 50- 60 foot trees...aesthetically it's not practical.

[I live here because of the] mountains, the trees, the location, the view.



Factors Influencing Risk Reduction: Perceptions of Risk Reduction Activities



Perceived lack of effectiveness:

If a wildfire came, what could we do to reduce the impact? ...There wouldn't be anything standing...the wildfire is so strong and powerful that it's just going to wipe everything out anyway, so the best thing to do is just run away.

Factors Influencing Risk Reduction: Perceptions of Risk Reduction Activities

Government downloading responsibilities:

Well you know it [FireSmart] now becomes a matter of their convenience. None of this is out of concern for the homeowner. It's out of concern for their budget, and I'm talking at the municipal and provincial level.

Timing of FireSmart delivery during the wildfire

Well, that's like closing the door after the cow has left the barn.

Factors Influencing Risk Reduction: Constraints

- Lack of resources

e.g., water shortages, money

- Conflicting regulations

...a lot of acreage developments up until this were restricted the other way, that you could not clear your land, that you could only remove enough trees and vegetation to build your structures.

Community-Level Risk Reduction Activities

	<u>Pre-fire</u>	<u>During fire</u>	<u>Post-fire</u>
Vegetation Management:	None	Fireguards	Community Plan
Public Education:	Minimal	House Risk Assessment Residential FireSmart	Residential FireSmart
Structural Controls:	None	Sprinklers	Review bylaws
Legislation:	None	None	Review Acts

Resident Comments on Community-Level Risk Reduction Activities

- **Vegetation Management**
 - High level of support
 - Some talked more broadly about better forest management, as well
- **Public Education**
 - High level of support
- **Structural Controls**
 - Mixed support; some say anything to help is good, others say this infringes of people's "choice" of how to build their homes
- **Legislation**
 - Limited support, most say this infringes of people's "rights" to determine where to build their homes

Management Implications: Public Education



1. Communicating with the public
 - Provides toolbox but no guarantees of implementation
2. Messages to be communicated
 - Integrated and share responsibility for risk management at multiple scales and levels
 - Counter perception that risk reduction activities are ineffective
 - Provide examples of FireSmart home
 - Stress that activities *reduce* wildfire impacts but do not *eliminate* wildfire risks

Management Implications:

Tailor Risk Reduction Activities

3. Incorporate homeowner's values in mitigation and educational strategies
 - Emphasize multiple benefits of risk reduction activities
 - Incorporate values by taking creative approaches to risk reduction (i.e., recommend visually appealing wildfire risk reduction activities)
4. Not all residents will embrace risk reduction activities, some are willing to accept the risks

Management Implications:

Incentives

5. Financial incentives may encourage adoption of risk reduction activities
 - Financial incentives such as a reduction in home insurance premiums was not viewed as an effective incentive
 - Financial assistance (e.g., subsidies) may encourage more costly structural changes
 - Financial assistance at a community level should ensure measures are ongoing rather than a one time activity

Conclusions

- Not all residents will become “FireSmart” post-fire
- Adoption of risk reduction activities is based on a complex suite of factors
- Responsibility for risk management should be integrated at landscape, community and residential levels, and shared amongst residents and local governments



Acknowledgments

Individuals who took time out of their days to share their thoughts with us.

Foothills Model Forest for funding the study

