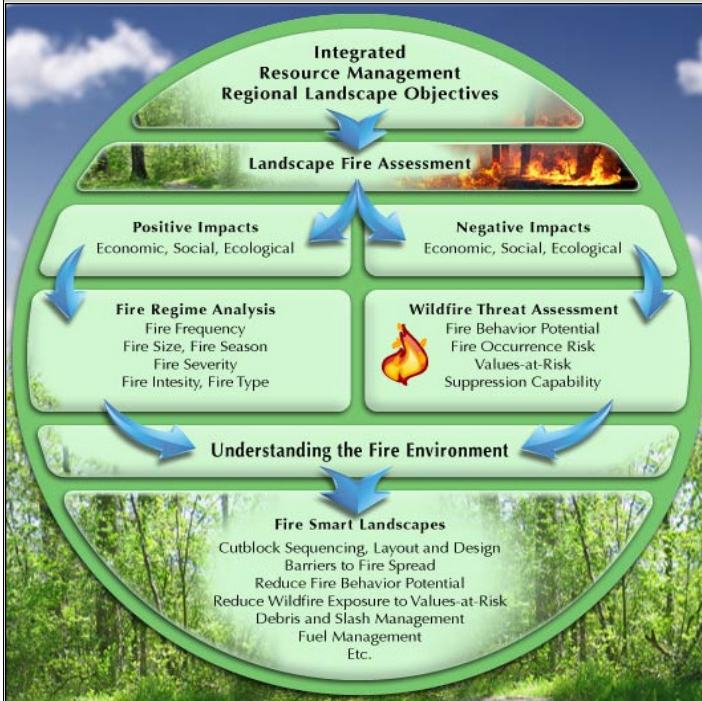




# FIRESMART LANDSCAPES

SAFER COMMUNITIES

HEALTHIER FORESTS



## Presentation objectives:

- ✓ Origin of Alberta's fuel management program
- ✓ FireSmart zones
- ✓ FireSmart landscapes framework
- ✓ Decision-support tools for assessing community wildfire threat
- ✓ Fuel management programs
- ✓ Building the science
  - ✓ Alberta fire & vegetation monitoring program
  - ✓ Community Protection Trials – Fort Providence, NWT
  - ✓ FireSmart Video

## Adam Gossell R.P.F

FireSmart Program Coordinator  
Wildfire Prevention Section  
Forestry Division / Wildfire Management Branch  
Alberta Sustainable Resource Development

# Origin of Alberta's Fuel Management Program

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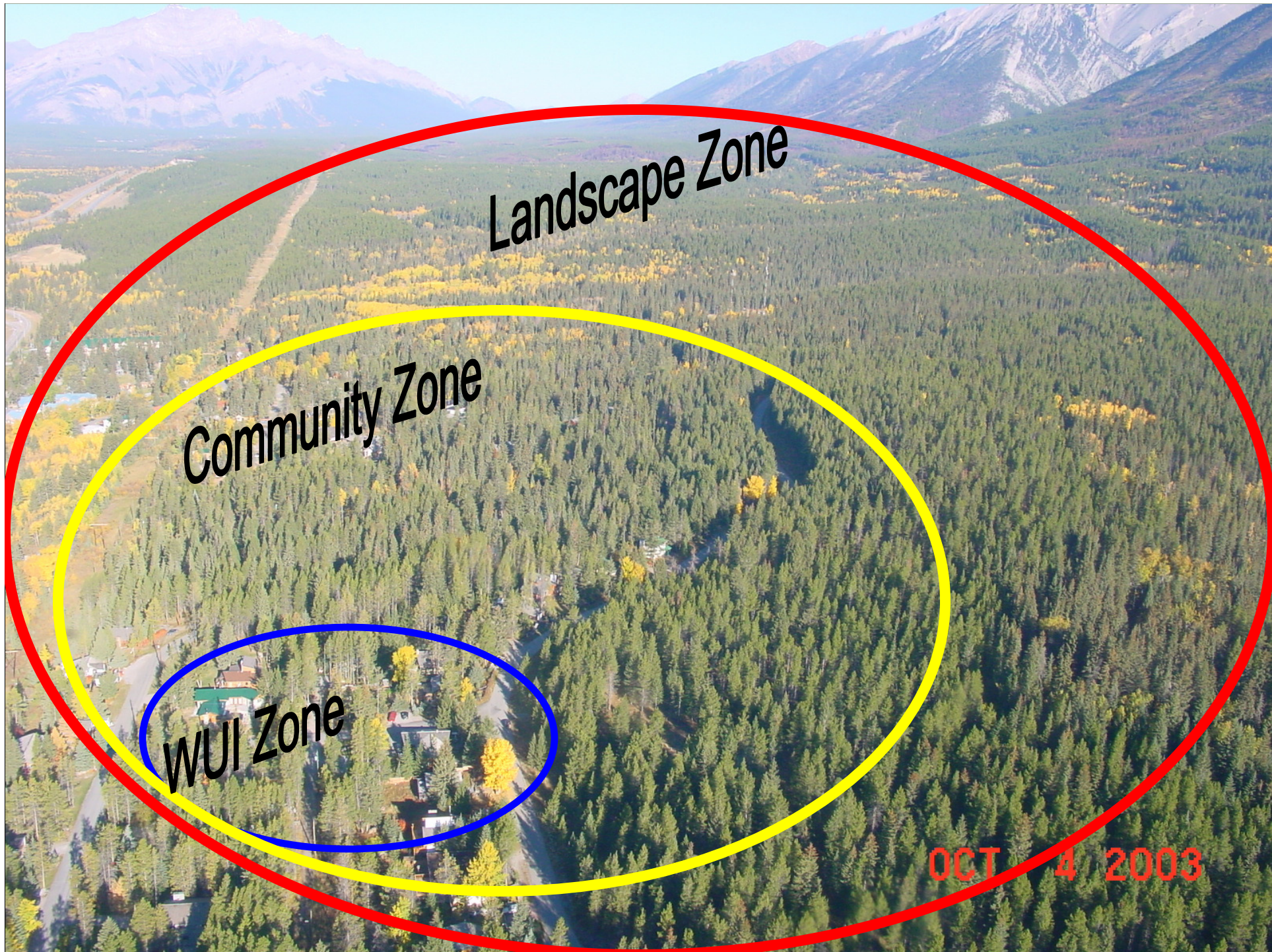
## Alberta Fire Review Final Report '98

- **Recommendation 37**: Incorporate fuel management into forest management and operational planning.



- **Reinforced through recommendations made in the 2001 Chisholm Report.**
- **Wildfire loss:**
  - **10 homes, a trapper's cabin, 48 outbuildings**
  - **116,000 ha burned and 10 M in fire suppression costs**





Landscape Zone

Community Zone

WUI Zone

OCT 4 2003



# FireSmart Landscapes Framework

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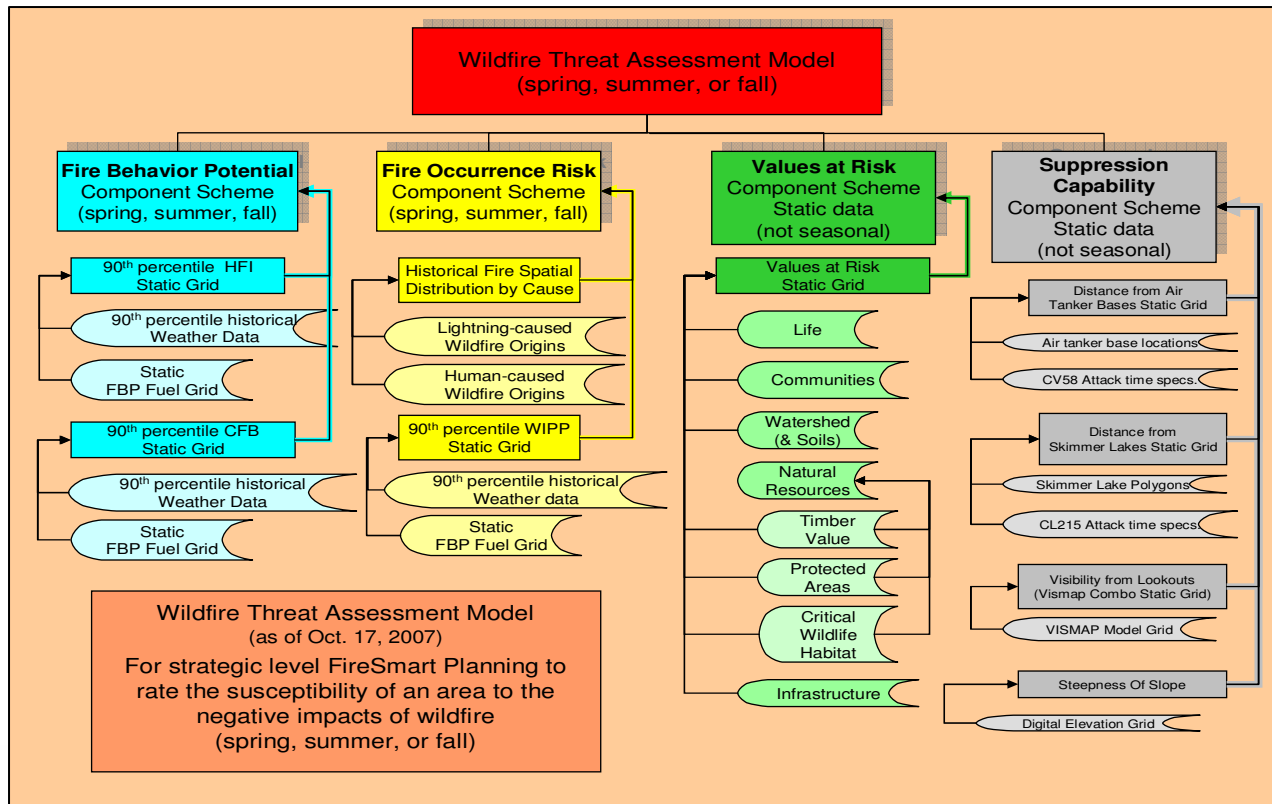
- **Alberta views FireSmart as managing risk to reduce consequences, providing those who live and work in a fire influenced environment a greater level of wildfire protection; achieved through wildfire mitigation practices and preparedness planning. It is a proactive approach that reduces wildfire exposure to values-at-risk and enhancing suppression capabilities, while balancing the ecological benefits of wildfire.**
- **Designing FireSmart landscapes and communities through the integration of prescribed fire, forest management, and land management is the foundation for protecting multiple values, achieving public safety, meeting planning objectives, and attaining sustainable forest management.**



# Wildfire Threat Assessment

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## Wildfire Threat Rating Model



## Additional tools:

- Prometheus
- Burn P-3



# Fuel Management Strategies

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**In order to meet FireSmart objectives, fuel management activities will:**

- **Comply with provincial forest protection legislation, policy, and directives.**
- **Reduce the likelihood of large high-intensity, high-severity fires through the use of timber harvest targeting older age classes adjacent to values at risk.**
- **Ensure there is zero debris retention from harvest disturbances that occur in FireSmart Community Zones.**



# FireSmart Community Protection Program

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**236 communities require some level of wildfire protection**

**Accomplished to date:**

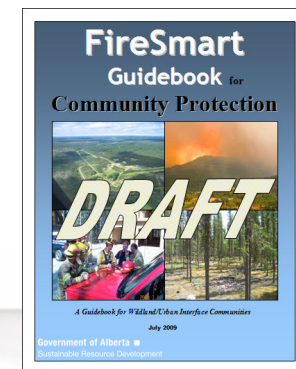
**41 FireSmart Community Plans completed**

**41 mitigation strategies requiring fuel management practices**

**100 wildfire preparedness guides completed**

FIRESMART TREATMENT METHOD	COST (\$)	HECTARES (ha)	COST PER HECTARE (\$/ha)	DISTANCE (m)	DEBRIS PILES (#)
CLEARCUT LOGGING	\$2,000.00	435.82	\$4.59	n/a	n/a
DEBRIS DISPOSAL	\$1,367,919.60	2,597.50	\$526.63	n/a	5,260
FIREGUARD DEVELOPMENT	\$413,870.86	197.77	\$2,092.69	40,597	n/a
HAND THINNING/PRUNING	\$2,232,981.20	807.06	\$2,766.81	n/a	n/a
MAINTENANCE	\$3,137.92	84.60	\$37.09	32,000	n/a
MULCHING	\$781,070.49	309.59	\$2,522.92	4,800	n/a
PARTIAL CUT LOGGING	\$133,719.09	1,052.27	\$127.08	n/a	32,000
	<b>\$4,940,699.16</b>	<b>5,484.61</b>		<b>77,397.00</b>	<b>37,260.00</b>

**Summary of completed FireSmart Treatments, as captured in the FIRES database (1998/11/01 - 2010/09/01).**





# Forest Industry

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## Alberta Forest Management Planning Standard

- **Annex 3 – FireSmart Management**
  - **FireSmart objectives to be considered in the design of the timber companies' *Preferred Forest Management Strategy* (Spatial harvest sequence )**
  - **Wildfire threat forecasting**

## Full landbase disturbance initiative

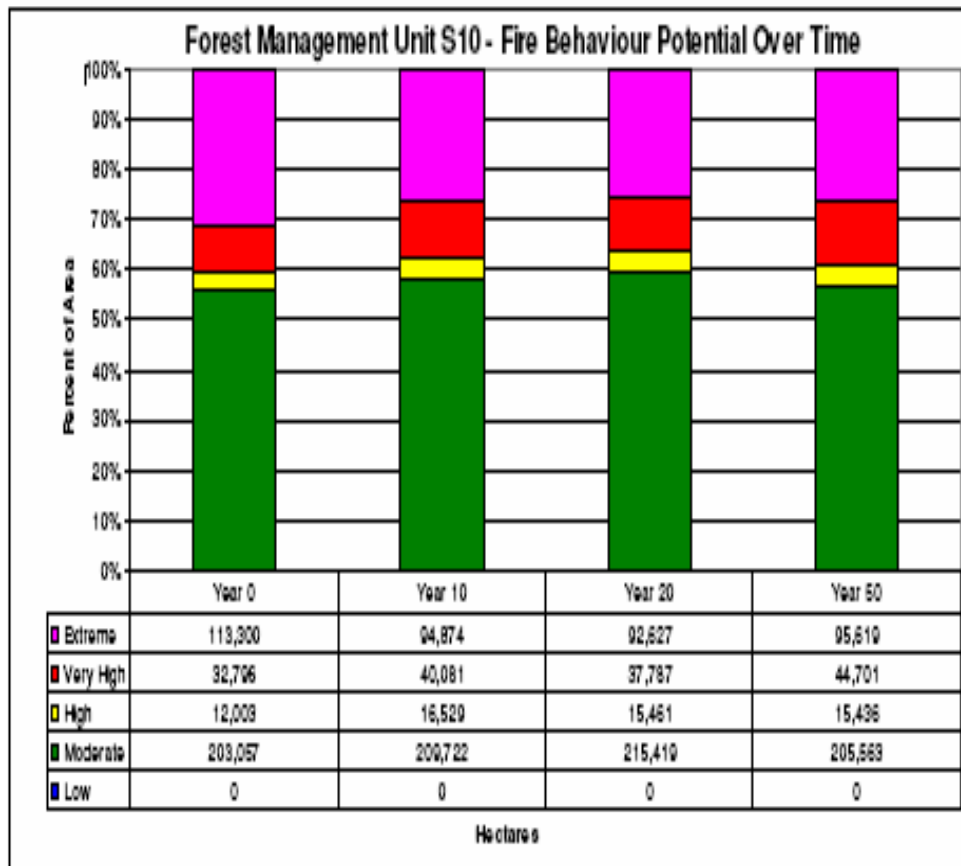
**The *Debris Management Standards for Timber Harvest Operations* Directive applies. (April 30, 2007)**

- **Directive deals with debris retention, debris location and debris pile/windrow size & orientation within harvested areas.**

# Forecasting Analysis

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## Location, Location, Location...

Table 2. Percent of the FMU in the different fire behaviour potential classes at each time slice.

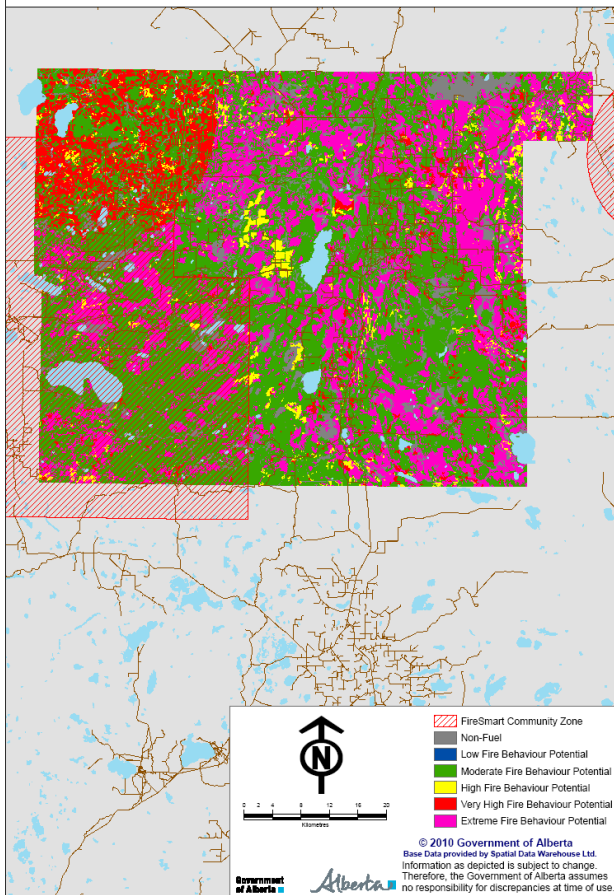
Fire Behaviour Potential Class	Year 0	Year 10	Year 20	Year 50
Low	0%	0%	0%	0%
Moderate	50%	52%	53%	51%
High	3%	4%	4%	4%
Very High	8%	10%	9%	11%
Extreme	28%	23%	23%	23%
Non-Fuel	11%	11%	11%	11%



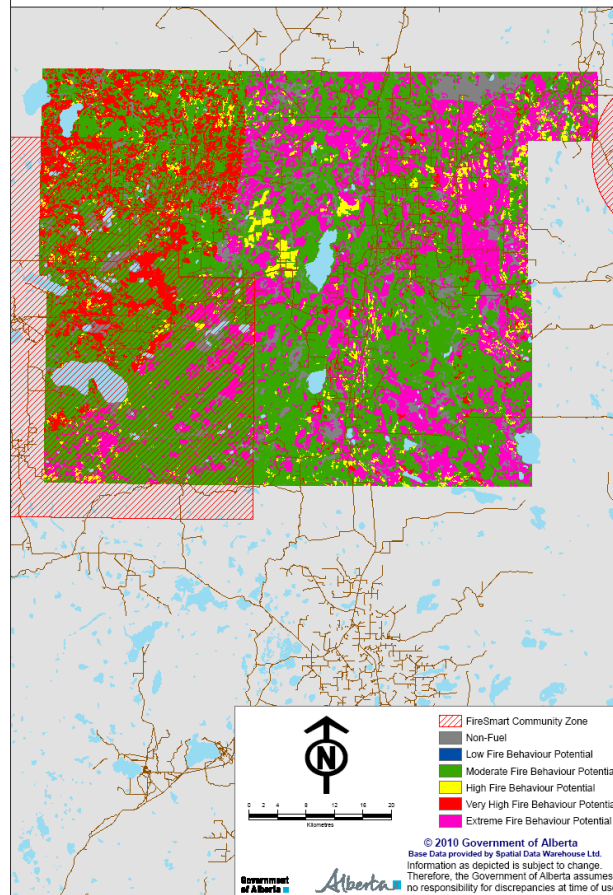
# Fire Behaviour Potential Forecast

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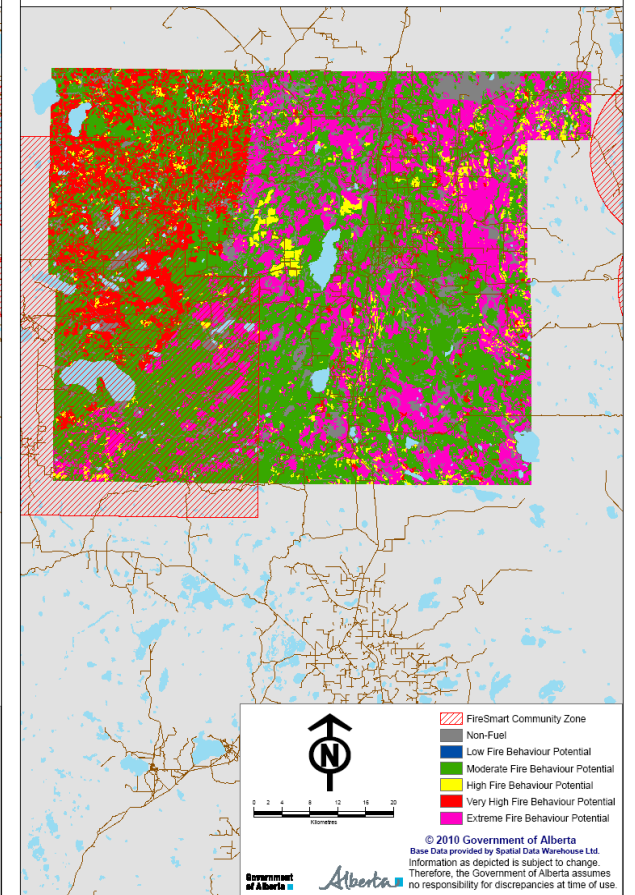
### S10 FMU Fire Behaviour Potential - Year 0



### S10 FMU Fire Behaviour Potential - Year 20



### S10 FMU Fire Behaviour Potential - Year 50



# FRIAA Fire Hazard Reduction & Forest Health Program

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Funding Round	Amount	FPA	Non-FPA	Both FPA/Non	Forest Health	FireSmart	Other*
Round 1	\$5,091,449.00	10	4	0	1	12	1
Round 2	\$8,033,995.28	20	4	0	7	16	1
Round 3	\$3,619,136.00	10	3	0	3	10	0
Round 4	\$6,669,918.00	14	4	0	5	12	1
Round 5	\$5,655,095.00	15	7	1	23	0	0
Totals	<b>\$29,069,593.28</b>	69	22	1	39	50	3

\* Projects which do not directly fit under FireSmart or Forest Health based on project descriptions

Summary	
Projects in the FPA	75%
Projects Outside of the FPA	24%
Both FPA and Non-FPA	1%
Total Funding - FPA Projects	\$20,195,212.78
Total Funding-Non-FPA	\$8,385,059.50
Funding for Combined FPA/Non	\$489,321.00

Location	No. of Projects
Forest Protection Area	22
Non Protected Area	69
Both	1



# Fire and Vegetation Monitoring Program

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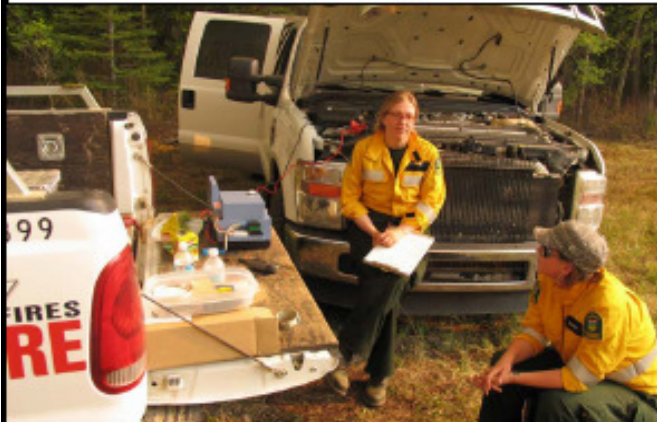
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**Training**



**Pre-Treatment Sampling**



**Fuel Moisture Measurements**



**Post-Treatment Sampling**



# Methodology

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## Data Collection

- **Site description & photos**
- **Duff & Litter**
  - **depth & bulk density**
- **Dead & down woody debris**
- **Ground cover**
  - **moss, lichen, grass, forb, etc.**
- **Herbaceous vegetation**
  - **Cover & bulk density**
- **Shrub & understory**
  - **spp composition, height, & cover**
- **Overstory structure**
  - **spp composition, height, DBH, crown area**





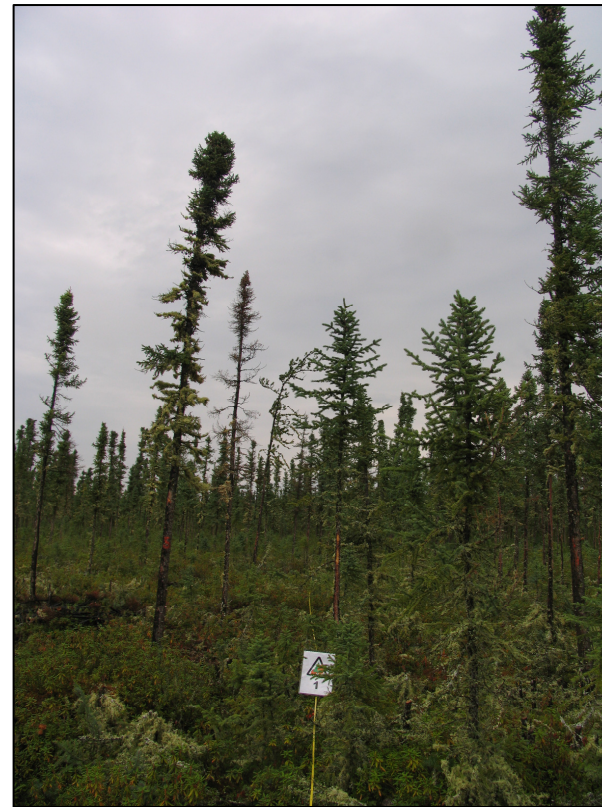
# Calling Lake FireSmart Treatments

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August 8, 2007



August 13, 2008

# 2006-09 Program Summary

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## Sampling Work Completed

Year	Plots Established			Plots Re-sampled		
	Prescribed Fire	FireSmart	Total	Prescribed Fire	FireSmart	Total
<b>2006</b>	31	4	<b>35</b>	0	0	<b>0</b>
<b>2007</b>	74	23	<b>97</b>	2	0	<b>2</b>
<b>2008</b>	29	24	<b>53</b>	42	8	<b>50</b>
<b>2009</b>	29	21	<b>50</b>	44	8	<b>52</b>
<b>2010</b>	43	4	<b>47</b>	0	0	<b>0</b>
<b>Total</b>	206	76	<b>282</b>	88	16	<b>104</b>



# Community Protection Trials Fort Providence, NWT

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Fire behaviour in thinned jack pine: two case studies of FireSmart treatments

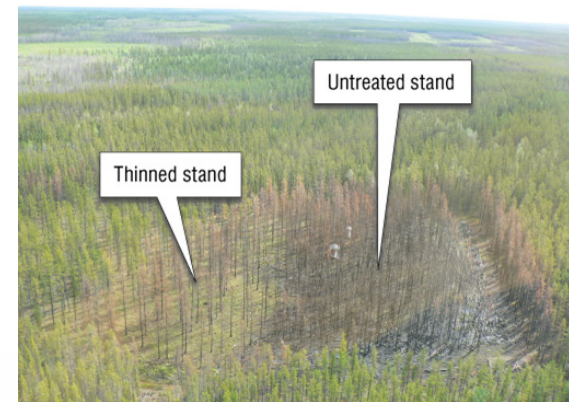
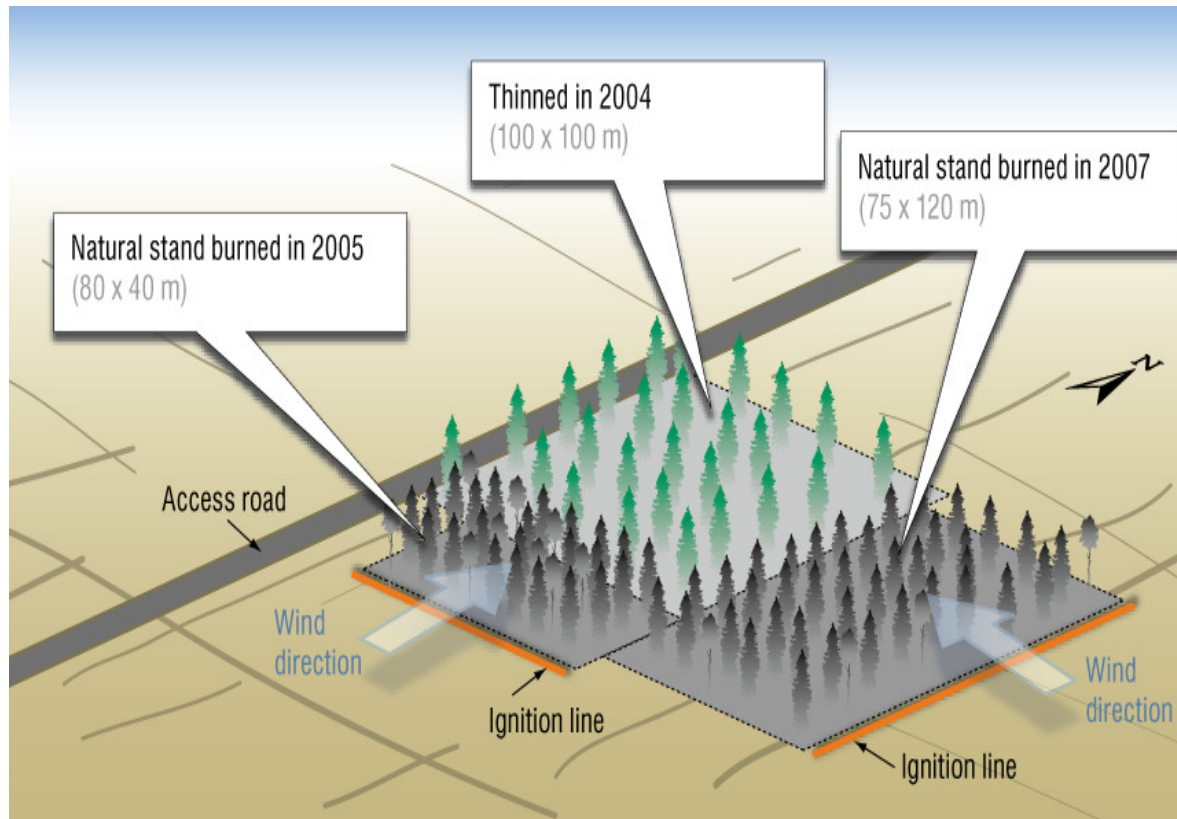
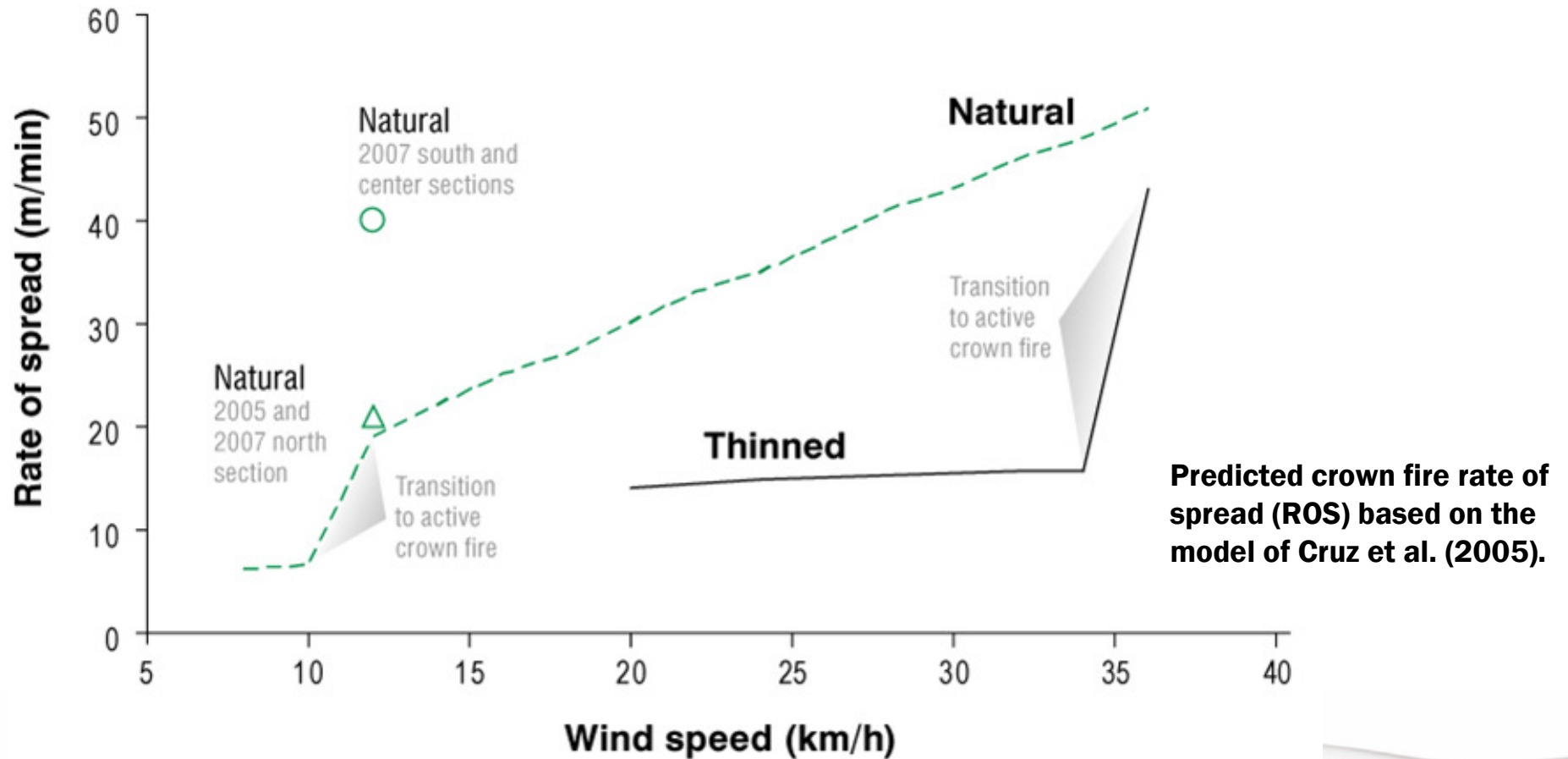


Illustration of the positions of the thinned plot and of the surrounding natural stands.

# Crown Fire Threshold

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# For More Information



VIDEO

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Freedom To Create. Spirit To Achieve.

**Adam Gossell, R.P.F.**

**FireSmart Program Coordinator**

**Sustainable Resource Development**

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Wildfire Management Branch

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adam.gossell@gov.ab.ca

Alberta Sustainable Resource Development

<http://www.srd.alberta.ca/ManagingPrograms/PreventingFightingWildfire/FireSmart/Default.aspx>

Partners In Protection Association

<http://www.partnersinprotection.ab.ca/index.php>

**FireSmart**  
Safer communities Healthier forests

Government  
of Alberta