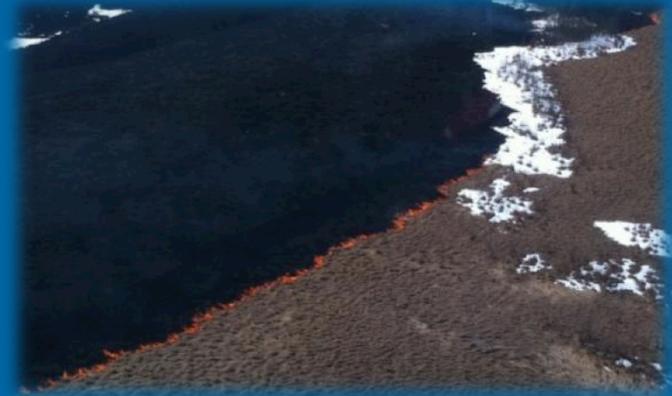




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Monitoring Area Burned across National Parks with the Area Burned Condition Class (ABCC)



Wildland Fire Canada Conference Managing Fire in Changing Times

Victor Kafka & Dan Perrakis
October 4, 2012, Kananaskis, Alberta



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Summary

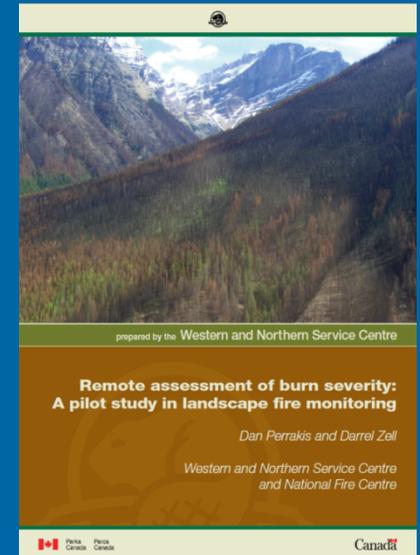
- Fire Monitoring at Parks Canada
- What is ABCC?
- Assessing ABCC in selected Parks
- Agency Statistics



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Fire Monitoring at Parks Canada

- General fire mgt stats, fire perimeter, fire behavior, etc...
- Burn Severity Project (2005)
- Specific Prescribed Fire effects (coverage, depth of burn, overstory mortality, etc..)
- Restoration (regeneration, seedlings density, etc..)
- Long term (area restored, fire regimes, etc..)



CONDITION VS
EFFECTIVENESS
MONITORING





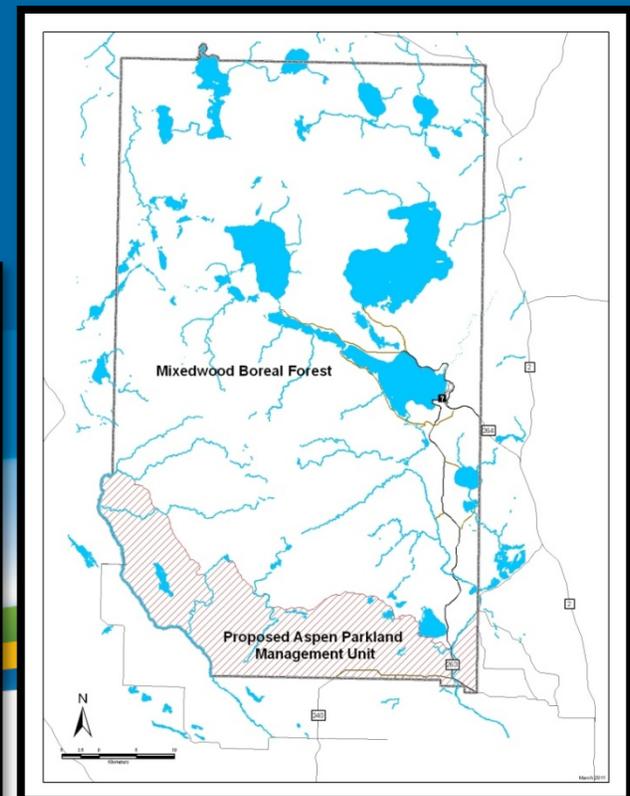
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What is ABCC?

- Condition Monitoring Measure
- Simple, broad measure of ecosystem state re fire
- Based on fire cycle concept
- 88% complete, few parks postponed for lack of data
- Work in progress



Prince Albert NP



Parks Canada
Parcs Canada



ABCC in PANP

AREA BURNED CONDITION CLASS MEASURE				Max. Monitoring Period: 1930-2010			April 2011	
RFRA	A (ha)	rFC (yrs)	MP (yrs)	eAAB (ha)	eAB (ha)	aAB (ha)	ABD (%)	ABCC
Aspen Parkland	51,831	40	40	1296	51,831	2,296	-96	POOR
Boreal Mixedwood	296,484	100	81	2965	240,165	109580	-54	FAIR
FINAL RATING	348,315						61	FAIR

ABCC RATING:

GOOD

(within range) :

-33% to 33%

FAIR

(moderately altered) :

-33% to -67% & 33% to 67%

POOR

(significantly altered) :

-67% to -100% & > 67%

ABCC TREND : ΔABD (between reporting periods)

UP



more than 5 % change, towards 0

STABLE



0-5% change

DOWN



more than 5 % change, away from 0



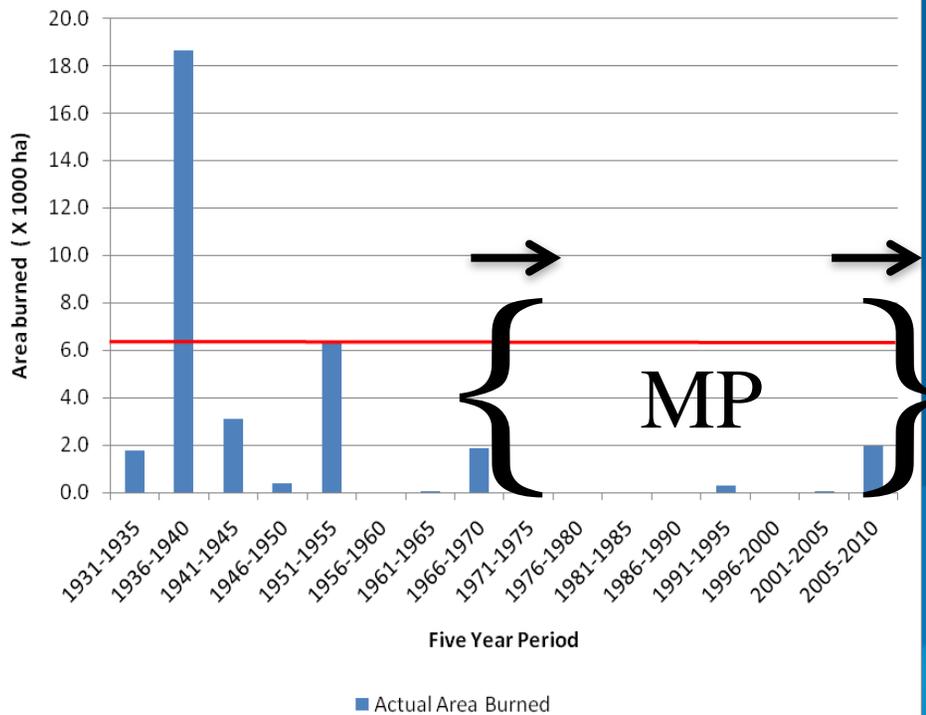
ABCC & Trend in PANP

Reporting Date	Area Burned Departure (%)		
	Management Regime		
	Aspen Parkland	Mixedwood Boreal	Park
1970	-39.6	-21.0	24
1975	-45.3	-29.6	32
1980	-77.5	-36.5	43
1985	-83.5	-42.1	48
1990	-84.3	-46.8	52
1995	-95.8	-50.8	57
2000	-95.8	-51.4	58
2005	-95.8	-53.6	60
2010	-95.6	-54.4	61

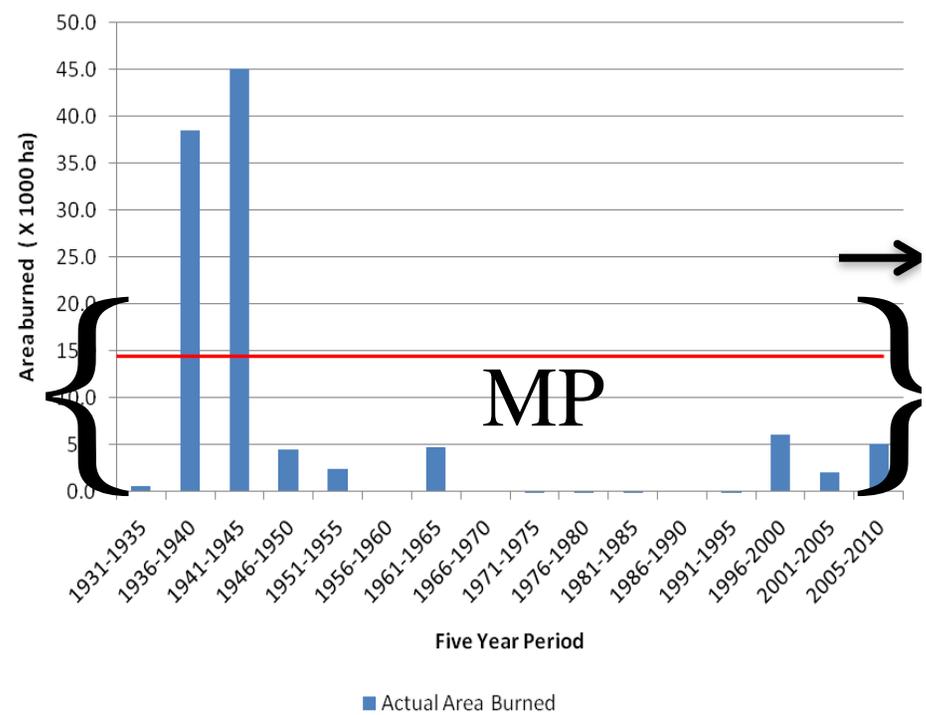


ABCC in PANP

Aspen Parkland Expected vs Actual Area Burned

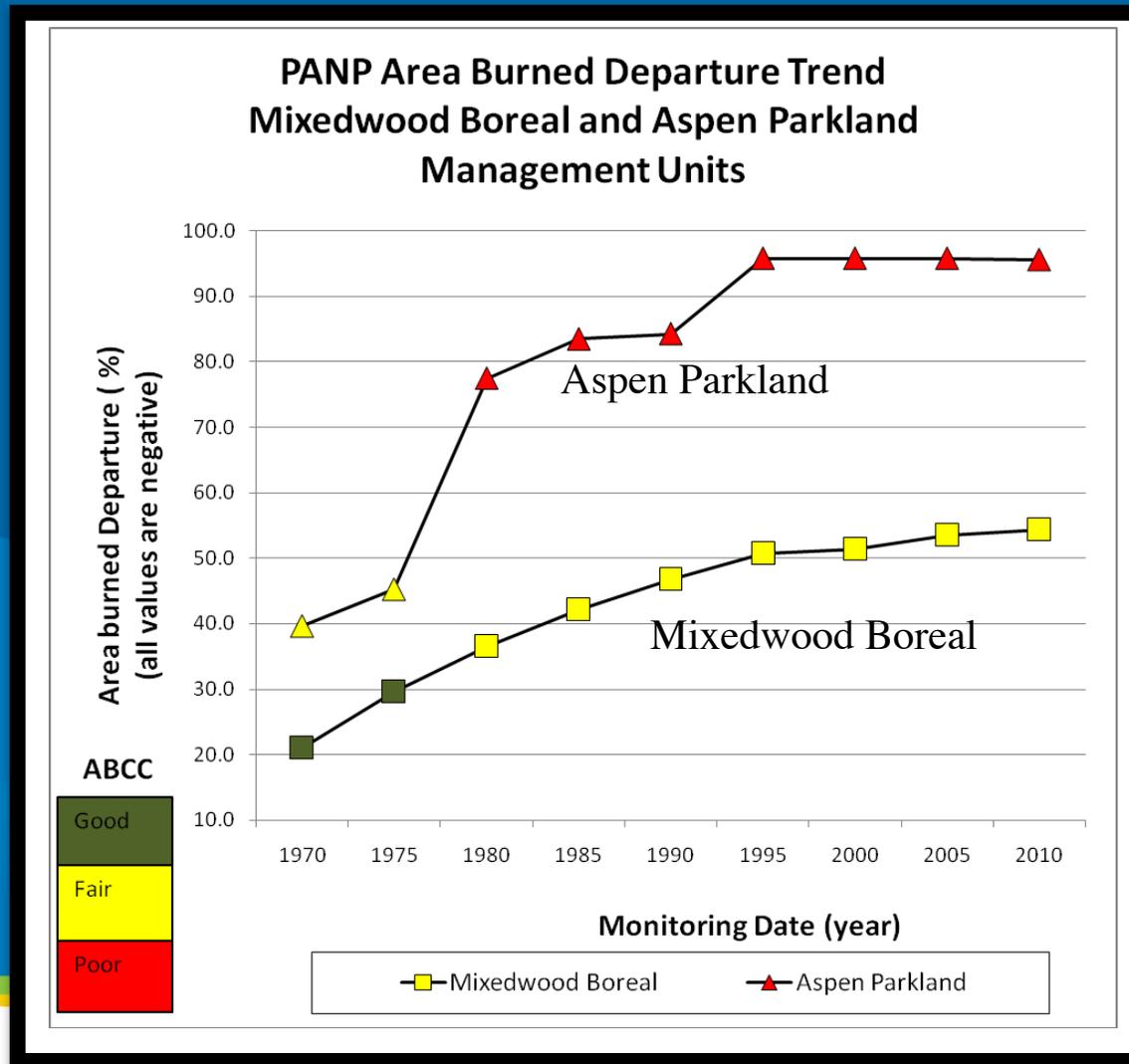


Mixedwood Boreal Expected vs Actual Area Burned



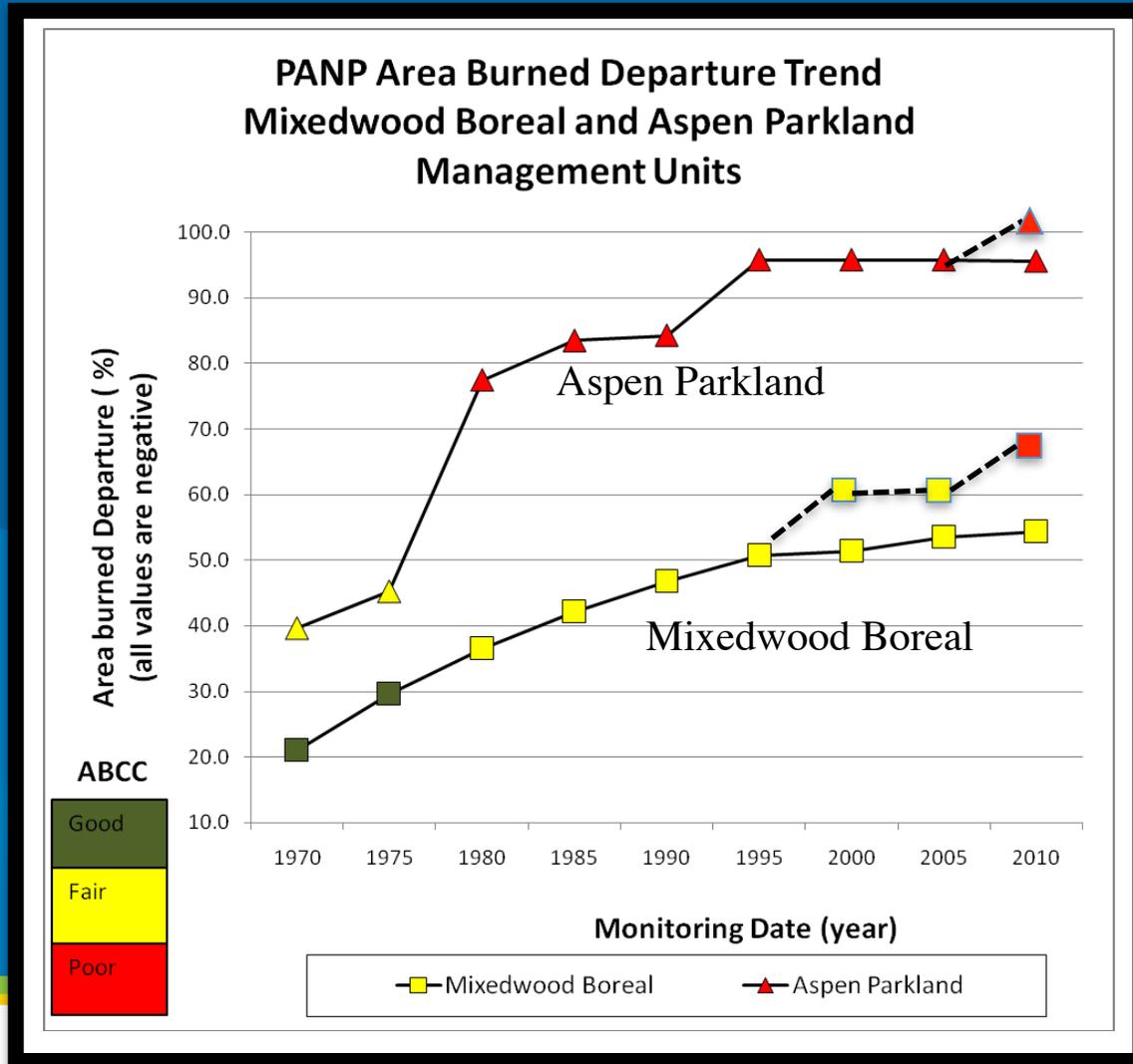


ABCC Trend IN PANP



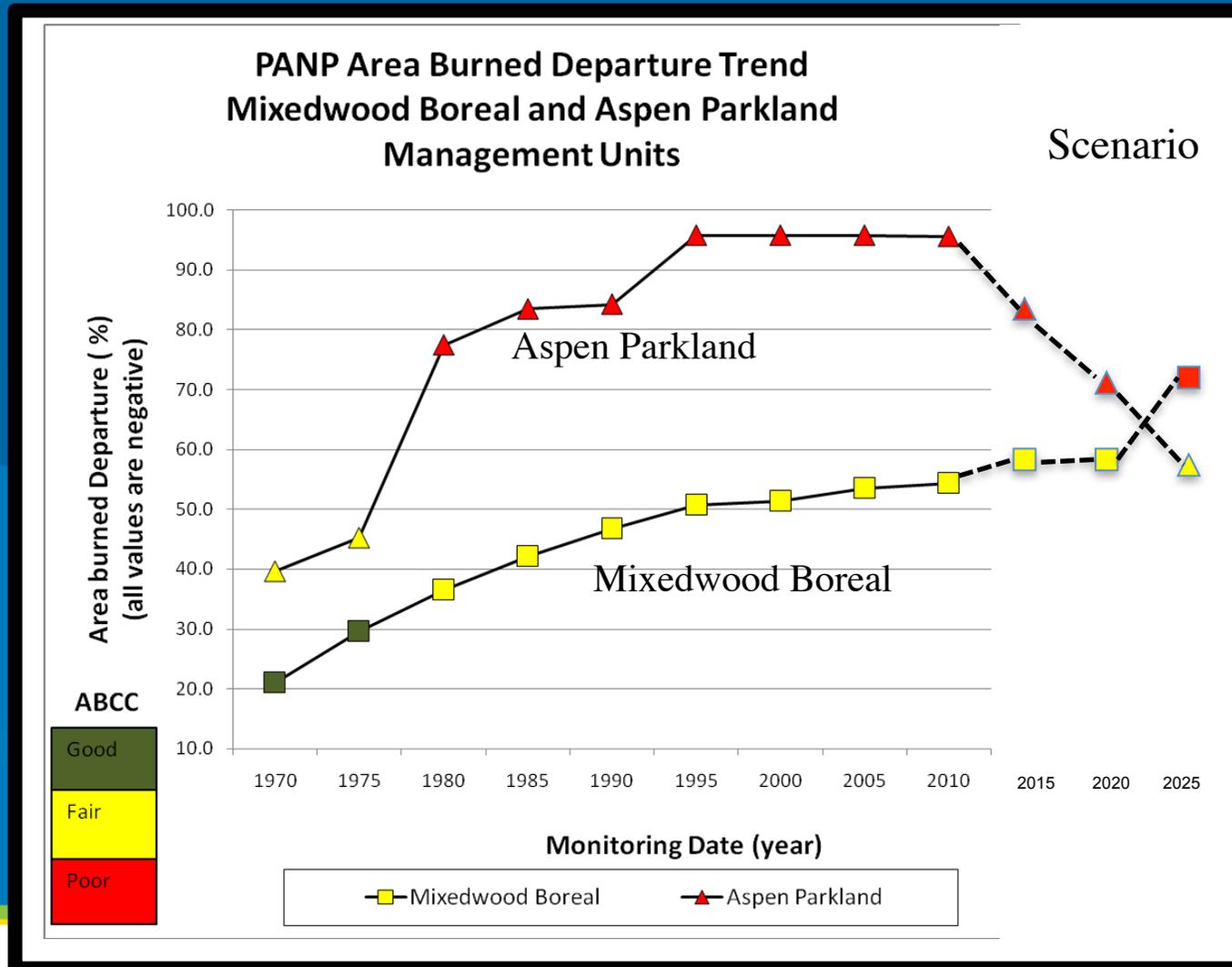


Effect of Prescribed Fires on ABCC



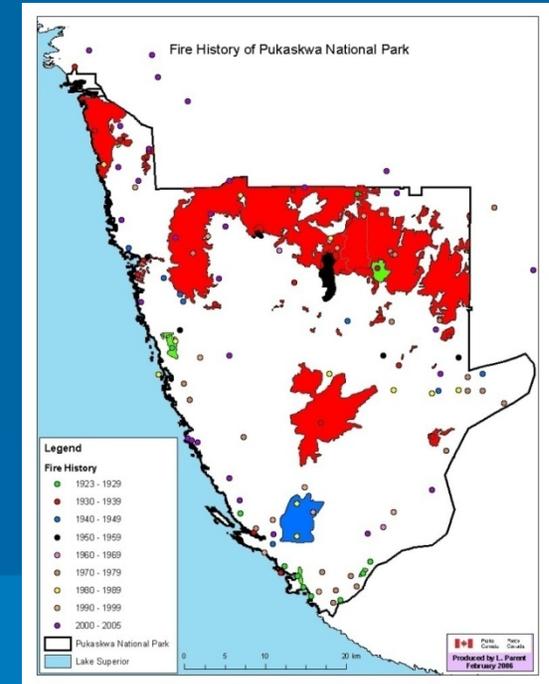
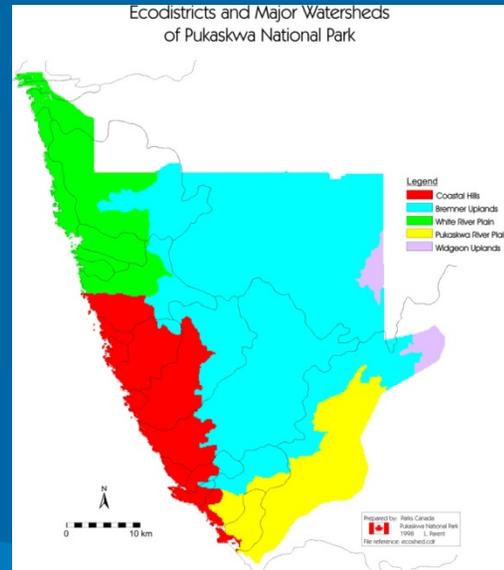
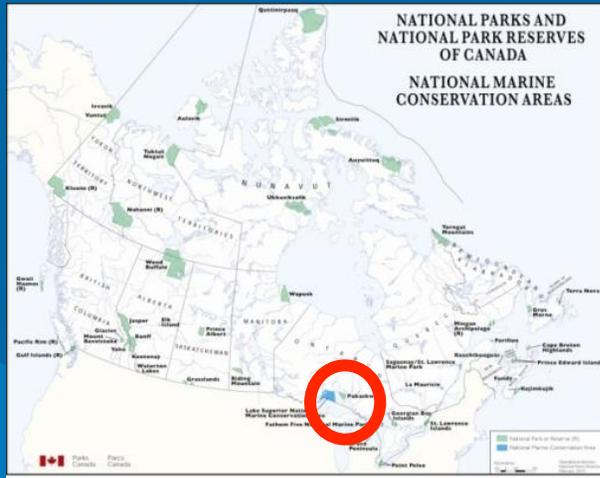


Future ABCC Scenarios





ABCC in Pukaskwa National Park





ABCC in Pukaskwa National Park

AREA BURNED CONDITION CLASS MEASURE				Max. Monitoring Period: 1934-2009			Nov. 2009	
RFRA	A (ha)	rFC (yrs)	MP (yrs)	eAAB (ha)	eAB (ha)	aAB (ha)	ABD (%)	ABCC
White River	25,282	300	86	84	7,224	7824	8	GOOD
Coastal	26,478	300	86	88	7,568	627	-92	POOR
Pukaskwa River	22,048	300	86	73	6,278	562	-91	POOR
Bremner South	62,646	300	86	209	17,974	9,849	-45	FAIR
Bremner / Widgeon	46,968	95	86	494	42,484	24,000	-44	FAIR
FINAL RATING	183,422						54	FAIR



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ABCC in La Mauricie National Park

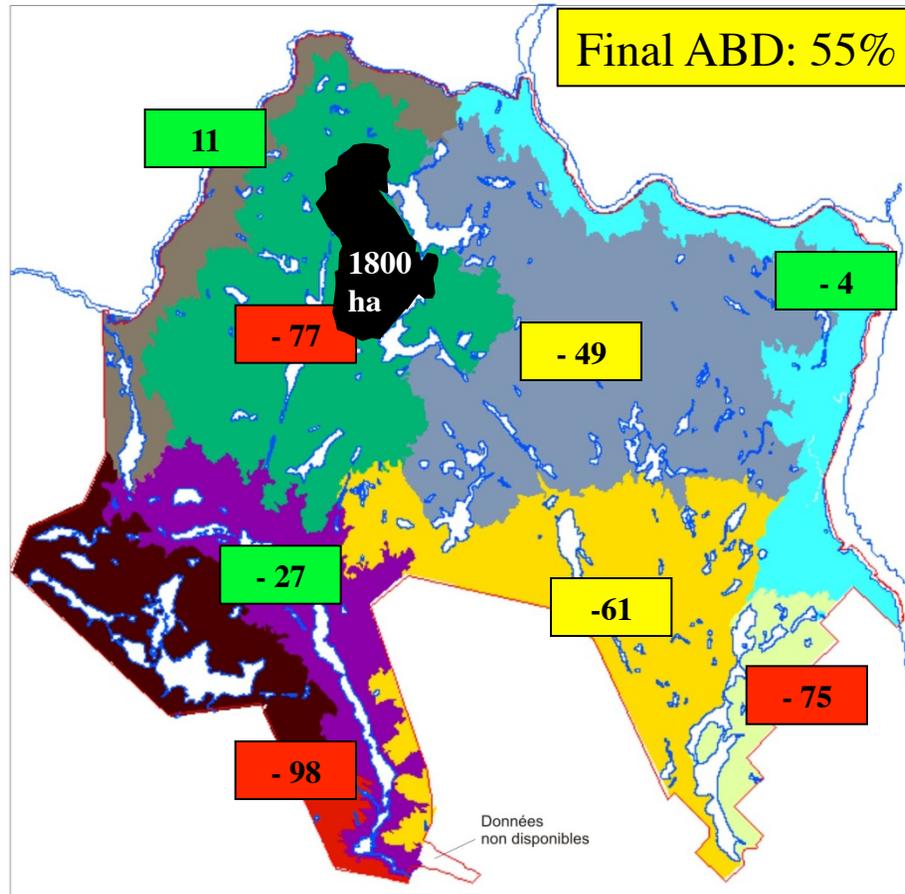
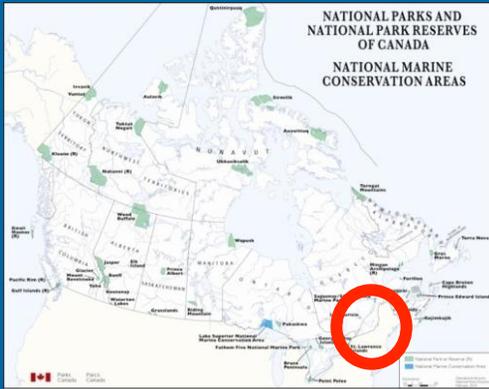
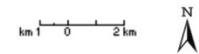


Figure 17

Les districts écologiques
Parc national de la Mauricie

- Vallée de la rivière Matawin
- Collines du lac Caribou
- Collines du lac Dauphinais
- Hautes-collines du lac Bernard
- Vallée du lac Wapizagonke
- Plateau du lac des Cinq
- Collines du lac Edouard
- Vallée de la rivière Saint-Maurice
- Collines du lac à la Pêche
- Hydrographie
- Limite du PNLM



Projection: UTM
Datum NAD83

Sources: Service d'inventaire forestier (1992)
Del Degan, Massé et ass. (1993)

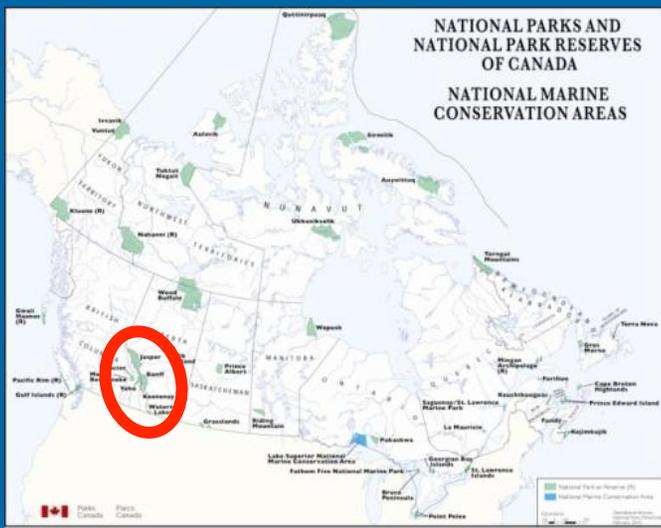


Service de la conservation des ressources naturelles
Région du Québec
Janvier 1997



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ABCC in the Mountain Parks



BANFF NATIONAL PARK				Max. Monitoring Period: 1910-2009			Oct. 2009	
RFRA	A (ha)	rFC (yrs)	MP (yrs)	eAAB (ha)	eAB (ha)	aAB (ha)	ABD (%)	ABCC
Montane	22,830	50	50	457	22,830	5,110	-78	POOR
WD Lower Subalpine	55,549	100	100	555	55,549	16,056	-71	POOR
CM Lower Subalpine	44,588	100	100	445	44,588	5999	-87	POOR
Lower Subalpine & FP	96,775	150	100	645	64,516	6481	-90	POOR
Upper Subalpine	162,647	200	100	813	81,323	11,482	-86	POOR
Old Growth	8478	400	100	21	2119	1332	-37	FAIR
FINAL RATING	390,867						83	POOR

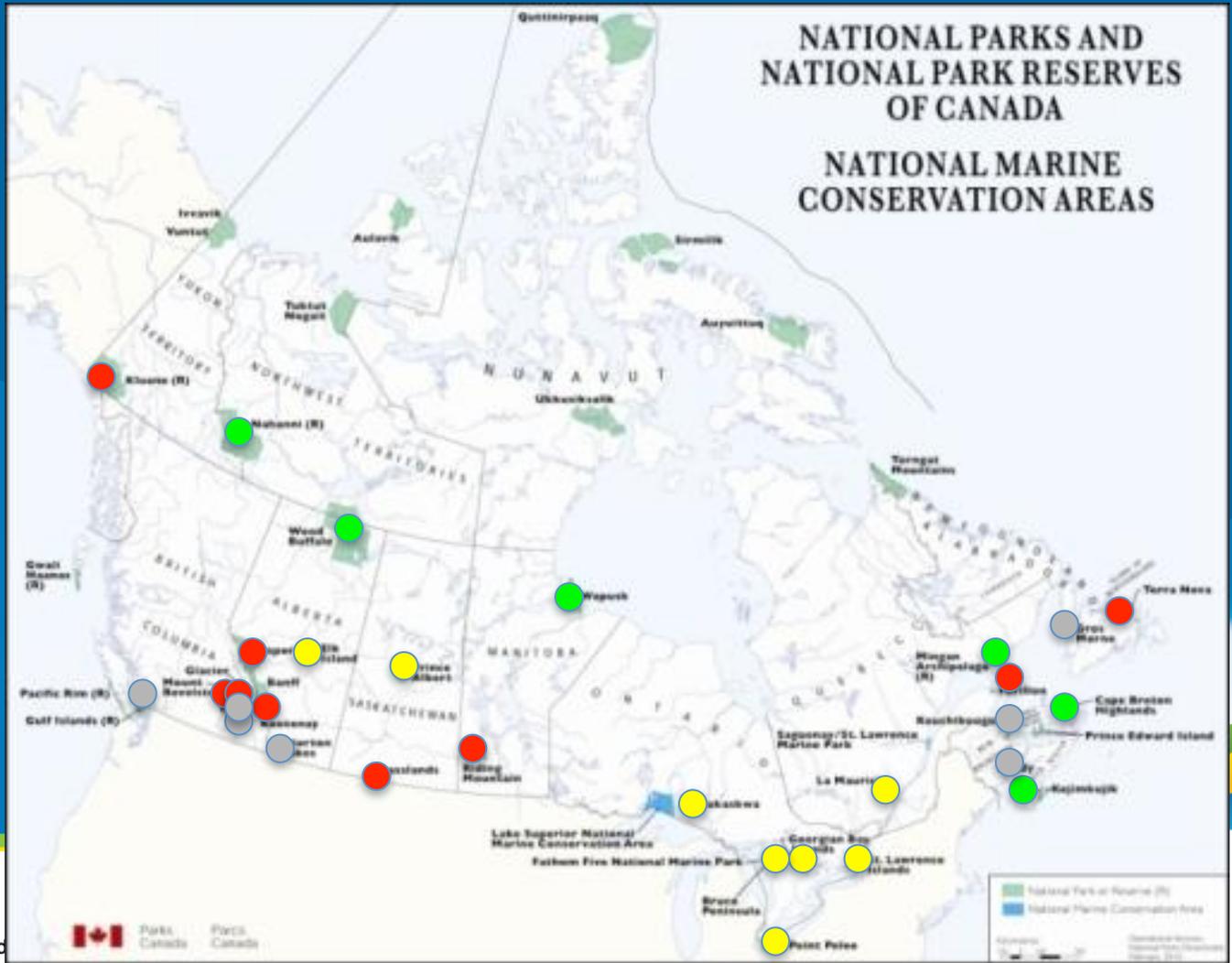
JASPER NATIONAL PARK				Max. Monitoring Period: 1930-2009			June 2010	
RFRA	A (ha)	rFC (yrs)	MP (yrs)	eAAB (ha)	eAB (ha)	aAB (ha)	ABD (%)	ABCC
Montane	77,868	50	50	1557	77,865	10,379	-87	POOR
WD Lower Subalpine	79,368	100	80	794	63,488	10,222	-84	POOR
CM Lower Subalpine	90,339	100	80	903	72,264	5009	-93	POOR
Lower Subalpine & FP	181,907	150	80	1213	97,016	7636	-92	POOR
Upper Subalpine	191,531	200	80	958	76,608	3038	-96	POOR
Old Growth	7,624	400	80	19	1520	325	-79	POOR
FINAL RATING	628,637						92	POOR

MOUNT REVELSTOKE NATIONAL PARK				Max. Monitoring Period: 1960-2009			Aug. 2010	
RFRA	A (ha)	rFC (yrs)	MP (yrs)	eAAB (ha)	eAB (ha)	aAB (ha)	ABD (%)	ABCC
ICH – Valley bottom	7,777	300	50	26	1,296	527	-59	FAIR
ESSF – Subalpine	16,653	200	50	83	4,163	839	-80	POOR
FINAL RATING	24,430						73	POOR

GLACIER NATIONAL PARK				Max. Monitoring Period: 1960-2009			Aug. 2010	
RFRA	A (ha)	rFC (yrs)	MP (yrs)	eAAB (ha)	eAB (ha)	aAB (ha)	ABD (%)	ABCC
ICH – Valley bottom	26,004	250	50	104	5,201	395	-92	POOR
ESSF – Subalpine	82,212	150	50	548	27,404	3,861	-86	POOR
FINAL RATING	108,216						87	POOR



ABCC in PCA



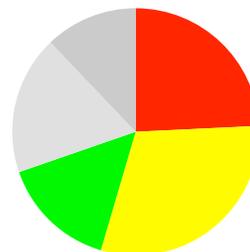


National ABCC

AREA BURNED CONDITION CLASS MEASURE

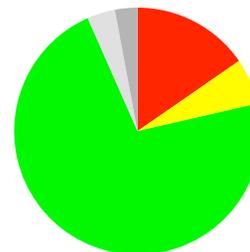
NP or NPR	A (ha)	ABD (%)
Banff	390,867	83
Bruce Peninsula	16,300	36
Cape Breton Highlands	94,930	27
Elk Island	16,884	40
Forillon	23,547	67
Fundy	20,600	N/A
Georgian Bay Islands	1,291	46
Glacier	108,216	87
Grasslands	39,840	94
Gros Morne	180,500	N/A
Gulf Islands	6,200	N/A
Gwaii Haanas	150,000	N/A
Jasper	628,637	92
Kejimikujik	34,395	34
Kootenay	140,600	SOON
Kouchibouguac	19,470	SOON
Kluane	197,820	67
La Mauricie	48,957	55
Mingan Archipelago	9,660	8
Mount Revelstoke	24,430	73
Nahanni	3,144,534	3
Pacific Rim	51,200	N/A
Prince Edward Island	2,200	N/A
Prince Albert	348,315	61
Point Pelee	1,142	65
Pukaskwa	183,422	54
Riding Mountain	295,000	72
St. Lawrence Islands	1,683	56
Terra Nova	37,245	84
Yoho	131,000	SOON
Wapusk	711,307	3
Waterton Lakes	38,325	SOON
Wood Buffalo	4,101,141	31
PARKS CANADA AGENCY	11199658	29

Park-based



- POOR (24%)
- FAIR (30%)
- GOOD (15%)
- NOT AVAILABLE (18%)
- SOON (12%)

Area-based



- POOR (15%)
- FAIR (6%)
- GOOD (72%)
- NOT AVAILABLE (4%)
- SOON (3%)

PCA ABCC: 29 %



Target Area Burned Class (TABC)

Effectiveness management monitoring

RFRA	AREA BURNED CONDITION CLASS MEASURE			Max. Monitoring Period: 1930-2010			April 2011	
	A (ha)	rFC (yrs)	MP (yrs)	eAAB (ha)	eAB (ha)	aAB (ha)	ABD (%)	ABCC
Aspen Parkland	51,831	40	40	1296	51,831	2,296	-96	POOR
Boreal Mixedwood	296,484	100	81	2965	240,165	109580	-54	FAIR
FINAL RATING	348,315						61	FAIR

Exemple in between FMP 10 years: 20 % of fire cycle target

$$eAAB : 1296 + 2965 * 10 = 42,610 \text{ ha} * 0.2 = \mathbf{8,522 \text{ ha VS } 9,179 \text{ ha}}$$

TAB Class	% of Area Burned Target (T)
Good (Effectiveness target achieved)	100% or greater
Fair	50-99%
Poor	<50%



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CONCLUSION

- ABCC works ! Still need to improve fire history in several parks
- ABCC trend methodology needs to be finalized
- Temporal variability and climate change

Assumptions /issues:

- 1- "Appropriate" area burned? - need for periodic assessment
- 2- Long fire cycles – assume annual area reached until have data
- 3- Max of 100% departure, some ecosystems keep departing



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QUESTIONS ?



Parks
Canada

Parcs
Canada

Canada