

Hints At Resilience

UBC Wildfires 2017

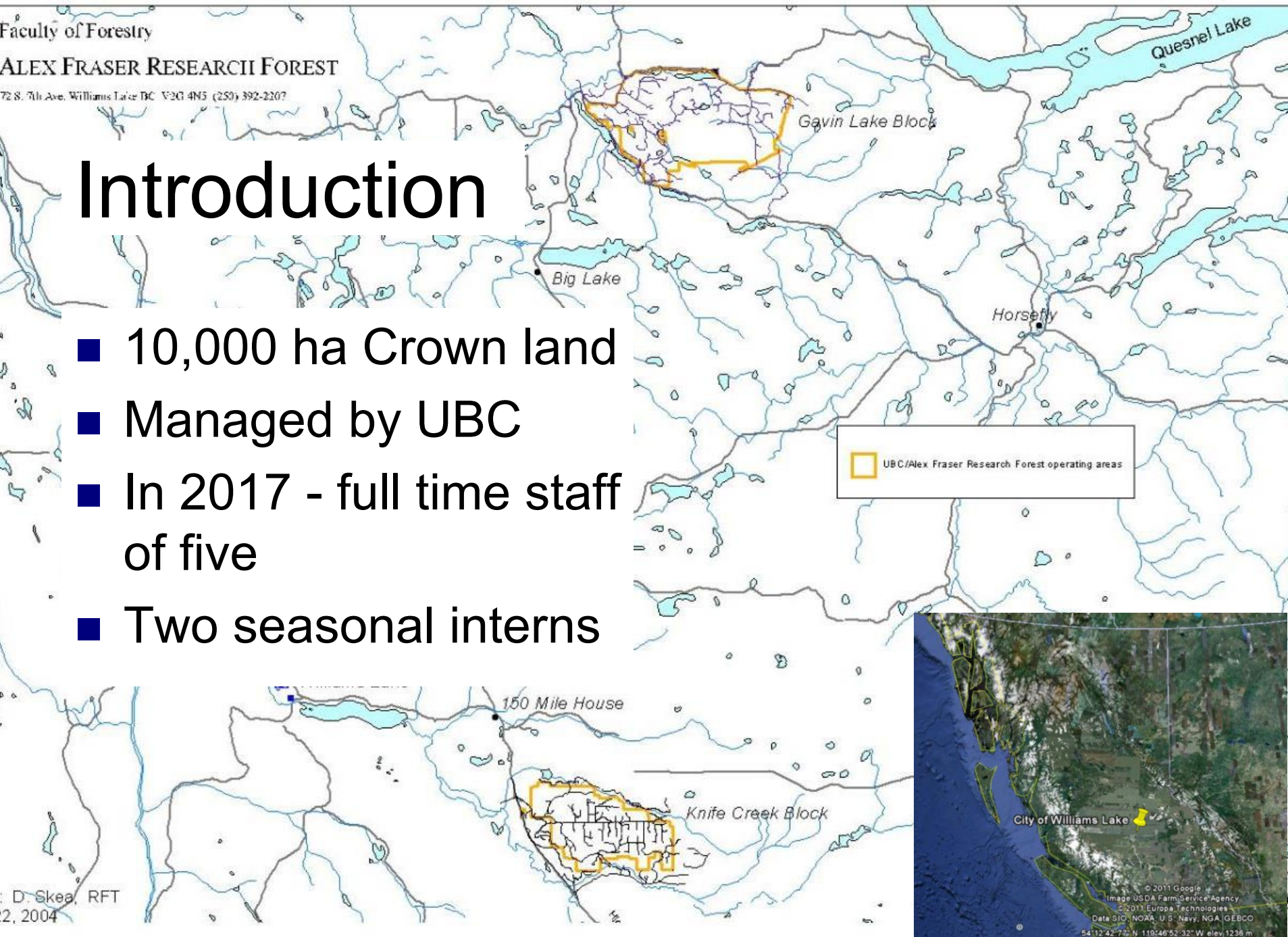
Ken Day

Wildfires on Community Forests Workshop
Williams Lake, BC March 13, 2019



Introduction

- 10,000 ha Crown land
- Managed by UBC
- In 2017 - full time staff of five
- Two seasonal interns

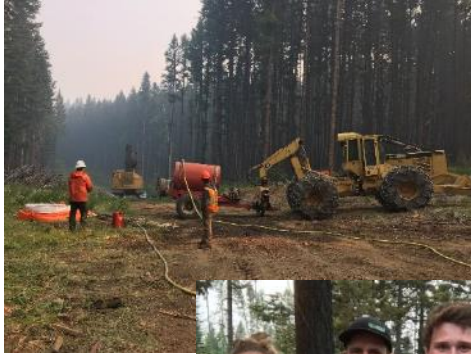


Values under management

- Research and education
- Recreation
- Cultural values
- Wildlife habitat
- Domestic forage
- Log supply



Thanks Are Due



How Did This Happen

- July 7 Danger Class 4 (high) at Gavin Lake
- Operations were shut down
- Temp was high (31.4 max)
- rH extremely low (8% min)
- Dry lightning at about 3:00 PM
- Winds gusting 33 km/hr and avg nearly 20 km/hr
- At these ISI and BUI values, red book predicts continuous crown fire in C3 fuel types, ROS=31 m/min
- City of Williams Lake was surrounded by very active wildfires by late afternoon



Fire Weather System

All Hours for GAVIN

From 2017/07/07 09:00 to 2017/07/07 23:00

Ancillary Data

[Guide to abbreviations](#)

Date	Wind Gust	Max 10-Min Wind	Gauge Total	Precip Status	Snow Depth
2017/07/07 09:00	16	8.2	0	0	0
2017/07/07 10:00	16.6	8.5	0	0	0
2017/07/07 11:00	21.2	8.5	0	0	0
2017/07/07 12:00	16.6	9.4	0	0	0
2017/07/07 13:00	24.1	9.4	0	0	0
2017/07/07 14:00	21.8	11.4	0	0	0
2017/07/07 15:00	33.3	18.7	0	0	0
2017/07/07 16:00	35	19.9	0	0	0
2017/07/07 17:00	23.5	12.5	0	0	0
2017/07/07 18:00	21.2	12.3	0	0	0
2017/07/07 19:00	17.7	8.3	0	0	0
2017/07/07 20:00	23.5	10.7	0	0	0
2017/07/07 21:00	16	7.5	0	0	0
2017/07/07 22:00	9.7	4.6	0	0	0
2017/07/07 23:00	7.4	3.8	0	0	0



Fire Weather System

All Hours for GAVIN

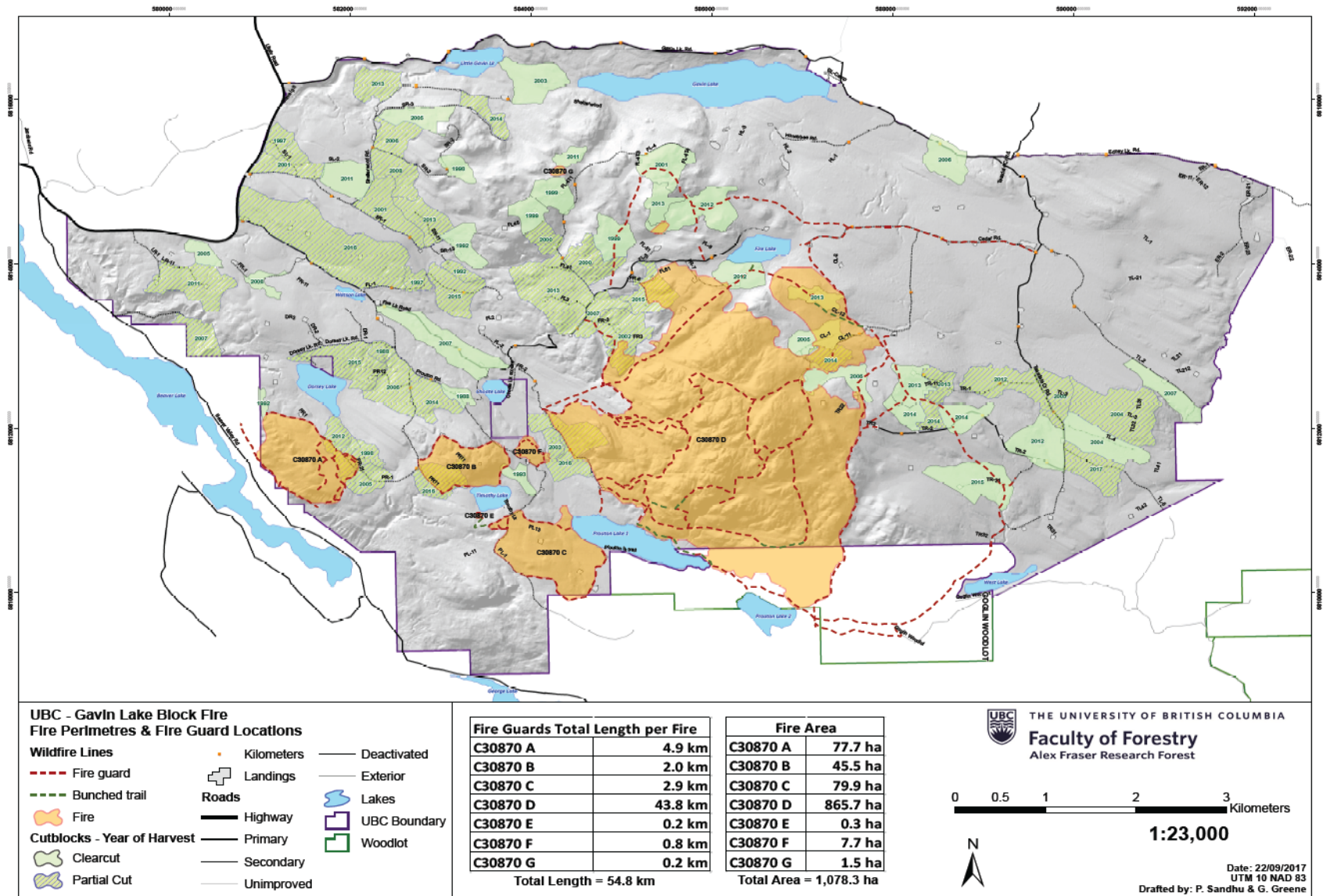
From 2017/07/07 09:00 PST to 2017/07/07 23:00 PST

[View Min/Max](#)

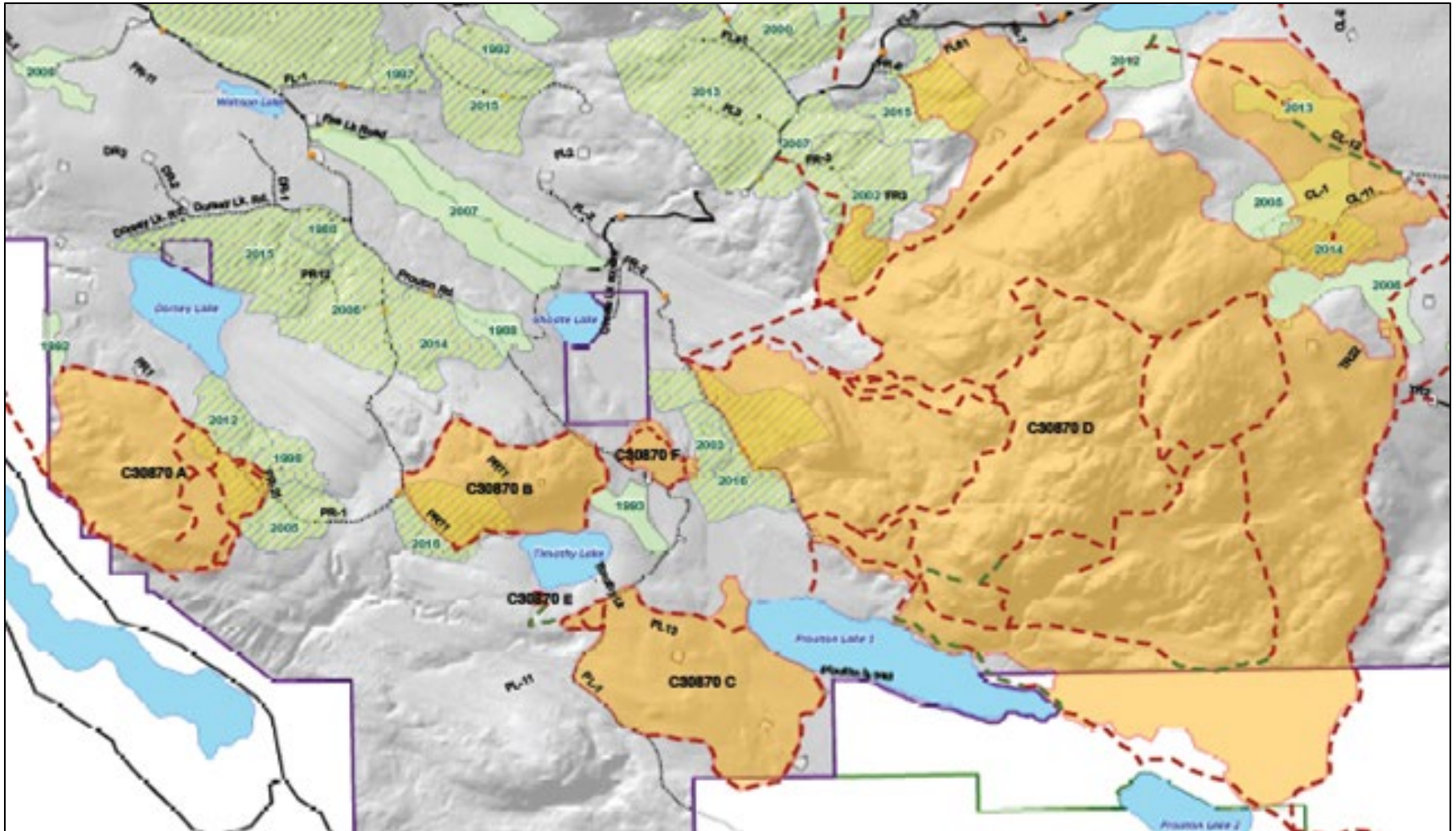
[Guide to abbreviations](#)

Date	Temp.	Dew Point	RH	Wind Dir.	Wind Sp.	Precip.	FFMC	ISI	FWI
2017/07/07 09:00	27.1	3.5	22	177	8	0.0	93.0	9.8	32.8
2017/07/07 10:00	29.2	4.0	20	187	7	0.0	93.4	10.1	33.6
2017/07/07 11:00	30.2	3.3	18	151	8	0.0	93.9	11.4	36.3
2017/07/07 12:00	29.0	3.8	20	157	5	0.0	94.1	10.0	34.0
2017/07/07 13:00	30.9	1.3	15	254	8	0.0	94.7	12.6	39.5
2017/07/07 14:00	27.8	2.8	20	281	7	0.0	94.7	11.6	37.4
2017/07/07 15:00	27.2	-1.7	15	241	19	0.0	95.0	22.1	56.4
2017/07/07 16:00	26.6	1.8	20	262	10	0.0	95.0	14.5	43.2
2017/07/07 17:00	25.8	1.2	20	270	10	0.0	95.1	14.5	43.2
2017/07/07 18:00	24.6	1.4	22	291	9	0.0	95.1	13.9	42.1
2017/07/07 19:00	21.7	1.4	26	273	4	0.0	95.0	10.5	35.2
2017/07/07 20:00	20.9	2.9	31	245	7	0.0	94.8	12.0	38.4
2017/07/07 21:00	18.4	5.5	43	190	4	0.0	94.4	10.0	33.9
2017/07/07 22:00	14.9	6.8	58	180	3	0.0	93.6	8.5	30.4
2017/07/07 23:00	14.5	6.9	60	164	3	0.0	92.9	7.5	27.9

In The End...



Ten Previous Blocks Affected



I Learned Silviculture Matters

- Thinning reduces fire effects
 - More brush
 - More herbaceous
 - Less fuel
 - Higher Crown Base Hgt
 - Lower Crown Bulk Density



CB 144A Commercial Thin 2012, Alpha Fire



CB 135 Pine removal 2002, Delta Fire



1977 Pre-Commercial Thin, Charlie Fire

Silviculture Matters

- Salvage helps
 - Less fuel
 - More herbaceous
 - More brush
 - Higher Crown Base Hgt
 - Lower Crown Bulk Density



Pine salvage site, 1998-2000 Bravo Fire



No salvage, Foxtrot Fire

Silviculture Matters

- Group selection and strip thinning had little benefit



CB 173 Group Selection 2016, Delta Fire



CB 128 Strip selection, Bravo Fire

Silviculture Matters

- Deciduous component reduced fire behaviour



Douglas-fir with aspen and birch, Alpha Fire



Deciduous stands, Delta Fire

Silviculture Matters

- Cedar and subalpine fir residual--burnt out regenerated stands



CB 133 & 150, Delta Fire

CB 133 (2000, 2014),
150 (2005) &
139 (2000, 2013) ,
Delta Fire

How Can We Manage For Resilience?



- Permanent roads as fire breaks and for access
- Commercial thinning
- Keep deciduous stands and components on the landscape
- Low flammability as an objective
 - Low surface fuel
 - Herbaceous or brushy understory
 - High Crown Base Height
 - Reduced Crown Bulk Density

Widespread Thinning

- Can Northern European practices give us some hints?



Questions?

