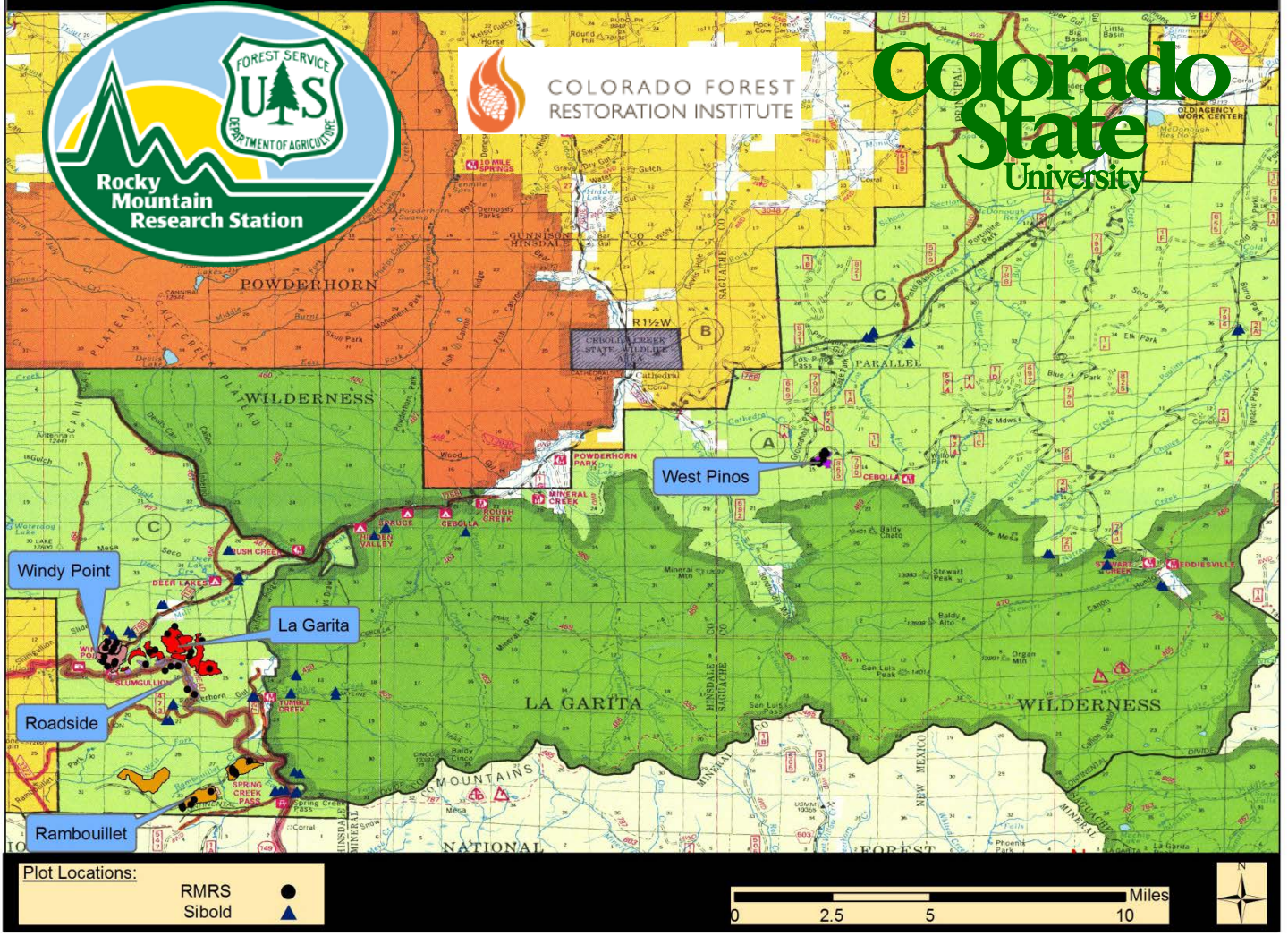
SBEADMR 2015 Monitoring Units



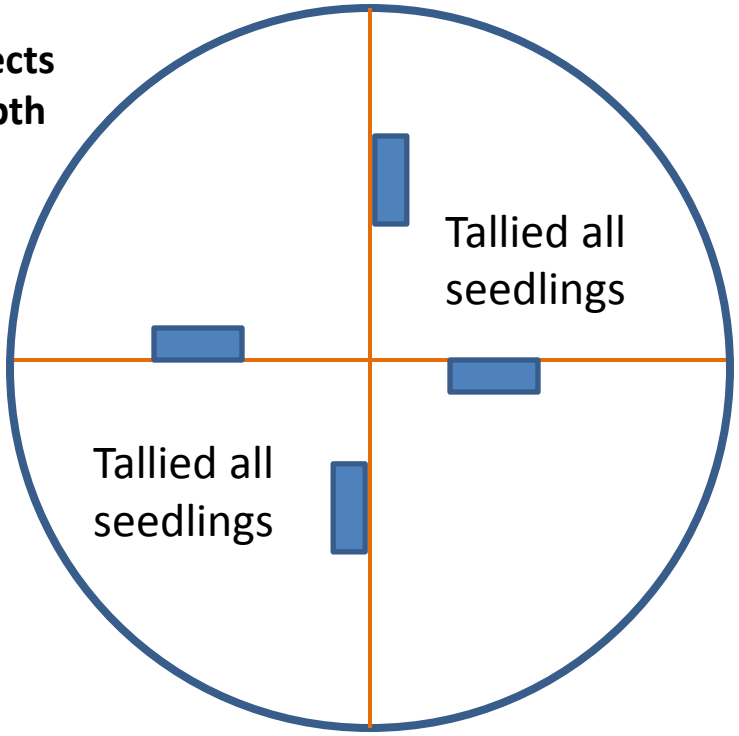
Previously Harvested Sites – RMRS plots installed 2015

Site	Forest type	Control	PRE-TRT	POST- TRT
LaGarita	Spruce	4	4	→
Rambouillet	Spruce		5	→
	Spruce-fir		5	→
	Spruce-Aspen		4	→
Roadside	Spruce	3	3	Cut late 2015
West Pinos	Spruce	3		3 (cut 2014)
Windy Point	Spruce	5		5 (cut 14/15)

Questions: Contact Mike Battaglia, Research Forester, mbattaglia@fs.fed.us

Plot set-up and Measurements

Full plot size: 0.05 Hectare (0.12 acres)



Coarse Wood Transects and Forest Floor depth

Trees > dbh

On entire plot

- Species
- Diameter
- Status (live/dead)
- Agent of death
- Cone presence
- Subset of ages

Seedlings (< dbh)

On NE and SW quadrat of plot

- Species
- Height class
- Age category (<5 yrs or >5 yrs
- Damage

Substrate subplot

- Litter
- Rock
- Woody material
- Soil
- Moss
- Stump
- Vegetation

Microsite for seedling establishment

15 Spruce seedlings per quadrat

Same categories as substrate subplots

Distance and identification of ‘nurse’ objects

Previously Harvested Sites – Mortality Levels					
		Basal Area		Trees per acre	
Site	Forest type	% Spruce Mortality	% Mortality all trees	% Spruce Mortality	% Mortality all trees
LaGarita	Spruce	99.7	97	73	51
Rambouillet	Spruce	99.7	97	76	73
	Spruce -fir	99.5	83	71	49
	Spruce -Aspen	99.3	71	70	47
Roadside	Spruce	99.7	99.7	79	79
West Pinos	Spruce	99.1	99.1	48	48
Windy Point	Spruce	99.6	97.4	76	73

Some Highlights

- In pure Spruce stands, Engelmann Spruce mortality exceeds 99% on a basal area basis, but only 48-79% on a tree density basis
- In areas with a mixture of tree species, Engelmann Spruce mortality exceeds 99% on a basal area basis, but only 70% on a tree density basis
- Lower mortality values based on trees per hectare and high values based on basal area indicate larger trees are impacted and there are still smaller trees for the next forest

LaGarita- Trees > DBH: Spruce/Spruce

>DBH	Spruce		Subalpine Fir		Aspen	
	Live	Dead	Live	Dead	Live	Dead
Basal Area (ft2/ac)	0.65	196	4	1.1	0	0
Trees per ac	169	463	261	10	0	0

LaGarita- Regeneration density (per acre)

Spruce		Subalpine Fir	Aspen
< 5 yrs	> 5 yrs		
69	232	179	0

Roadside - Trees > DBH: Spruce/Spruce

>DBH	Spruce		Subalpine Fir		Aspen	
	Live	Dead	Live	Dead	Live	Dead
Basal Area (ft2/ac)	0.61	222	0	0	0	0
Trees per ac	246	898	0	0	0	0

Roadside- Regeneration density (per acre)

Spruce		Subalpine Fir	Aspen
< 5 yrs	> 5 yrs		
45	273	7	0

Rambouillet-Trees > DBH: Spruce/Spruce

>DBH	Spruce		Subalpine Fir		Aspen	
	Live	Dead	Live	Dead	Live	Dead
Basal Area (ft2/ac)	0.5	150	0.44	0	2.2	1.7
Trees per ac	154	494	8	0	2.7	16.2

Rambouillet- Regeneration density (per acre)

Spruce		Subalpine Fir	Aspen
< 5 yrs	> 5 yrs		
76	467	20	50

Rambouillet-Trees > DBH: Spruce/Fir

>DBH	Spruce		Subalpine Fir		Aspen	
	Live	Dead	Live	Dead	Live	Dead
Basal Area (ft2/ac)	0.65	131	21	5	0	0
Trees per ac	143	355	219	11	0	0

Rambouillet- Regeneration density (per acre)

Spruce		Subalpine Fir	Aspen
< 5 yrs	> 5 yrs		
64	360	932	0

Rambouillet-Trees > DBH: Spruce/Aspen

>DBH	Spruce		Subalpine Fir		Aspen	
	Live	Dead	Live	Dead	Live	Dead
Basal Area (ft2/ac)	0.7	94	2.8	0	24	11
Trees per ac	176	419	138	0	81	85

Rambouillet- Regeneration density (per acre)

Spruce		Subalpine Fir	Aspen
< 5 yrs	> 5 yrs		
70	455	169	512

Some Highlights- Areas that were harvested within past 30 years

- In pure Spruce stands, there is substantial amount of spruce advanced regeneration AND regeneration < 10 years old.
- In the Spruce/fir stands, spruce is regenerating but Subalpine fir densities are higher.
- In the Spruce/Aspen stands, both spruce and aspen are regenerating at high densities

West Pinos-Trees > DBH: Spruce/Spruce

>DBH	Spruce		Subalpine Fir		Aspen	
Control	Live	Dead	Live	Dead	Live	Dead
Basal Area (ft2/ac)	1	116	0.13	0	0	0
Trees per ac	445	408	2.7	0	0	0
Salvaged in 2015	**Live**	**Dead**	**Live**	**Dead**	**Live**	**Dead**
Basal Area (ft2/ac)	0.50	29	0	0	0	0
Trees per ac	60	221	0	0	0	0

West Pinos- Regeneration density (per acre)

	Spruce		Subalpine Fir	Aspen
	< 5 yrs	> 5 yrs		
Control	202	275	1.2	0
Salvaged in 2015	139	131	2.7	0

- Salvage left some small advanced regeneration and some larger standing snags
- New spruce regeneration exceeds minimum requirements

Windy Point-Trees > DBH: Spruce/Spruce

>DBH	Spruce		Subalpine Fir		Aspen	
Control	Live	Dead	Live	Dead	Live	Dead
Basal Area (ft2/ac)	0.9	181	4	trace	0	0
Trees per ac	317	549	117	3	0	0
Salvaged in 2015	**Live**	**Dead**	**Live**	**Dead**	**Live**	**Dead**
Basal Area (ft2/ac)	0.5	11	trace	trace	0	0
Trees per ac	52	162	6.5	1.6	0	0

Windy Point- Regeneration density (per acre)

	Spruce		Subalpine Fir	Aspen
	< 5 yrs	> 5 yrs		
Control	181	314	90	0
Salvaged in 2015	0.8	41	20	0

- Salvage left some small advanced regeneration and some standing snags
- New spruce regeneration low, but combined with advanced regeneration meets minimum requirements