

A silhouette of a forest of evergreen trees, with the text 'CALIFORNIA FORESTRY CHALLENGE' overlaid in white, bold, serif font.

CALIFORNIA FORESTRY CHALLENGE

El Dorado County Board of Supervisors 2015

The California Forestry Challenge is an academic competition for high school students in technical forestry and current forestry topics.

The four-day events are held throughout California.



• **Shasta**
Sept. 23 - 26

• **El Dorado**
Oct. 14 - 17

• **Santa Cruz**
Nov. 4 - 7

• **Sequoia**
Oct. 7 - 10

• **San Bernardino**
Nov. 18 - 21

Five events in the fall of 2015

390 students attended statewide



CALIFORNIA FORESTRY CHALLENGE

Goal #1: Teach students about forest ecology, natural resources and environmental stewardship by providing them with a hands-on learning experience in a real-world setting.



Larry Duysen, Sierra Forest Products Sequoia Forestry Challenge



Mike Garcia, Fruit Growers Supply Co. San Bernardino Forestry Challenge



Frank Barron, Crane Mills Shasta Forestry Challenge

CALIFORNIA FORESTRY CHALLENGE

Goal #2: Give students the opportunity to interact with natural resource professionals including foresters, hydrologists, soil scientists, wildlife biologists, and fire scientists.



CalFire



US Forest Service



NOAA

CALIFORNIA FORESTRY CHALLENGE

Goal #3: Provide an opportunity for a diverse student population to learn together, play together, and enjoy the forest.



2015 El Dorado

88 students * 18 teachers * 11 schools



Focus Topic – Students recommended possible treatment for a 25-year old even-aged plantation in the Camino District of Sierra Pacific Industries.



Future Development of Stand in String Canyon Tract

Presented by

Alex Schwagerus, Megan McFarlin,
Quaid Moore, Alex Osowski, and Chris Rudfelt

Outline

- **Current Situation**
- Objectives of Future Treatment
- Procedure
- Option Evaluation
- Professional Input
- Final Plan

Current Situation

- 25 year old growth stand planted in 1991 near Grizzly Flats
- Current condition creates high fuel load
- Located near main road
- Dry south facing slope
- Wildland Urban Interface
- Pre Commercially thinned at year 7
- Pruned at year 8

Outline

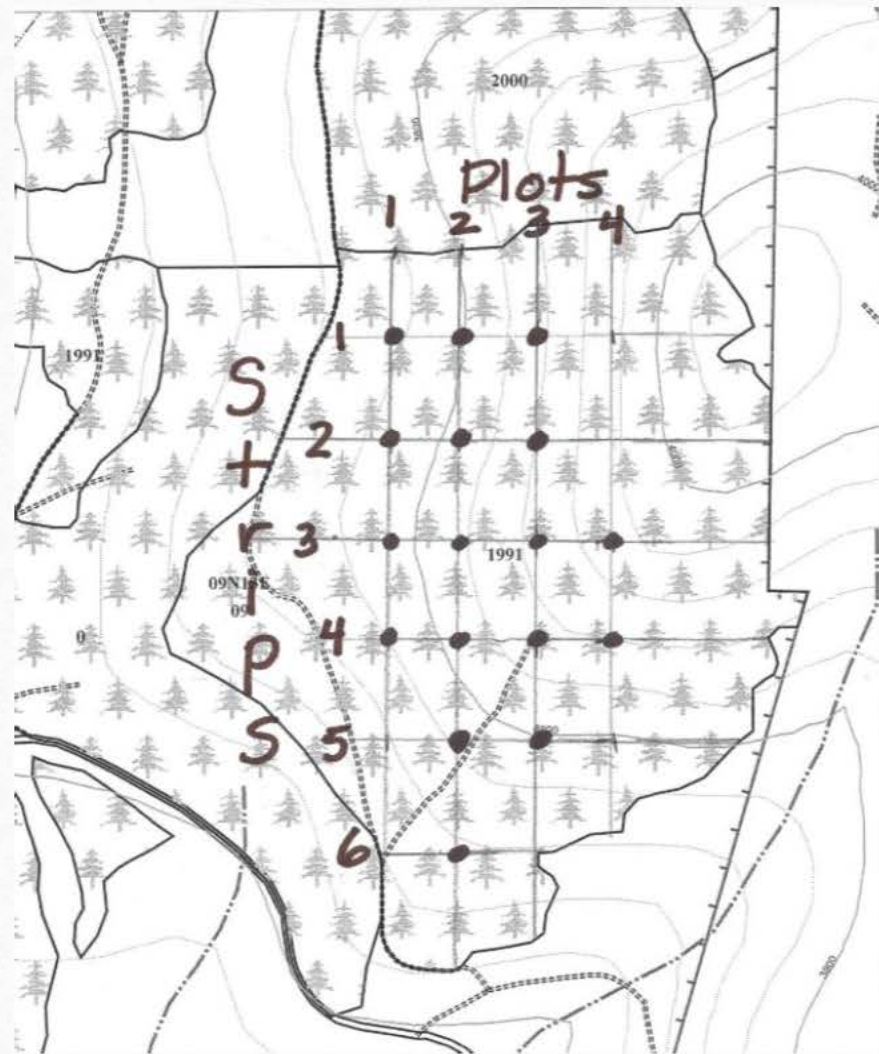
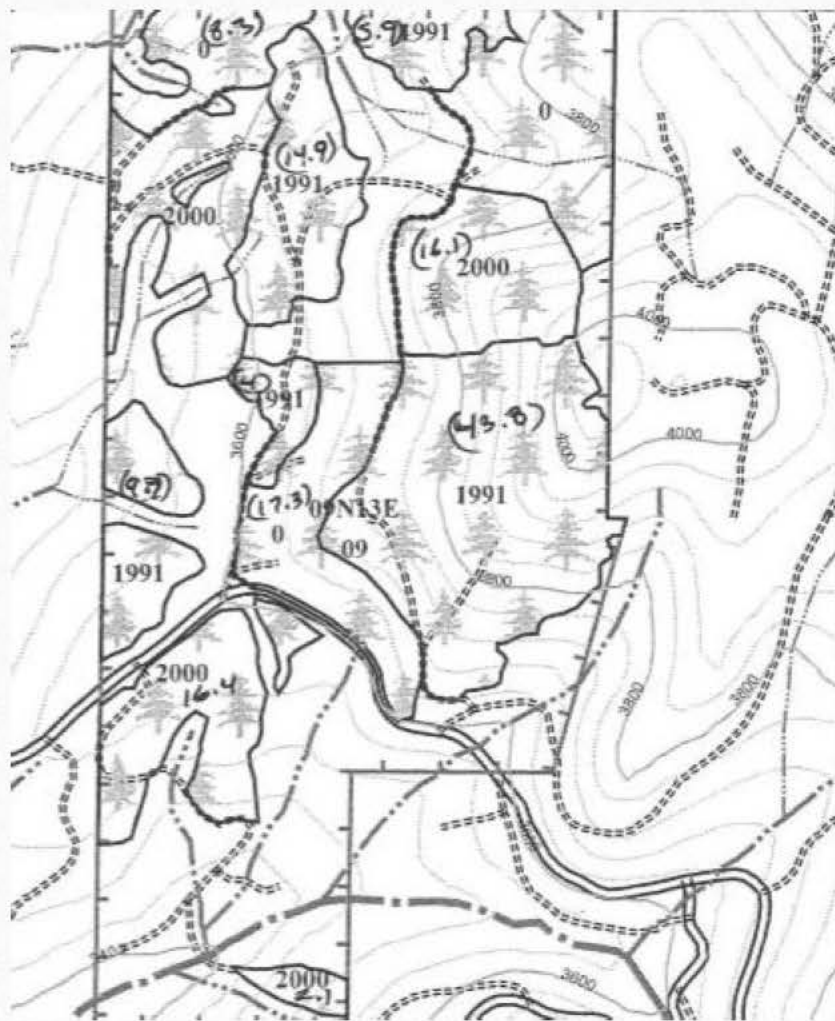
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Objectives for Future Treatment

- **Maintain Optimum Growth**
- **Reduce Hazards (Fire and bark beetle infestation)**
- **Stay within treatment budget of \$350 per acre**

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Procedure

Trees in your plot: 13

X 10 = 130 trees per acre

diameter at breast height, which is 4 ½ feet off the ground on the uphill side of the tree. Record your diameters here:

10.9 First tree 13.4 Second Tree

12.4 Third Tree 14.2 Fourth Tree

14.8 Fifth Tree _____ Sixth Tree

Average Diameter for all trees measured: 13.14 inches dbh

Step 2 – Use an angle gauge to measure basal area. Hold the end of the chain at your eye, stretch out the chain, and count every tree that is wider than the short side of the plastic at breast height (4 1/2 feet above the ground). Multiply your number by 20 to get the basal area in square feet per acre.

Trees “in” 5 X 20 BAF = 100 sq. ft. / acre





We pined over this data fir-ever!

Team #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		totals/avg.
Strip	3	5	4	4	3	1	2	3	3	4	2	2	5	1	6	1	4		
Plot	1	3	3	1	2	1	2	3	4	4	3	1	2	3	2	2	2		
Trees per Acre	90	120	120	170	110	130	130	200	70	140	140	140	160	120	90	160	130		130.6
Basal Area	40	140	100	120	140	140	160	100	120	140	200	180	80	140	80	140	100		124.7
Average Diameter	13.14	11.7	13.7	13.7	12.56667	13.28333	13.36667	13.7	13.21667	13.7	14.98333	11.18	12.96667	12.56667	13	12.66667	12.93333		13.1
% Canopy			88		66	77			60	67									71.6
Average Total Height	47.5	43.33333		58.83333				42			57.3					57.57143			51.1
Average Merch Height	31.5	36.33333		45				33.75			42.6					39.71429			38.1
Fuel Gap							2.64						33.74	4.52375	5.475	1.3		1.32	8.2

Results

Location	Height of surface fuel (ft)	Height of bottom of canopy(ft)	Distance between (ft)
Center	.5	6.6	6.1
Transect 1 10 feet	5	3.9	-1.1
Transect 1 20 feet	6.6	2.9	-3.7
Transect 1 30 feet	4.9	4	-0.9
Transect 2 10 feet	4.7	4.1	-0.6
Transect 2 20 feet	3.7	4.1	.4
Transect 2 30 feet	4.9	6.5	-1.6
Transect 3 10 feet	.3	5	4.7
Transect 3 20 feet	3.5	2.5	-1
Transect 3 30 feet	3.3	5.3	2.0
AVERAGES	3.74	4.49	.43

*This Data made us
nearly soil our birches!*

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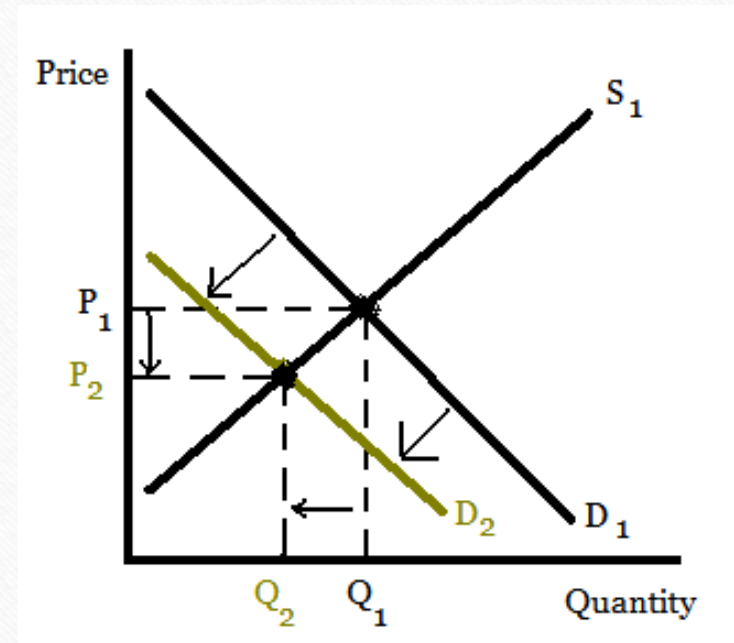
Options Considered: Commercial Logging

- Pros:
 - Profitable for short term
 - Reduces fire hazard
 - Reduces competition
- Cons:
 - Loses money in the long run
 - Not necessary unless trees are immediately threatened by fire

*We think we'd be
barking up the wrong
tree*

Option Considered: Biomass

- Pros:
 - Permanently removes ground fuel
 - Maintains optimum growth
 - Can be used to create more energy
- Cons:
 - Expensive (\$380 net cost)
 - Labor intensive



Options Considered: Mastication

- Pros:
 - Promotes optimum growth
 - Reduces fire hazard
- Cons:
 - Very expensive (\$500 per acre)
 - Hard to carry out on the terrain
 - Not needed for this area

*We thought we would leave
this one for later*

Options Considered: Lop and Scatter

- Pros:

- Inexpensive (\$80 per acre)
- Takes out fuel ladder
- Short time span to complete (at 3 acres per day, it will take about 2 weeks)

- Cons:

- Fuel isn't removed from area

We'll do this for sure!

Options Considered: Pruning

- Pros:
 - Cheapest option available (\$55 per acre)
 - Reduces fire hazard
 - Takes out fire ladder
- Cons:
 - Doesn't promote optimum growth

*We thought we should branch
off of our last idea...*

Then we dug deeper.....

Options Considered: Prescribed Burn

- Pros:
 - Reduces chances of crown fires
 - Less expensive for entire plot (\$232 per acre)
- Cons:
 - Hard to control fire on steep terrain
 - So much fuel that it would be hard to control even small fire
 - Smoke hazard to the public
 - Small window of opportunity
 - Possibility of soil erosion

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We were forest to conclude that...

Five Year Plan

- Year One:
 - Pruning (\$55 per acre)
 - Lop and Scatter (\$80 per acre)
- Year Two:
 - Observe and give fuel time to deteriorate
- Year Three:
 - If conditions are appropriate, Prescribe Burn on flat property (\$232 per Acre)
- Year Four:
 - Observe fire recovery and monitor for disease and bark beetle infestation
- Year Five:
 - Reevaluate stand for commercial thinning or further action

Results

- Total cost is \$367 per acre (\$15,781 total)
 - \$17 over budget per acre (\$731 total over budget)
- preserves and promotes optimal growth
- Prevents fire in the long run
- Secures profits in the long run without thinning

*Too bad these prices aren't
incense*

The Teams



Thank you!

- Diane Dealey Neill
- Resource Conservation District Board