2025 Santa Cruz Focus Topic:

Post Fire Forest Health Assessment in Butano State Park

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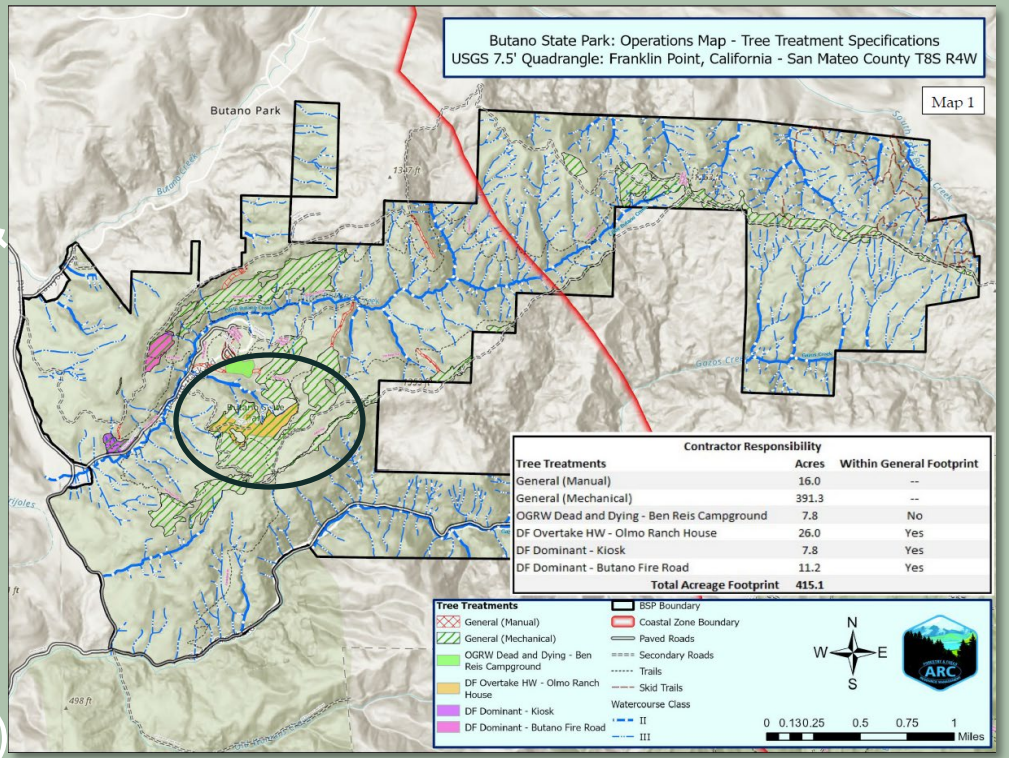
INTRODUCTION: BUTANO STATE PARK

Butano State Park History

- Located between Santa Cruz & Half Moon Bay
- 4,000 acres
- Previously managed & inhabited by the Quiroste (Ohlone) tribe.
- Acquired by California State Parks in 1956 (protected since)
- Recreation: picnicking, hiking, and camping



Primarily consists of **second growth trees**

Information sourced from “2025 Santa Cruz Forestry Challenge Topic Question”

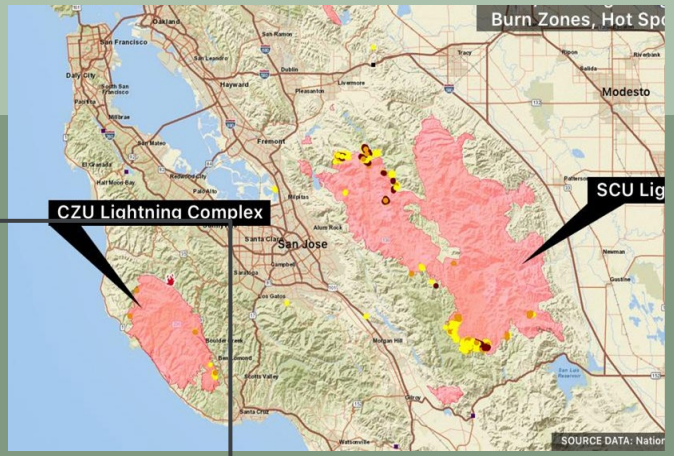
Forest Types and Conditions

- Redwood/Douglas-Fir Forest
- Coastal Grassland
- Alder Woodland
- Oak Woodland
- Vernal Wetland
- Chaparral

“A diverse problem, needs a diverse solution”
– RPF David Vanlennep, Auten Resource Consulting

CZU Lightning Complex Fire

In 2020, the CZU lightning complex fire burned over **2800 acres** in the Santa Cruz mountains



Butano State Park Ecological Damage

- Fire damage to trees
- Low damage to moderate damage: some tree salvageable
- Heavy fire damage: dead vegetation

Methods

- Mastication: mechanical thinning
- Prescribed burns: controlled fire

Butano State Park Forest Health Project

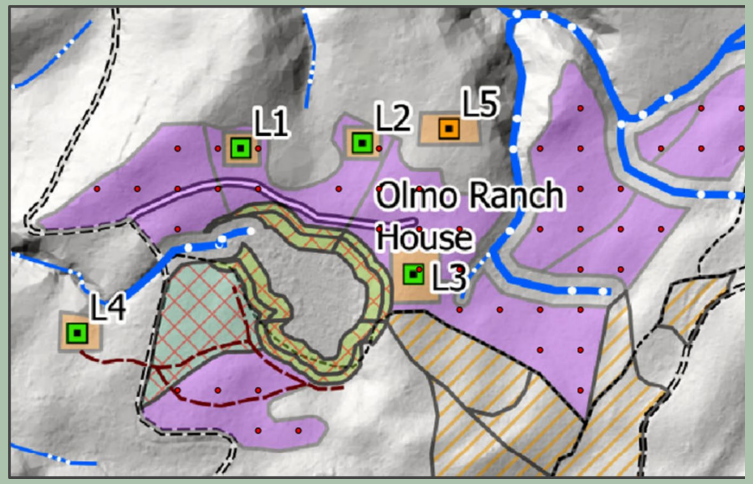
Manage the post -fire forest through manual and mechanical thinning of Douglas -fir trees.

PRIMARY GOALS

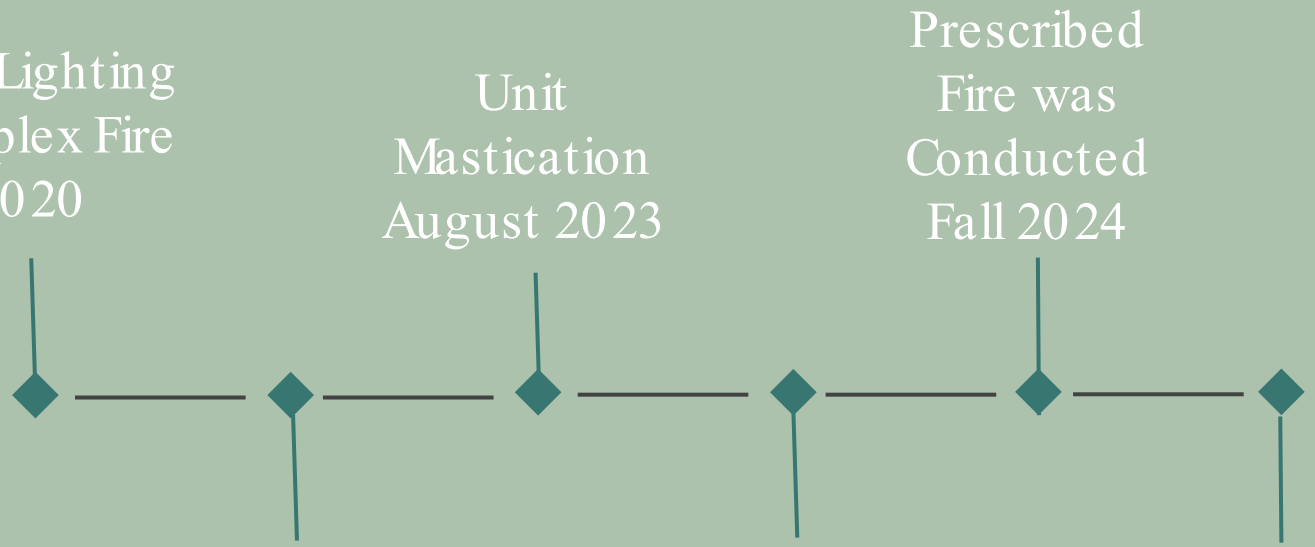
1) **Reduce**
   - Overly dense vegetation
   - Continuity and density of Douglas-fir stand
2) **Maintain Forest Diversity**
   - Promote residual hardwoods and redwood
   - 8- 16” diameter class
3) **Promote Long-term Health**
   - Reduce understory density

Olmo Ranch Unit

- Area of Butano State Park
- 20.8 acre area
- Consists of mixed Douglas fir, coastal redwood, and oak stands.
- Underwent Butano State Park Health Project



Olmo Ranch Timeline



October 2023

- The Unit received an understory thin
- Trees 8-12” will be chipped and to a depth of 6”
- Logs of 12-16” will be skidded to be decks
- 4 trees per acre 16-36” may be left on the ground

Project focused on removal of a Douglas-fir’s over profit to return it to natural oak and redwood forest conditions

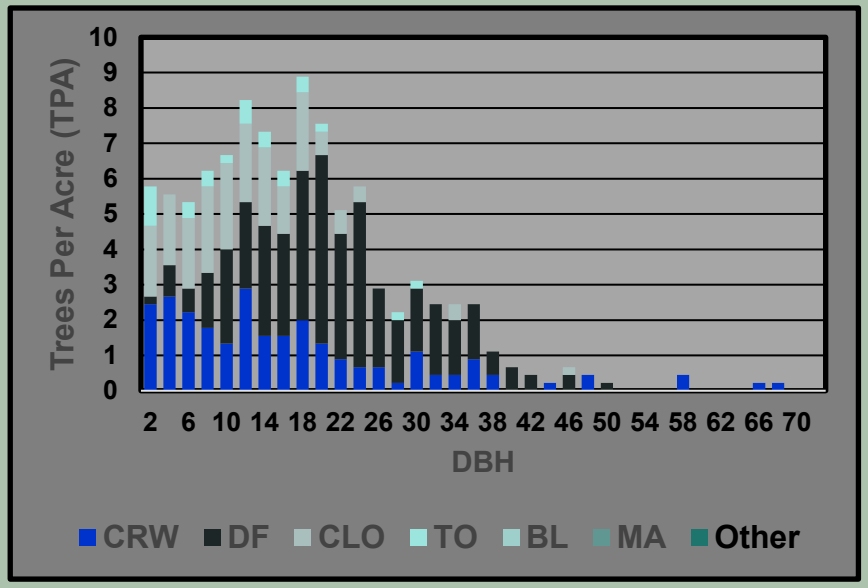
METHODOLOGY: PROJECT DATA COLLECTION

Data Collection Techniques

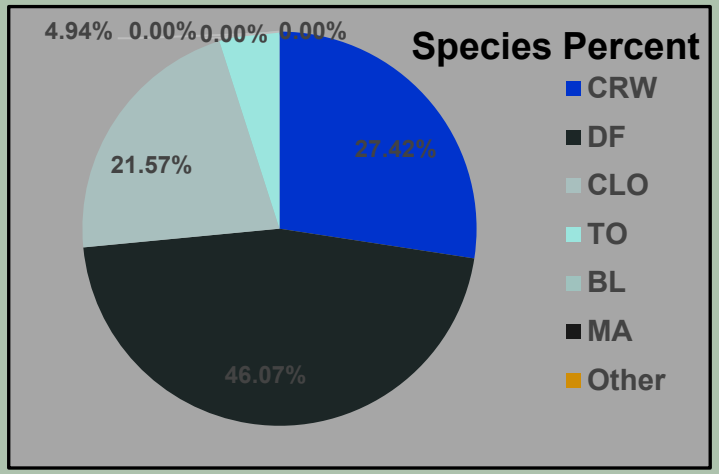
- **Diameter tape** – Used to measure plot and tree diameter
- **Angle Gauge**– Used to determine the number of trees “in” to calculate basil area
- **Increment Borer** – Used to see a trees growth rate
- Sapling Count
- Health determination

PROPOSED SOLUTION: A THREE STEP PLAN

Results of Data Collection



- Low number of new Douglas-fir growth
- Greater number of Douglas-fir in the 14-24” DBH class.



High Douglas-fir % in overall composition

Source: SC 25 Cruise Results

RESULTS		
TOTAL TPA		99
LIVE BASIL AREA BY DBH		233
Scribner Bd Ft/Acre		35,985
Increment Borer		
Last 5 years		0.86
Prior 5 years		0.95
Basal Area with Angle Gauge		
179		
Seedlings/Acre		136.4
Dead Trees/Acre		
Standing	12.4	
Grounded	6.7	

- 69% of trees were healthy
- 31% were ailing

→ Growth drop since after project

→ Need to preserve and assist

→ Burning speeds up nutrient cycling.

“Initially wanted to cut more of the trees.”

- David Vanleppen a RPF, works for Auten Resource Consulting

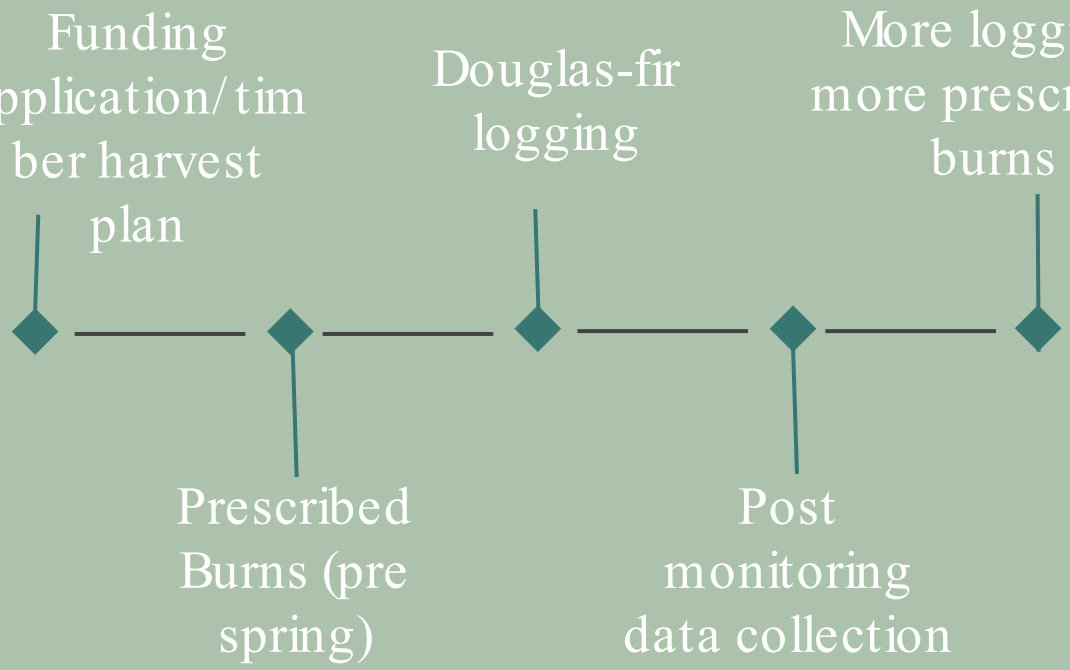
EVALUATION: THE BUTANO STATE PARK FOREST HEALTH PROJECT

- Short-term – successful

Issues:

- To harsh
- Douglas-firs will repopulate in just a few decades

Treatment Plan



Timeline: roughly 45 years

- Apply for a timber harvest plan (approx. 1-2 years)
- Logging of 14-24 inch Douglas-firs three times, each 15 years apart
- Prescribed burns every 10 years
- Data collection every 3-5 years, reassess if plan is working

Phase One:

Prescribed Burns

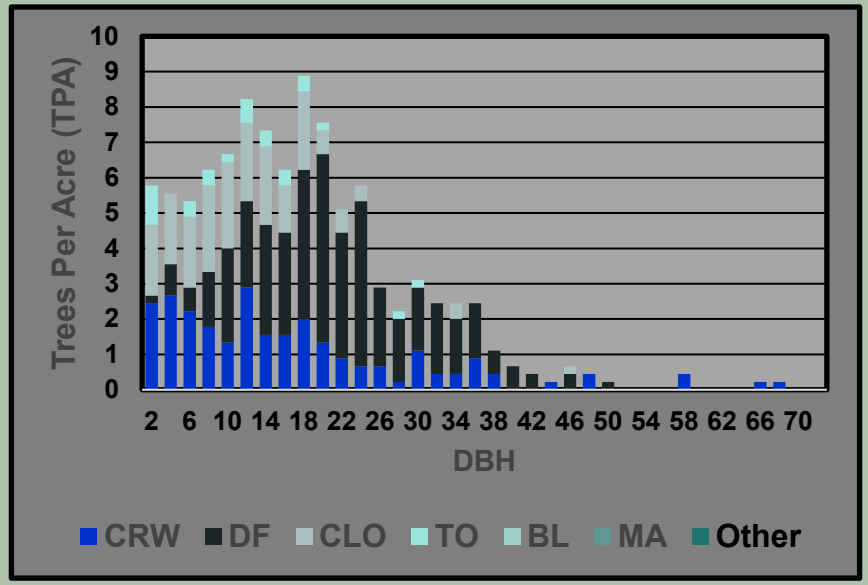
- Gives redwoods competitive advantage [due to them being more fire resistant]
- Every 10 years
- Reduces understory, preventing future fires and getting rid of Douglas-fir

Phase Two:

Logging

- Removal of Douglas-firs 14-24 inches (growth between saplings and mature)
- Approx. 1/3 of Douglas-firs in dense areas
- Use profit to further fund project

As Register Professional Forester David VanLennep pointed out, the range of 14 to 24 inch Douglas-firs is the “sweet spot” to log



Phase Three:

Monitoring

- Every 3-5 years
- Determine the ratio of Douglas-firs to other species
- Assesses the effectiveness of our project

Financial Barriers

- Payment of Logging Operations
- Continued funding of prescribed burns
- Hiring RPFs
- 45 year monitoring program

Proposed Actions

- San Mateo Resource Conservation District Continued funding
- THP CalFire Forest Health Grant ($500K - $1mil)
- Reinvestment of Douglas-fir logging money ($600 per BF)

“Post monitoring will cost less than the initial funding inputted into the project and will be achievable within less than a year.”

-Walter Ruzzo, CAFEs Dean’s advisory Council member, CalPoly.

Funding Allocations

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Prescribed Burning

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Logging of Douglas -firs

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Post Monitoring Treatment

Post Monitoring Treatment Goals

- Mitigate future conditions (e.g. wildfire safety) to meet forest health conditions
- Transparency to public
- Comparisons with prior collected data to understand magnitude of changes between years
- 45 year treatment plan

THANK YOU!