Decay Rates and Fire Behavior of Woody Debris in Coastal Redwoods

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Critical Monitoring Questions and Rules Addressed

Critical Monitoring Questions

1. Are the FPRs and associated regulations effective in managing fuel loads, vegetation patterns, and fuel breaks for fire hazard reduction?

2. Are the FPRs and associated regulations effective in treating post-harvest slash and slash pile to modify fire behavior?

Rules Addressed

1. 14 CCR 917; Hazard Reduction
2. 14 CCR 912.9; Cumulative Impacts Assessment Checklist (Wildfire Risk and Hazard)
3. Board of Forestry and Fire Protection Technical Rule Addendum No. 2 cumulative Impacts Assessment (H. Wildfire Risk and Hazard)

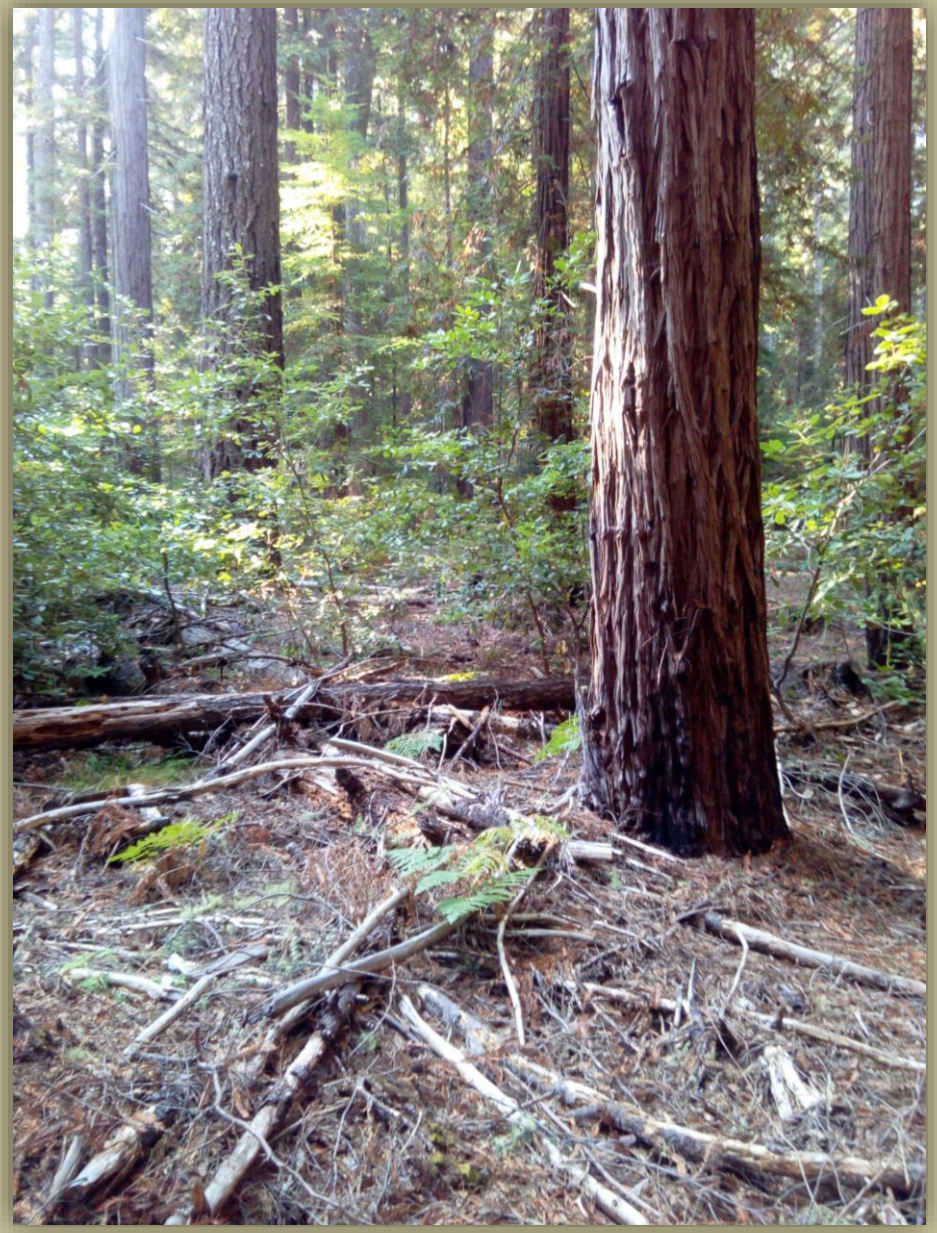
Research Questions

1. How does the composition of post-harvest fuel loads change over time and affect fire behavior?

2. How does decayed/decaying redwood/Douglas-fir interact with fire behavior?

3. What are the decay rates for coast redwood and Douglas-fir?

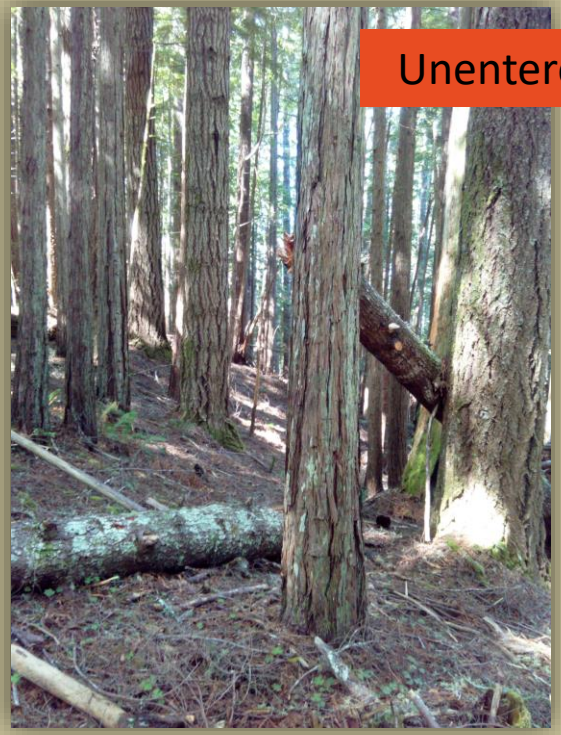
4. How do the fire models correlate with actual fire behavior?



Project Pivot

Comparing Harvested Stands to Unentered 2nd Growth Stands

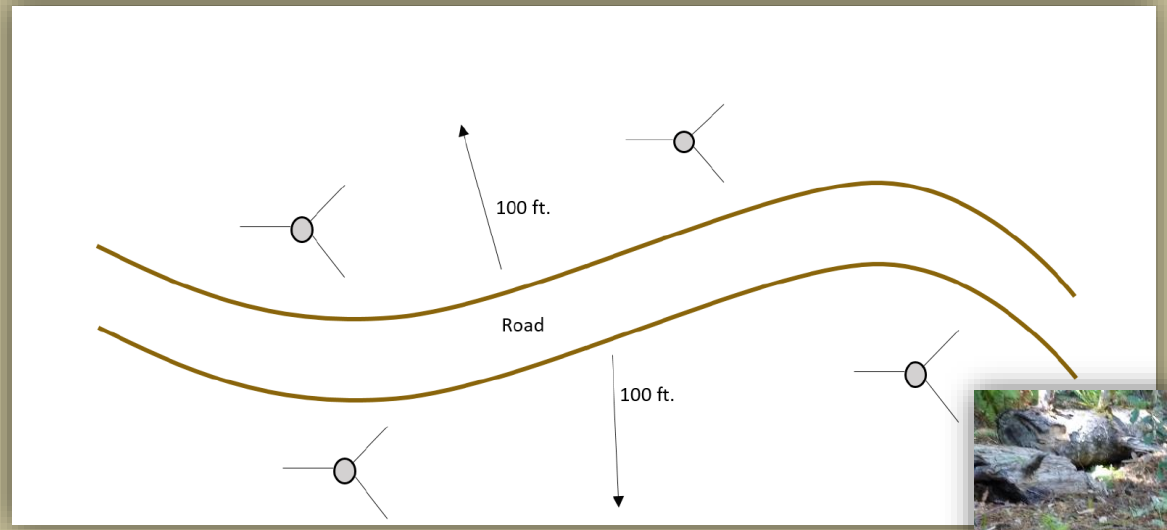
- ‘Naturally occurring’ inputs of woody material
- Needed to compare fire behavior in a system without treatments to determine treatment effectiveness.



Unentered 2nd Growth

Harvested

Field Work



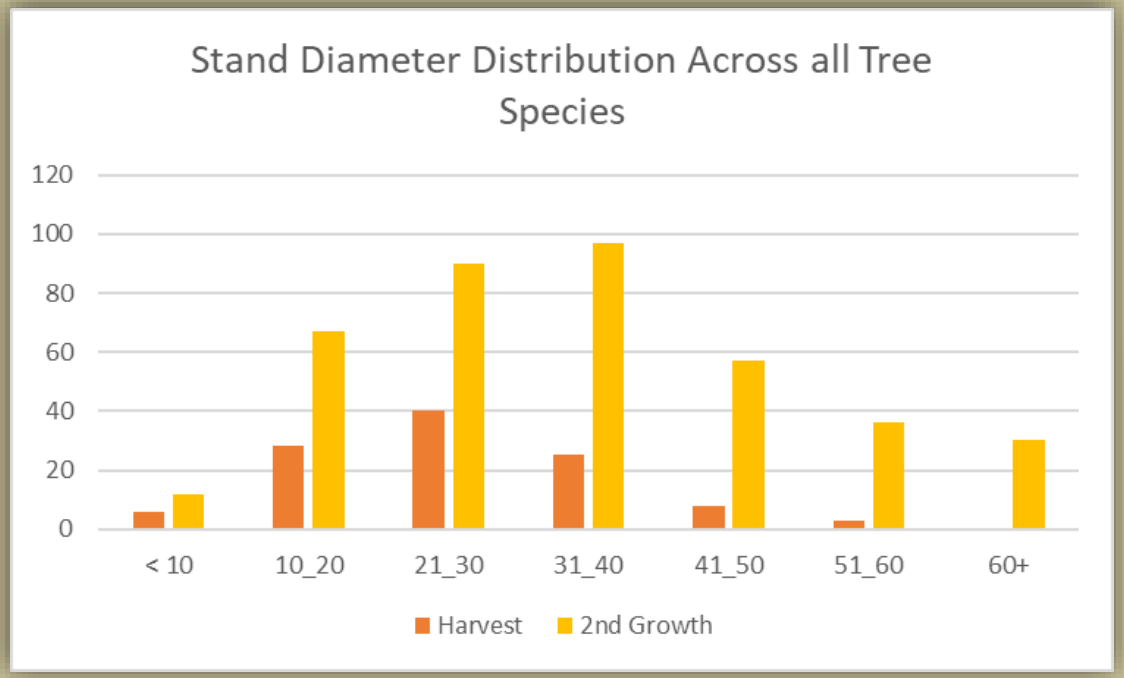
Field Observations and Preliminary Analysis

Fuel loading

	Harvest Stands	Unentered 2nd Growth Stands
Average 1 Hour *(ton/ac)*	0.55	1.42
Average 10 Hour *(ton/ac)*	1.29	1.19
Average 100 Hour *(ton/ac)*	2.37	1.70
Average 1000 Hour Sound *(ton/ac)*	23.01	12.10
Average 1000 Hour Rotten *(ton/ac)*	12.80	24.28
Average Litter Depth *(in)*	1.26	1.03
Average Duff Depth *(in)*	1.10	1.34
Average Fuel Bed Depth *(in)*	5.70	4.97

Field Observations and Preliminary Analysis

Stand Characteristics



** Harvest Data is missing some plots due to the field data not being entered yet.

Regeneration

- Harvested Stands had more Redwood regeneration than Unentered 2nd Growth Stands
- Tan Oak appears to be the predominate regenerating species in Unentered 2nd Growth Stands

Field Observations and Preliminary Analysis

Surface Cover

	Harvest Stands	Unentered 2nd Growth Stands
Soil	0.81	0.65
Litter	48.63	46.50
Rock	0.00	0.00
Slash	13.19	25.29
Grass	1.34	0.38
Forb	6.94	2.76
Shrub	15.81	7.12
Tree	13.25	17.29

Next Steps

<u>Timeline</u>

Now – March 2025

- Decay sampling and processing
- Finish data collection and data entry
- Analysis and Modeling

April 2026 – July 2026

- Analysis and Modeling
- Writing

Thank you
Questions?

<u>Thank You To:</u>

- Bella Zahra – SRA II – field help
- Paolo Solari – field help
- Sophia Porter – field help
- Landowners who allowed me access to their properties