Assessing Seed Density of Blue Wildrye (*Elymus glaucus*) for Restoring Native Flora in Burn Pile Scars in Northern California

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Introduction

This thesis explores the addition of native *Elymus glaucus* seeds to burn scars from pile burning to promote native flora recovery. In fall 2023, piles (1.5m x 1.5m) of understory species were burned. In December 2023, four seed densities (0g, 0.5g, 1.0g, 1.5g) were applied to quadrats in the center of each burn scar. In May 2024, above-ground biomass was collected and weighed. Tukey tests revealed significant biomass differences between seed treatments and controls. Results show that adding *E. glaucus* seeds enhanced native vegetation biomass, supporting their use in post-fire restoration of oak woodlands.

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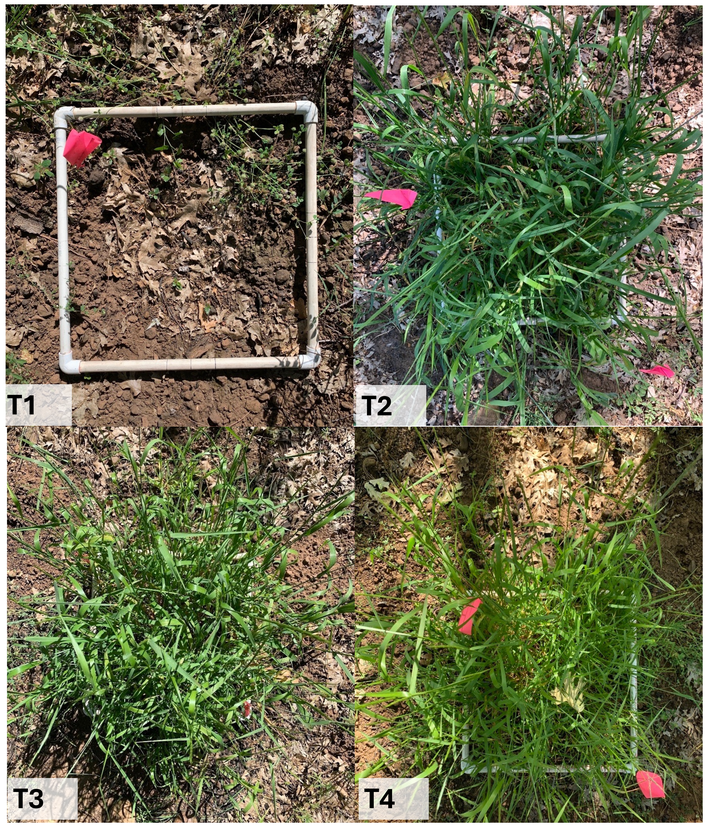
All Four Treatments Before Aboveground Biomass was Collected



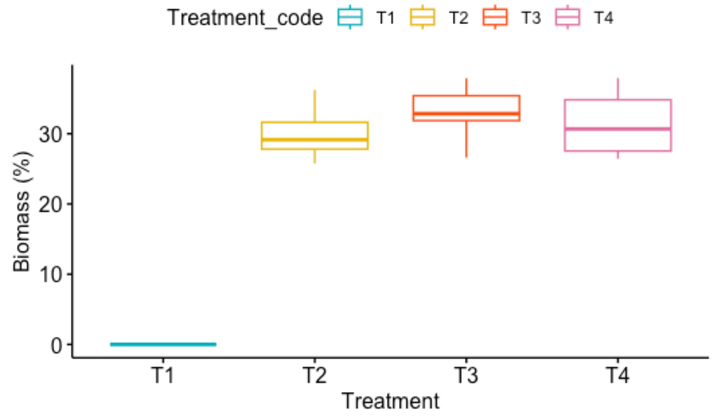
Methods

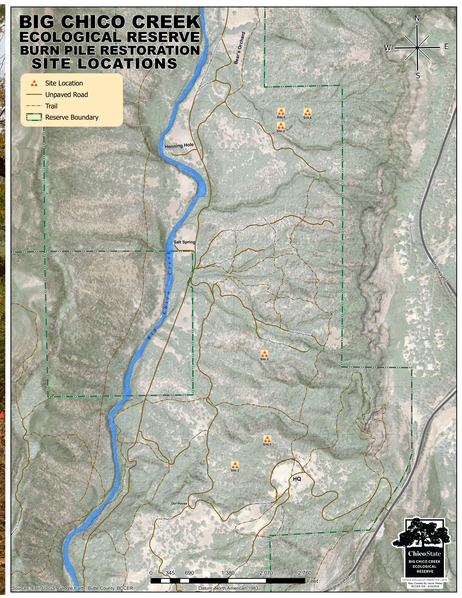
- Collect *Elymus glaucus seeds by hand*
- Build burn piles
- Burn the burn piles
- Plant four different treatments in the piles: control (no seeds), 0.5 g, 1.0 g, 1.5 g of seeds
- Clip above ground shoots from each burn scar and tale “fresh” weight in the field
- Dry at 60 ºC for ~48 hours, and weigh again to determine Biomass
- All statistical analysis was run in R Studio
  - ANOVA & Tukey HSD test

Mean Biomass (g)

Treatment Code	Difference in % Means (g)	Lower	Upper	P-Value
T2-T1	30.024	24.179	35.868	<<0.01
T3-T1	33.002	27.158	38.847	<<0.01
T4-T1	31.407	25.563	37.252	<<0.01
T3-T2	2.978	-2.856	8.823	0.498
T4-T2	1.383	-4.461	7.227	0.909
T4-T3	-1.595	-7.439	4.249	0.869

Plot of Mean Biomass vs. Treatment





Results

** **T1**: 0 g **T2**:0.5 g **T3**: 1.0 g **T4**: 1.5 g **

- Mean Biomass
  - All Treatments were significantly different from the control
  - T2, T3, and T4 were not different from each other
- Mean “Dry” Weight
  - T3 and T4 were significantly different from the control
  - T2, T3. and T4 were not different from each other

Conclusion

- Application of E. glaucus seeds had a positive outcome on the burn scars
- It is suggested to use no more than 0.5 grams per ¼ meter per square or 2 grams per meter squared