

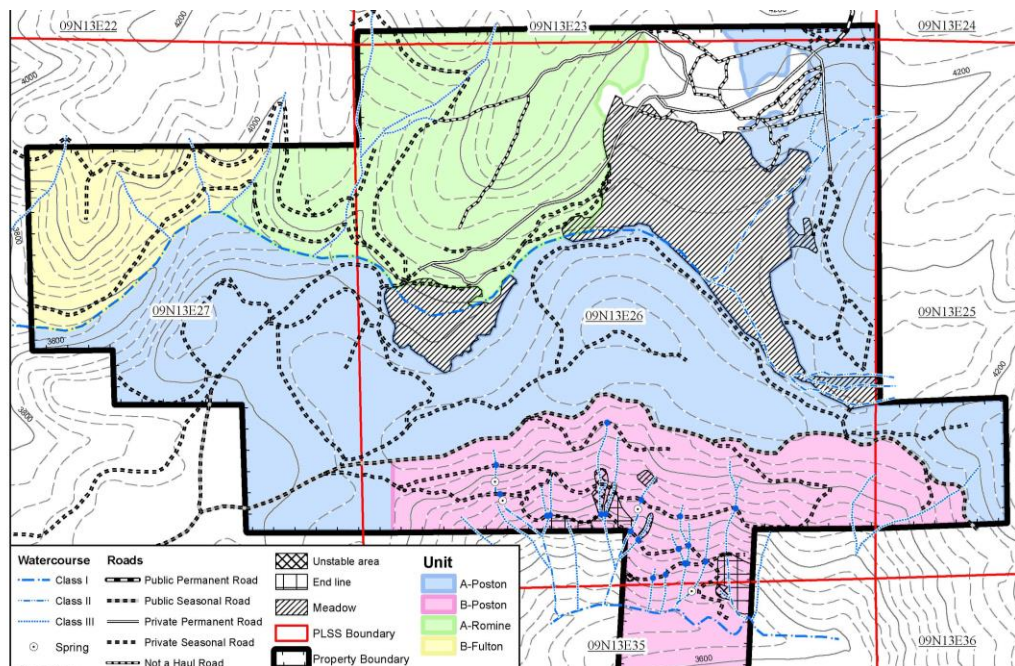
2022 EL DORADO FORESTRY CHALLENGE FOCUS TOPIC QUESTION

Introduction:

The focus topic for 2022 is ***Reforestation at Leoni Meadows***. Students will collect data in areas of the property where salvage logging is complete and formulate a reforestation plan to reestablish the forest in the wake of the Caldor Fire.

Focus Topic Fieldtrip Location:

We will collect data in shaded areas immediately adjacent to the two meadows at Leoni. Here is a map of Leoni Meadows with shading to indicate different stages of salvage logging:



Background Information:

Leoni Meadows

Leoni Meadows Camp is a 960-acre property purchased by the Northern California Conference of Seventh Day Adventists in 1974. Prior to this purchase, it was a working cattle ranch. Today, its primary use is as a recreation site, hosting conferences, retreats, and summer camp. The general area was logged extensively during the Gold Rush and into the 1930's. The last

commercial harvest operation at Leoni was done in 1995-1996, under a Timber Harvest Plan (THP). In 2018, Leoni Meadows hired a forestry consultant, Jefferson Resources Company, to manage the forest, and was planning a harvest project to thin the (live) trees.

Caldor Fire

The Caldor Fire began on August 14, 2021 and was contained on October 21, 2021. It burned 221,835 acres and destroyed 1,005 structures. A few days after it began, it burned through Leoni Meadows, with high intensity fire destroying nearly 100% of the trees on all but 40 acres of the property. It also destroyed many buildings on the property.

Forest Health Grant

The property owners, Northern California Conference of Seventh Day Adventists, applied for and received a Forest Health grant from the California Climate Investments fund, administered by CalFire. Forest Health grants fund active restoration and reforestation activities aimed at providing more resilient and sustained forests to ensure their longevity in California. The award was \$4,172,906 and the project description states, “fuels reduction and reforestation will be implemented on 882-acres of Leoni Meadows Camp, a community recreation and retreat center in El Dorado County that was burned in the 2021 Caldor Fire.” Leoni’s forestry consultant, Jefferson Resources Company, was already in place and designated to manage the logging and reforestation project.

Salvage Logging

Salvage logging began in Nov 2021 and is ongoing but nearly complete. Three logging companies were hired to work in various areas of the property and students will be viewing the operations during this event. Some logs were exported and some were sold locally.

Natural Regeneration

In spite of the near 100% tree mortality, some areas of the logged acreage at Leoni has recently sprouted seedlings. These seeds blew in from nearby live trees and are a mix of the five common conifer species, Douglas-fir (DF), white fir (WF), ponderosa pine (PP), sugar pine (SP), and incense-cedar (IC). Many of these seedlings will not survive but the ones that do could contribute to the replacement stand.

Seedling Order and Planting

Immediately after the fire, Jefferson Resources placed a “sowing order” for trees to be grown for planting on Leoni property. Below is a table with “Phase 1”, 570 acres that is scheduled to be planted in the spring of 2023. The remaining acreage may still be in the salvage process in the spring of 2023 and will be part of a sowing order intended to be planted in spring 2024.

Spring Planting 2023					
Acres	Species	Composition %	Trees per acre	Spacing in feet	Total Trees
570	DF	25%	49	15	28,125
	WF	10%	20	15	11,250
	PP	30%	59	15	33,750
	SP	25%	49	15	28,125
	IC	10%	20	15	11,250
			197		112,500

Although this is what was ordered, the incense-cedar is not available. Additionally, if natural regeneration will substitute for some of these ordered seedlings, they can be sold to other landowners who do not have trees to plant.

Vegetation Control

Various herbicides are available to apply to the landscape to control competing vegetation, which is mostly brush, but can also be thickets of naturally germinating seedlings that are too dense. They have different costs and different attributes. A summary is below:

Material	Rate per Acre	Price per unit	Price per acre
Cleantraxx	4 pts/ac	\$138.19/gal	\$69.10
Esplanade F	7 oz/ac	\$967.15/gal	\$52.89
Accord XRT II or equivalent	3 qts/ac	\$49.32/gal	\$36.99
Velpar DF	4 lbs/ac	\$29.63/lbs	\$118.52

Sugar pine and incense-cedar are sensitive to Velpar so it can't be used in areas where those species will be planted or are growing.

Where management activities are planned on a burned area with slopes greater than 30%, a minimum of 50% average effective groundcover is required to be documented prior to pesticide application. To address potential water quality concerns, documentation shall be provided to the Central Valley Regional Water

Quality Control Board in the pesticide notification 30 days prior to application. “Effective Ground Cover” means any combination of slash (lopped and in close contact with the ground), mulch (large wood chips, wood shreds, wood strand blends, straw, bark, surface rock fragments larger than $\frac{3}{4}$ inch), plants, and plant litter. Large wood chips are a minimum of 2 inches in length and at least four (4) times longer than they are wide.

Fieldtrip: On the afternoon of Thursday, October 13, your team will be assigned one or more 1/10 acre plots for data collection, and you will determine:

- The number and species of seedlings present
- The percentage effective ground cover

Items to be Addressed in Your Presentation:

Your presentation should address the following topics:

1. The location, size, and current use of Leoni Meadows
2. Summary of the Caldor Fire and its effect on Leoni Meadows’ forest
3. Efforts to salvage the burned trees and replant the forest
4. Natural versus artificial regeneration
5. Optimum trees per acre and species mix of naturally seeded and planted trees
6. Method of vegetation control and associated cost

Resources:

You will be given resources on a flash drive to load onto your team’s computer. Additionally, you can use photos you take during the fieldtrip and statements from foresters you work with and interview during Ask a Forester.

Final Product:

Your goal is to produce a 15-minute PowerPoint presentation that describes, in detail, the current forest conditions at Leoni Meadows and your plan to establish a new forest. You are encouraged to use photos and information collected on the fieldtrip, interviews with resource professionals during the Challenge, and the maps, tables, and information in the resources provided. Additionally, use the judges’ score sheet as a checklist, to make sure you cover the items on which you will be scored.