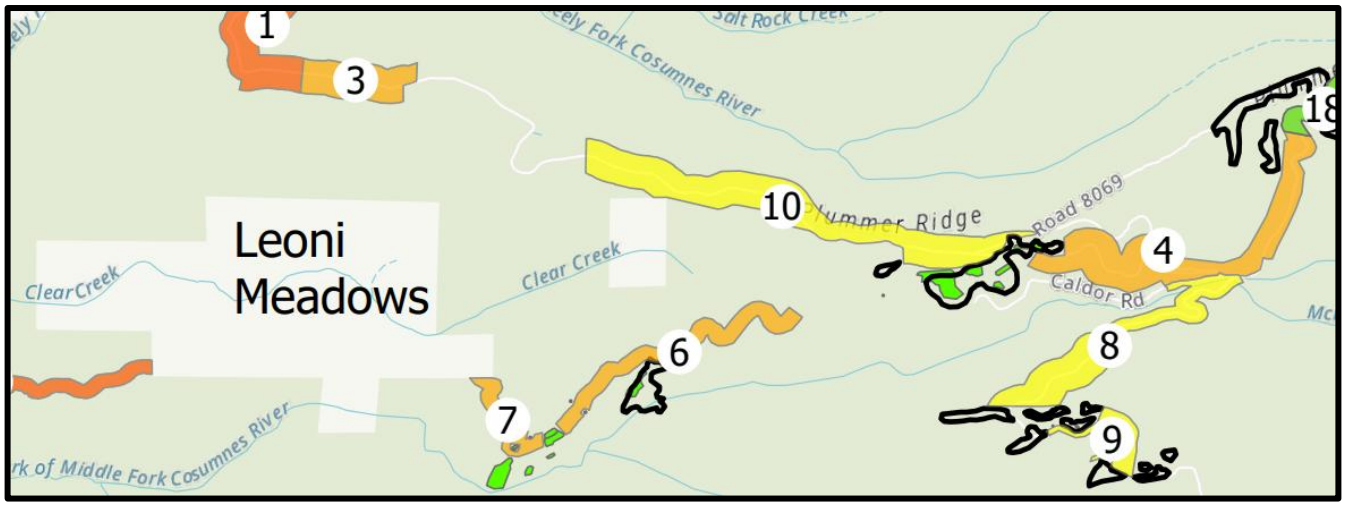
2025 EL DORADO FORESTRY CHALLENGE
FOCUS TOPIC QUESTION

Introduction:

The focus topic for 2025 is ***Fuelbreak Establishment After the Caldor Fire.*** Students will collect data in a unit of the Grizzly Flats Community Fuelbreak Project (GFFB) planted in 2024 that did not establish well and determine if interplanting is needed.

Focus Topic Fieldtrip Location:

We will collect data in Unit 4 of the GFFB, along Leoni Meadows Road:



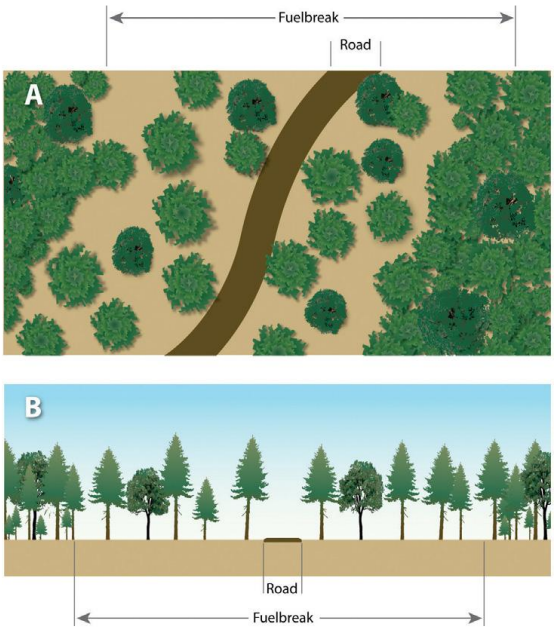
Background Information:

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. The community of Grizzly Flats sustained catastrophic damage, including the loss of 646 homes.

This community is still considered at risk due to the potential for reburns within the Caldor Fire burn area to the east as well as its proximity to unburned hazardous fuel conditions to the west. Current and foreseeable conditions necessitate intervention in order to mitigate present and imminent risks to the communities in and around Grizzly Flats. Establishing safe ingress and egress routes for the public and firefighters is a critical need.

Shaded Fuelbreak



A shaded fuelbreak is a strip of land where fuel (for example, living trees and brush, and dead branches, needles, or downed logs) has been modified or reduced to limit a fire's ability to spread rapidly. The desired conditions within a shaded fuel break are characterized by minimal surface and ladder fuel loading and reduced crown closure leading to a more open understory and overstory. In the event of a wildfire in the future, shaded fuelbreaks create an opportunity for wildland firefighters to construct wildfire control lines without the risk of injury due to falling dead or deteriorating trees.

Grizzly Flats Fuelbreak Project

The goals of the Grizzly Flats Community Fuel Break project (GFFB) are to limit the intensity and spread of future fires, provide opportunities for suppression and control, provide egress for Grizzly Flats area residents, provide ingress and egress for firefighters and first responders, and prioritize resilience of surviving tree stands and wildlife habitat.

While fuel breaks are commonly established in undisturbed areas by removing vegetation in order to decrease fuel levels and increase canopy separation, the GFFB is being established in a disturbed area to create safe routes for the public and firefighters. In this case, reforestation (planting) will be required in order to provide shade, a critical component of an effective shaded fuel break due to the inhibiting effect shade has on ground level vegetation growth as well as the cooling effect shade has on fuel conditions in the event of a fire. The project will remove surface and ladder fuels within the project area and maintain reduced fuel levels, reduced canopy closure, and remove existing and emerging snags in order to create an area where wildfire behavior is significantly modified and provide an opportunity for fire suppression and control activities without the risk of injury to firefighters due to falling dead and deteriorating trees. The project will reduce wildfire spread and intensity, reduce the risk of uncharacteristically severe wildfire, reduce the risk of further catastrophic wildfire for the Grizzly Flats community, and provide safe ingress and egress for residents and for firefighters.

GFFB Steps to Establishing a Shaded Fuelbreak

Construction of the GFFB includes a series of implementation and maintenance activities. These activities were selected based on the differences between the current conditions and desired conditions to achieve a shaded fuel break.

- Step 1 – Removal of Snags. All dead trees or trees with a high likelihood of dying were removed in 2023 through a salvage logging operation. Often with salvage operations, a few standing dead snags are left on the landscape. In this case, with the project being along a road and in an area where fire fighters need safe access, no snags were retained.
- Step 2 – Thinning. Thinning occurred in areas where there were live trees remaining and the canopy was overly dense. Unit 4 has no areas like this.
- Step 3 – Mastication. Mastication was authorized but not generally used in the project area and is a tool to remove ground fuels and control brush that would compete with newly planted trees.
- Step 4 – Prescribed Burns. Also authorized but was not generally used in the project area as a tool to remove light ground fuels. Burning can also be conducted after planting but should be done in a way that does not kill a significant percentage of young trees.
- Step 5 – Reforestation. This is accomplished in three steps, Site Preparation, Planting, and Post Planting Activities. Right now, the project is in the Planting phase.
    - Site Prep can be done using mechanical or prescribed fire methods and aims to maximize the amount of mineral soil accessible for planting.
    - Planting between March and May of 2024 was done at 12 foot spacing to yield 300 trees per acre (TPA**). Interplanting will be done where stocking (survival) falls below 150 TPA.** Seedlings planted were a mixture of conifer species including Ponderosa Pine, Sugar Pine, Douglas-fir, Incense Cedar, and White Fir.
    - Post Planting Activities will aim to keep the competing ground cover at or below 20% for 2 to 3 years after initial planting. A manual release (hand grubbing) was done in June of 2024 and a chemical release (herbicide application) was done in the spring of 2025. Trees will be thinned at 5 to 7 years, again at 10 to 12 years, and finally at 20 to 25 years after initial planting.

Survival and Stocking

For the mixed conifer forest type, the **minimum** stocking is 50% of a given area having at least 150 trees per acre. The **recommended** stocking is 50% of a given area having at least 200 trees per acre. These standards reflect the knowledge that not every seedling will thrive on the micro-site on which it was

planted. It also requires that the seedlings be well-distributed and growing under conditions that will allow them to "persist into the future". It is anticipated that approximately 70% of the planted trees will survive. By planting 300 trees per acre, it is anticipated that minimum stocking will be met. However, Unit 4 did not have as good of survival as hoped when a stocking survey was done in November of 2024. The Forest Service would like to know if there has been further mortality and if interplanting will be needed.

Fieldtrip: On the afternoon of Thursday, October 23, your school group, depending on the number of students, will be assigned between two and nine 1/50 acre plots for data collection, and you will determine:

- The number and species of seedlings present and the distance from plot center to the nearest seedling
- Seedling vigor and presence or absence of herbicide damage
- Number of California Black Oaks over 3 feet tall
- Living brush cover by species and percentage
- Landscape features that are obstacles for planting and herbicide application

Items to be Addressed in Your Presentation:

1. Summary of the Caldor Fire and its effect on the Grizzly Flats area
2. A description, purpose, and steps to establish a shaded fuelbreak
3. The location, size, and purpose of the GFFB
4. Stocking targets and whether the targets for this project have been met
5. Actions needed to ensure the success of the GFFB project

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 field trip 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 condition of the GFFB and actions to ensure the fuelbreak is established successfully. 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.