

# 2021 EL DORADO FORESTRY CHALLENGE

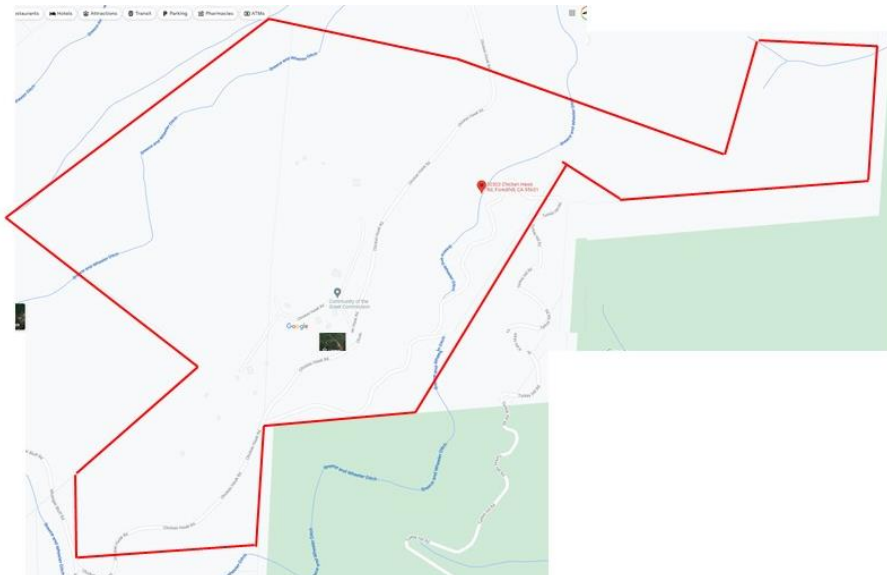
## FOCUS TOPIC QUESTION

### Introduction:

The focus topic for 2021 is ***Managing CGC Camp to Create a Wildfire-Resistant Forest***. Students will collect data on the 433 acre parcel and recommend a path forward that combines harvest and fuel treatment with the goal of protecting the camp from severe damage if and when there is a wildfire.

### Focus Topic Fieldtrip Location:

We will collect data on plots at CGC scattered along the west side of Chicken Hawk Road in areas that have recently been masticated. Here is a map of CGC:

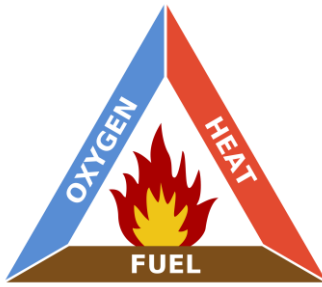


### Background Information:

#### History of the Property

Community of the Great Commission is a Christian camp owned by the Christian Churches of Northern California. It is located in a mixed conifer forest with high potential for growing trees. In 1960 the 42,596 acre Volcano Fire burned the property with high intensity, killing nearly every tree on the property. After the fire, the dead trees were removed, and new trees were planted. The forest has not been managed since then, except for two recent fuel reduction projects. Placer County paid for mastication along Chicken Hawk Road and the Camp paid for mastication within 200 feet of their buildings. The recent drought is putting stress on the trees, with many pines dying in the last year. Some have been felled but many others remain standing, either dead or dying.

## Fire Behavior



Here are diagrams of the Fire Triangle and the Fire Behavior Triangle. Notice that the one element common to both triangles and the one humans can most directly influence is Fuel.



When fuels (small trees & brush) are present and connected, such as from the ground to the tree tops or crowns, a fuel ladder exists that can carry a surface fire up into the crowns, where the fire becomes far more dangerous and difficult to control. A crown fire can sustain itself when trees are too close to each other such that their crowns (branches), once ignited, can spread fire crown to crown. Therefore, to reduce the chances of a crown fire, it is necessary to disconnect both vertical and horizontal fuels, which can be accomplished through a combination of harvesting merchantable trees and treating or removing debris.

There are three decisions to be made for this project that will restore the forest to a fire-safe condition:

1. Determine the best regulatory pathway to harvesting merchantable trees
2. Calculate the potential profit from harvest and explore other funding sources
3. Recommend the best first step and maintenance options for fuel treatment

### 1. Forest Practice Rules – Regulations Available to Get Work Done

Forest practices in California are highly regulated. Rules for timber harvest have been evolving since the Z'berg – Nejedly Forest Practice Act was passed into law in 1973. The most common way for a forest landowner to harvest trees and sell them is to have a Registered Professional Forester (RPF) prepare a Timber Harvest Plan (THP), which can be an expensive and lengthy process. However, in the past decade bark beetle infestations due to drought and a high number of catastrophic wildfires have created a need to streamline the rules so trees can be harvested to reduce fire hazard. In response, the California Board of Forestry and Fire Protection has developed a set of Exemptions, Emergencies, and Timber Harvest Plan options to facilitate harvesting of dead/dying trees, as well as thinning, to promote healthy forests with reduced fuel loads. You will be provided a table that summarizes and compares these Exemptions, Emergencies, and Timber Harvest Plan options. You can choose from the options applicable to CGC to facilitate a harvest, not only to reduce fire hazard but to potentially bring income to CGC for fuels treatments.

## 2. Funding Sources to Supplement Harvest Profits

Two sources of funding for private forest landowners are cost-share programs such as CalFire's California Forest Improvement Program (CFIP) and USDA's Environmental Quality Improvement Project (EQIP) and grants such as CalFire's Fire Prevention Grants Program.

The purpose of CFIP and EQIP are to encourage investment in and improved management of forest lands and resources. Cost-share assistance is provided to private and public ownerships containing 20 to 5,000 acres of forest land. Cost-shared activities include preparation of a Forest Management Plan by a Registered Professional Forester (RPF), which is necessary to receive CFIP funds, as well as post-harvest treatments such as mastication, herbicides, and slash disposal. In June 2021 CalFire received \$10 Million to apply to forest improvement projects on private, nonindustrial lands.

The Fire Prevention Grant Program is a part of California Climate Investments (CCI), a statewide program that seeks to increase the ability of California forests to capture carbon and improve forest management, including reducing dangerous tree mortality and the impacts of wildfires. These grants enable local organizations such as Firesafe Councils to implement activities that address the risk of wildfire and reduce wildfire potential for communities. Funded activities include fuel reduction, wildfire planning and fire prevention education. On September 13, 2021, \$138 million was awarded for 105 local projects.

## 3. Understory Fuel Treatment/Maintenance Options and Approximate Costs

First Step Treatment options include:

- Mastication – a machine with a grinding head chews up the fuel and lays it on the ground. \$1,500 per acre
- Lop and scatter – crews cut fuel into small pieces and scatter it on the ground no more than 18" high so it will decompose over a few years. \$500 per acre
- Hand cut and chip – crews cut fuel into small enough pieces to run through a chipper and scatter on the ground. \$1,000 per acre
- Hand cut, pile, and burn – crews pile branches and debris into piles that are burned in the wet season. \$650 per acre

Maintenance options include:

- Apply herbicides to control shrubs – certified applicators spray brush with chemicals designed to kill targeted brush species. \$200 per acre
- Utilize grazing animals on the landscape – herders construct a temporary fence and bring in goats or sheep to eat vegetation. \$500 per acre
- Conduct an understory broadcast burn under appropriate conditions – CalFire either provides crews or supervises contracted crews. \$150 per acre

**Fieldtrip:** On the afternoon of Thursday, October 28, your team will be assigned a 1/10 acre plot for data collection, and you will determine:

- The diameter at breast height (dbh) and total height of trees in the 12" or above dbh class, and their species
- The health of each tree in 2 categories, healthy or dead/dying
- Basal area using an angle gauge, which will be compared to the basal area as measured on the 1/10 acre plots using each tree's dbh
- The amount of growth of one tree in the plot for the last 10 years as compared to the 10 years before that
- The percentage canopy cover

**Items to be Addressed in Your Presentation:**

Your presentation should address the following topics:

1. The location, size, and current use of CGC
2. Fire behavior basics and size/severity trends for California
3. The method of data collection and a summary of the data
4. A regulatory pathway to harvest and a calculation of the profit
5. Grant funding source(s) for fuels reduction
6. One first step and one maintenance understory fuel treatment and an explanation of how they will be funded

**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 CGC and your economically feasible harvest and fuel treatment plan that will reduce fire risk. 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.