

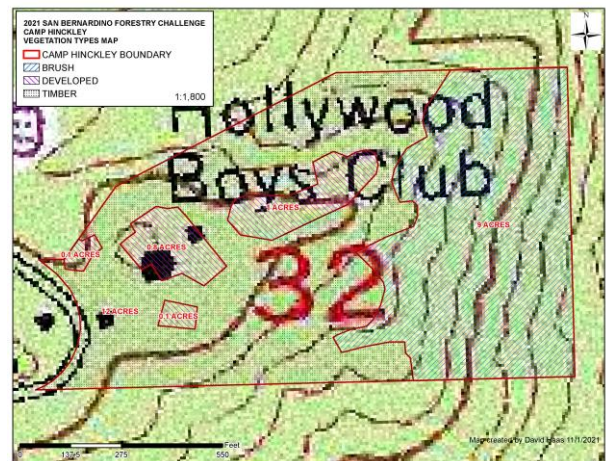
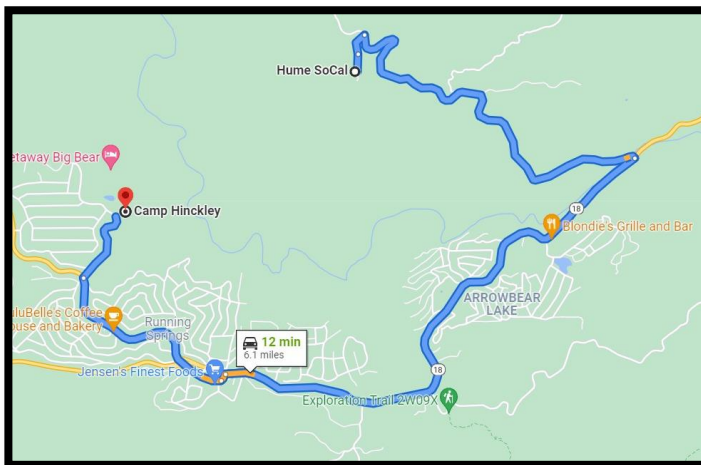
2021 SAN BERNARDINO FORESTRY CHALLENGE FOCUS TOPIC QUESTION

Introduction:

The focus topic for 2021 is ***Managing Camp Hinckley to Create a Wildfire-Resistant Forest***. Students will collect data on the 21.5 acre parcel and recommend a path forward that combines fuel treatment and reforestation with the goal of protecting the camp from severe damage if and when there is a wildfire.

Focus Topic Fieldtrip Location:

We will travel to Camp Hinckley on Thursday afternoon and collect data on plots located in the forested areas of the property. The map on the left shows the route to the camp and the map on the right is a clip from a USGS Quad map showing the vegetative types, locations of buildings, and topography.

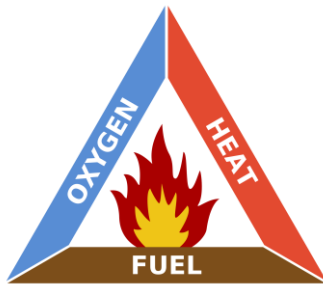


Background Information:

History of the Property

Camp Hinckley is owned by the Church of Latter Day Saints, or the Mormons. It is located in a mixed conifer forest at 6,200 foot elevation in the San Bernardino mountains. In 2007 the 12,759 acre Slide Fire burned the property with high intensity, killing many trees on the property and destroying a few buildings. After the fire, most of the dead trees were removed, and brush and naturally seeded new trees grew in the open landscape. The forest has not been actively managed, and the Camp does not have a Forest Management Plan. The ongoing drought has created a high fire danger and the Camp's location at the edge of the community of Running Springs makes it a strategic location for a fuel reduction or forest health project to regenerate the forest, thereby reducing ladder fuels.

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 steps to take to restore Camp Hinckley's the forest to a fire-resistant condition:

1. Identify Landowner Goals for use in a Forest Management Plan for Camp Hinckley
2. Determine the best option(s) for fuel treatment and a planting design
3. Develop a budget and determine the best combination of funding sources

1. California Cooperative Forest Management Plan

In early 2012, several government agencies worked together to create a template for the California Cooperative Forest Management Plan. A plan is required when landowners are applying for state and federal forest cost share programs and grants. The coordinated effort between the state, federal government, and non-governmental organizations (NGOs) helps eliminate duplication and streamlines the process for developing one plan to meet multiple personal and financial goals.

Elements of the plan include the landowner information, property facts, property history, current property conditions, and landowner management objectives. The objectives fall into several categories including:

- Forest Objectives: fire protection and forest health (insects, disease, invasive plants)
- Wildlife: habitat improvement, rare and endangered species concerns
- Recreation and aesthetics
- Income

2. Fuel Treatment/Maintenance Options and Approximate Costs

Before planting trees, treatment options include:

- Mastication – a machine with a grinding head chews up the fuel and lays it on the ground. \$2,000 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. \$1,000 per acre
- Hand cut and chip – crews cut fuel into small enough pieces to run through a chipper and scatter on the ground. \$1,500 per acre
- Hand cut, pile, and burn – crews pile branches and debris into piles that are burned in the wet season. \$1,000 per acre

After the trees are established, 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 – CAL FIRE either provides crews or supervises contracted crews. \$150 per acre

3. Funding Sources

Two sources of funding for private forest landowners are cost-share programs such as CAL FIRE’s California Forest Improvement Program (CFIP) and USDA Natural Resource Conservation Service’s Environmental Quality Improvement Project (EQIP) and grants such as CAL FIRE’s Forest Health 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 CAL FIRE received \$10 Million to apply to forest improvement projects on private, nonindustrial lands.

CAL FIRE’s Forest Health Grant Program funds restoration and reforestation activities to ensure future existence of forests in California while also mitigating climate change, protecting communities from fire risk, strengthening rural economies and improving California’s water & air. Through grants to regionally-based partners and collaboratives, CAL FIRE seeks to significantly increase fuels management, fire reintroduction, treatment of degraded areas, and conservation of forests. On August 12, 2021, \$160 million was awarded for 41 projects statewide.

Fieldtrip: On the afternoon of Thursday, November 11, your team will be assigned a 1/5 acre plot for data collection, and you will determine:

- The species and diameter at breast height (dbh) of trees in the 6” or above dbh class (dbh of 5.1” or more)
- Basal area using an angle gauge, which will be compared to the basal area as calculated by Plot Hound using each tree’s dbh
- The percentage canopy cover
- Relative risk of factors related to fuel loading and fuel ladders

Items to be Addressed in Your Presentation:

Your presentation should address the following topics:

1. The location, size, and current use of Camp Hinckley
2. The method of data collection and a summary of the data
3. Appropriate management goals for a Camp Hinckley Forest Management Plan
4. Recommended options for fuel treatment and reforestation
5. Programs and grants available to offset the cost of the work
6. A detailed budget for fuels reduction and reforestation, including funding sources

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 vegetation conditions at Camp Hinckley and your economically feasible fuel treatment and reforestation 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.