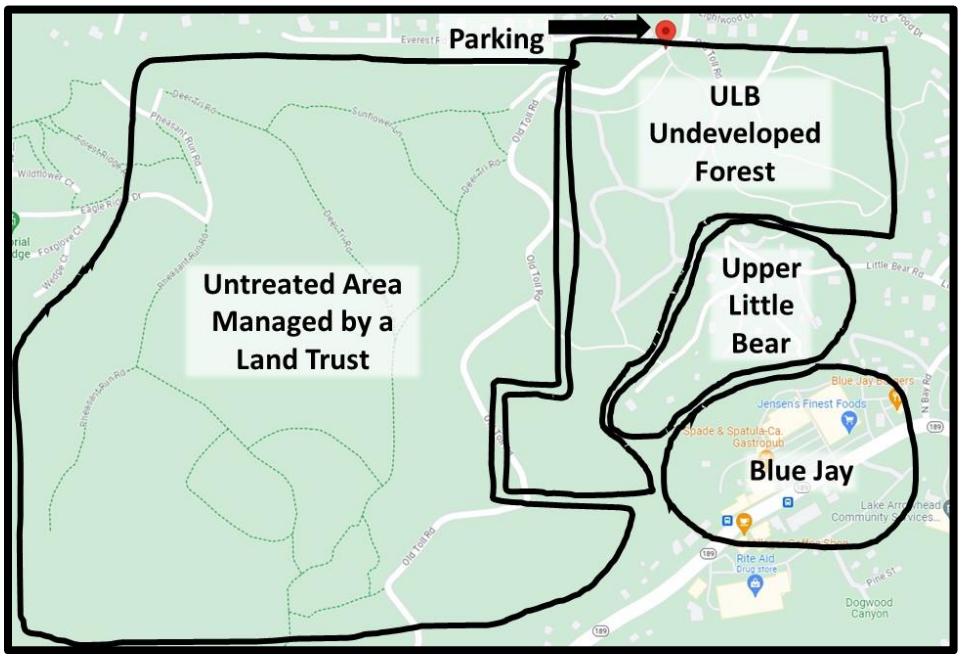
2023 SAN BERNARDINO FORESTRY CHALLENGE
FOCUS TOPIC QUESTION

Introduction:

The focus topic is ***Post-Treatment Assessment of the Upper Little Bear Mountain Club Fuel Reduction Project***. Students will collect data on the recently treated, undeveloped forest area owned by the community and will determine if the treatment met the project objectives.

Location:

The Upper Little Bear Mountain Club (ULB) is located near the town of Blue Jay in the Lake Arrowhead area. It is approximately 15 miles and 30 minutes from Hume SoCal. We will access ULB's undeveloped forest from the north side. A map of the route is in the Advisor Booklet and a map of the local area is here:



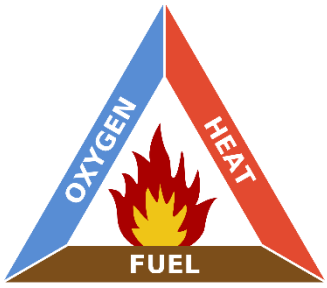
Background Information:

Area History

In 1890, farmers in San Bernardino, Redlands and Rialto proposed stopping the natural northward flow of water on the west side of the San Bernardino Mountains to keep it from reaching the headwaters of the Mojave River and instead diverting it south into the San Bernardino Valley to irrigate and expand the thriving citrus groves there. The Arrowhead

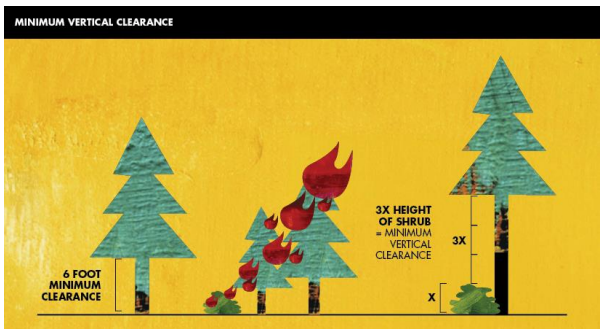
Reservoir Company bought water rights and began work on a dam for what was then called Little Bear Lake. In 1913, a court decision prevented the Company from diverting water away from the Mojave River. With an already substantial lake in place, its purpose was altered to create a recreational community. In 1922, Little Bear Lake was renamed Lake Arrowhead. Nevertheless, the district at the southwest end of the lake along Little Bear Creek retained the name Upper Little Bear, immediately next to the community of Blue Jay.

Fire Behavior



Above are diagrams of the Fire Triangle and the Fire Behavior Triangle. You will notice that the one element common to both triangles and the one we can most directly influence is Fuel.

When fuels (small trees & brush) are present and connected, such as from the ground to the treetops 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.



The objective of fuel reduction is to remove enough vegetation or fuel so that when a wildfire burns, it is less severe and can be more easily managed. Thinning trees, removing underbrush, and limbing trees are done using hand crews or machines. Cut material is ground into chips or

piled and burned during the winter. Much of the effort in fuels reduction is focused in and around wildland urban interface, or "WUI".

The wildland urban interface (WUI) is a zone of transition between unoccupied land and land developed by human activity – an area where a built environment meets or intermingles with a natural environment.

Upper Little Bear Mountain Club

The Upper Little Bear Mountain Club owns approximately 40 acres of undeveloped forest at 5,200 feet elevation adjacent to their homes. It is a mixed conifer-oak forest containing ponderosa pine, Jeffrey pine, white fir, incense cedar, sugar pine, black oak, and live oak species, with understory shrub species that include ceanothus and manzanita. This parcel is in the WUI. An adjacent WUI parcel to the west of the unit is an undeveloped and untreated unit managed by a land trust.

ULB Fuel Reduction Project

In reaction to a series of generally worsening and devastating fires, the State of California prioritized an increase in the acres for fuel treatment each year. A fuel reduction program was created through CAL FIRE to manage projects at no cost to communities falling within the wildland urban interface. In 2019, ULB reached out to CAL FIRE to engage in a fuel reduction project on the 40 acres of undeveloped forested area adjacent to their homes. Previous and similar treatments have been done on the parcel three times in the past, so this project is considered maintenance re-entry. Work began in October of 2021.

Project Treatments – Measurable Specifications

- Thin trees under 12" DBH to an average spacing of 20'
- Prune residual trees to a height of 8' or ½ the tree height, whichever is less
- Remove all vegetation within the drip-line of residual trees
- Remove dead, dying, and diseased trees, leaving 1-2 snags per acre for wildlife habitat
- Bark beetle infested wood will be chipped or covered with 6-mil plastic
- Remove up to 85% of brush to create a mosaic of islands of vegetation of various natural appearing shapes and sizes.
- Retained brush will be spaced ~ 2.5x the fuel height

Field Trip: On Thursday afternoon, your team will be assigned one or two 1/10th acre plots for data collection, and you will determine:

- Number of trees in the plot with a diameter at breast height (DBH) of 4" or greater, and their species
- The number of dead trees in the plot with a DBH of 4" or greater
- Basal area using an angle gauge, which will be compared to the raw data of each tree's DBH
- Percentage canopy cover
- Percent of trees with crowns touching adjacent tree crowns
- Whether pruning was done as specified
- Tree growth over the last 0 to 10 and 10 to 20 years
- Presence and height of brush cover and woody debris

Items to be Addressed in Your Presentation:

1. The location, size, and history of the Upper Little Bear Mountain Club
2. An overview of the most recent fuels reduction project
3. A summary of the data collection techniques and data collected
4. A comparison of those results to the project objectives
5. Your determination of whether the treatment met the project objectives
6. Recommendations for monitoring and future treatments

Resources:

On Thursday evening, you will be given resources on a flash drive to load onto your team's computer, including the results of the data collection. Additionally, you can use photos you take during the data collection 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, post-treatment conditions in undeveloped forested area of the Upper Little Bear Mountain Club and a determination of whether or not the recent treatment meets the project objectives. 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.