

# 2024 SHASTA FORESTRY CHALLENGE

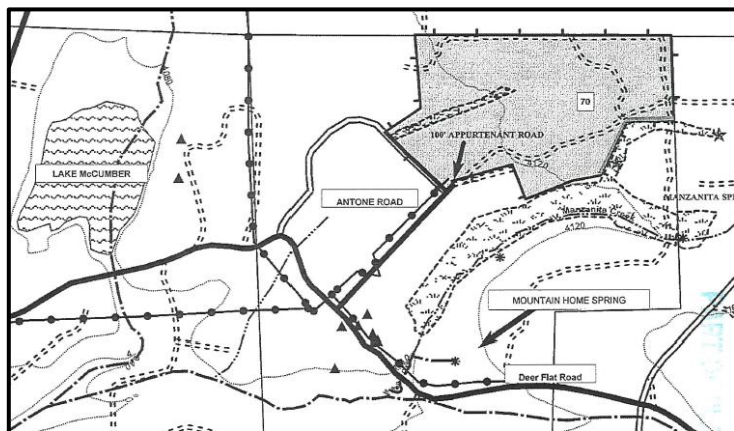
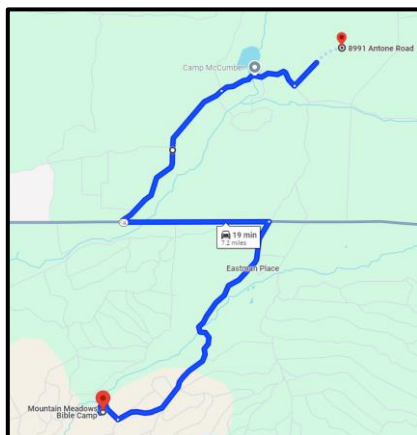
## FOCUS TOPIC QUESTION

### Introduction:

The focus topic is ***Garrison Ranch Harvest Evaluation***. Students will assess timber available for harvest under a current Modified Timber Harvest Plan and, operating within the prescription outlined in the plan and using current information on lumber prices and logging/hauling costs, project the landowner net income (or loss) based on their recommended harvest volume.

### Location:

The Garrison Ranch is a 78 acre property located in eastern Shasta County, north of Highway 44 and east of Shingletown. It is 7 miles from Mountain Meadows Camp.



### Background Information:

#### Timber Harvest Plans (THPs) and Related Environmental Laws

In California, all timber harvesting must be conducted in conformance with the Z'berg-Nejedly Forest Practice Act and Forest Practice Rules. Harvesting must also conform to and be consistent with other environmental laws that protect endangered species and water quality. An approved Timber Harvest Plan (THP) checks those boxes and meets the California Environmental Quality Act (CEQA) requirement of the preparation of an environmental assessment before undertaking or issuing a permit for any project with possible environmental repercussions.

A Modified Timber Harvest Plan (MTHP) provides for harvesting to be conducted on ownerships of 160 acres or less and was used for this project.

## Registered Professional Foresters and Licensed Timber Operators

In order to practice forestry in California, a person must be licensed as a Registered Professional Forester, or RPF. To obtain a license, a person must complete seven years of forestry work or a combination of education and work that increases in complexity and responsibility, and they must pass an exam with a score of 75% or higher. Similarly, in order to conduct forest tree cutting and removal operations, a person must be a Licensed Timber Operator, or LTO. LTOs have three different types of licenses (A, B, or C) depending on the kind of timber operations they are authorized to conduct. All LTOs must complete a 2-day training class and type A must have 3,000 hours of work experience and liability insurance.

## History of the Property and the Ranch THP

The Garrison Ranch, at an elevation of 4,100 feet, was originally part of the 320 acre Nunes Ranch, which was subdivided and sold in smaller parcels. Dennis and Katharine Garrison purchased two 38-acre parcels and a 2-acre parcel in 2017. The last commercial timber harvest, under a THP, was in 1995, which was a single tree selection harvest that removed a disproportionate amount of large Douglas-fir. The property also had a biomass (small tree) thinning in 2005 or 2006. The Garrisons did a 3 acre conversion on one corner of the property to remove trees and build a home, which is currently under construction. The Ranch MTHP was originally approved in February 2019 and was due to expire in February 2024, but a 2-year extension was requested due to the market being flooded by burned timber from large wildfires, impacting the log market. Dennis is both an RPF and LTO, so he wrote his plan for 70 of the 78 acres and began the falling and skidding himself while contracting with a trucker to haul the logs to the mill. The purpose of the Ranch MTHP is to supply high quality timber products to the marketplace, enhance the overall long-term health, growth, and sustainability of the timber resource, and reduce the threat of wildfire.

## Silviculture

Every THP has to designate a silvicultural prescription, and each silvicultural method has legal specifications that must be followed. The Ranch MTHP designated an uneven age silviculture called "Group Selection", which allows clearings of up to 2 ½ acres on up to 20% of the land. The remaining 80% is harvested under the standards of the "Seed Tree" prescription with a retention of at least 15 square feet of basal area per acre of trees over 18" at Diameter at Breast Height (DBH), which is about 8 trees of this size per acre. Because this is a Modified THP, there is an additional requirement that no more than 50% of the existing canopy be removed. Even though Dennis has no intent to maximize the trees harvested, the prescription gives him more flexibility than single tree selection. The basal area and volume are

proportional, so once the cruise generates basal area per acre, the percent allowable harvest can be calculated and the volume available for harvest can be determined.

Dennis would like to focus on harvesting incense cedar and white fir, since the stand is heavy with incense cedar and he wants to further reduce the proportion of white fir and will also harvest sugar pine that is infected with White Pine Blister Rust.

### Hauling Costs and Yield Tax

Because Dennis is an RPF and an LTO, he was able to save money by writing his own THP and he has already started hand felling the trees and skidding them to the landing with rented equipment. However, at the rate he can log the property by himself, he will not finish the harvesting by the time the THP expires, so he is considering hiring a local logger to finish the job. The logger's rate is \$250 per thousand board feet logged, regardless of species or size.

Prices paid by the mill per thousand board feet (MBF) are as follows:

PP/SP = \$350, WF = \$425, DF = \$600, and IC = \$500

Once the logs are ready to take to the mill, another set of complications comes into play. The logs will go to three different mills, depending on their species and size.

- All species of large logs (DBH class 22" and up) go to a Sierra Pacific Industries (SPI) sawmill in Shasta Lake City, a 3 hour round trip.
- All small logs (DBH class 20" and smaller) except Incense Cedar go to a SPI sawmill in Anderson, a 3 hour round trip.
- All small Incense Cedar logs (DBH class 20" and smaller) go to an SPI sawmill in Oroville, a 6 hour round trip.

The cost of the driver and truck is \$140 per hour, so a trip to Shasta Lake City or Anderson costs \$420 and a trip to Oroville costs \$840. There are about 3,700 board feet of lumber in a truckload of logs.

The landowner is also required to pay a yield tax, which varies by species. Tax rates are adjusted every six months. The tax rates, expressed in "MBF" (thousand board feet) for July through December 2024, are:

PP/SP: \$5.00

WF: \$7.00

DF: \$12.50

IC: \$5.50

## **Fieldtrip:**

On the afternoon of Thursday, September 26, your team will be assigned a plot for data collection, and you will determine:

- The number of trees in the plot with a diameter at breast height (DBH) of 10" or greater, and their species
- The diameter at breast height and defect for each tree
- The basal area for the plot measured with an angle gauge
- Growth rate for the past 10 years and the 10 years before that using an increment borer

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

Your presentation should address the following topics:

1. The property and logging history of Garrison Ranch
2. Summary of the laws that govern forest management and harvest in CA
3. Data collection procedure and a summary of the data
4. Based on the silvicultural limitations of the MTMP, determine how much volume is available for harvest and provide your recommended volume by species.
5. Using current market prices, and accounting for logging and hauling costs as well as yield tax, calculate the potential net income for the project for your recommended harvest.

## **Resources:**

On Thursday evening, 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 interviews during Ask a Forester.

## **Final Product:**

Your goal is to produce a 15-minute PowerPoint presentation that describes, in detail, your recommendation for harvested volume by species and the net income for the project. 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.