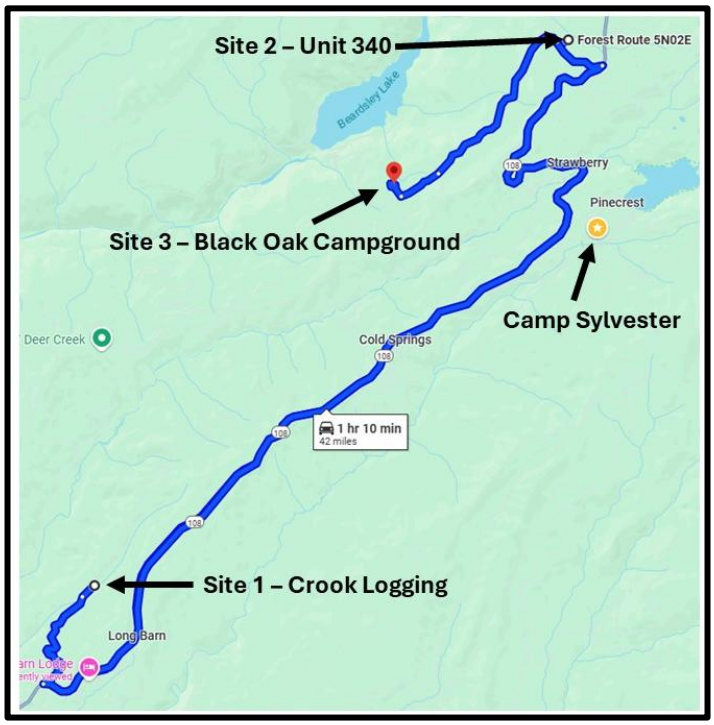
2024-2025 FORESTRY CHALLENGE CHAMPIONSHIP
FOCUS TOPIC QUESTION

Introduction:

The focus topic is ***what to do with everything but the sawlog***. Students will evaluate the vegetation in a 44 acre unit scheduled for treatment and determine the best way to dispose of cull logs, limbs and tops of sawlogs, sub-merchantable trees, and brush. There are several options available to dispose of vegetation, either by treating it onsite or moving it offsite to a processing facility.

Location:

We will visit three field sites on Thursday, April 24, all of which are only a few miles from Highway 108. Site 1 is a unit currently being treated off Lyons Creek Road by Crook Logging. Site 2 is an area scheduled for treatment this year. Site 3 has a side-by-side comparison of recently treated versus not treated. The data being used for analysis came from a similar project on the opposite side of Highway 108 from Site 2.



Background Information:

Wildfire Crisis Strategy

In 2021, the U.S. Forest Service announced the Wildfire Crisis Strategy and identified 10 initial landscapes targeted with additional funding for fuels reduction work through the Bipartisan Infrastructure Law and the Inflation Reduction Act. The Stanislaus Landscape Project was one of these ten. Within the Stanislaus Landscape, work was already underway on the Social and Ecological Resilience Across the Landscape Project (SERAL), and the treatment area grew to more than 300,000 acres. A map of the SERAL project is included in your flash drive resources.

For the 44 acre treatment area we are analyzing, the Forest Service has treatment standards for a desired condition and awarded the contract to BurnBot to achieve the vegetation standards required by their specifications. BurnBot may hire sub-contractors, which could include companies that do traditional logging, masticating, chipping, and transporting.

Unit 340 off Beardsley Lake Road

Unit 340 is part of a project within SERAL called the "G to Z Project." Some of the G to Z units have been treated, while other units will be treated this year. Because a cruise of Unit 340 hasn't been conducted yet, we will use data from a nearby project that was cruised last year (called the Bumblebee Integrated Resource Stewardship Contract) and assume the data from Unit 340 will be similar enough that it is a valid data set. A map of the G to Z Project is included in the flash drive resources.

Data from the Bumblebee IRSC is in the table below. Sawtimber is normally reported in units of thousand board feet. Because this project focuses on vegetation not suitable for a sawmill, we will use green tons as the unit of measure.

Material	**Green Tons / Acre**
Sawtimber from green trees greater than 10" DBH	40.44
Cull logs 16" DBH and up	4.62
Small diameter trees less than 10" BDH	2.15
Tops and limbs of sawtimber	3.00

Options for onsite disposal of materials

Several options exist to dispose of materials onsite, which can be more efficient and saves the expense, cost, and emissions associated with transport. Three of these options are viable for the G to Z Project, chipping and broadcasting, piling and burning, or masticating the material. The first two still incur the cost of logging, and chipping has additional cost. Mastication piling, and pile burning cannot be calculated using dollars per green ton but mastication costs $1,800 to $2,200 per acre, piling costs $645 to $1,290 per acre, and pile burning costs $300 to $700 per acre, depending on the volume of material and the terrain.

Facilities available to process materials

Tuolumne County is a unique place in California in that it has a variety of facilities that process excess materials in addition to the traditional sawmill owned by Sierra Pacific Industries. These facilities are:

- Heartwood Biomass, a new facility that started operations in October 2024, that uses small diameter and cull logs to manufacture firewood, kindling, woodstraw, poles, and wood chips
- Jamestown Energy, a 20-megawatt power plant that burns biomass to generate electricity
- American Wood Fiber, a national chain with a facility in Jamestown that uses cull logs to manufacture pet bedding, barbeque pellets, horse bedding, and livestock bedding

Financial Analysis

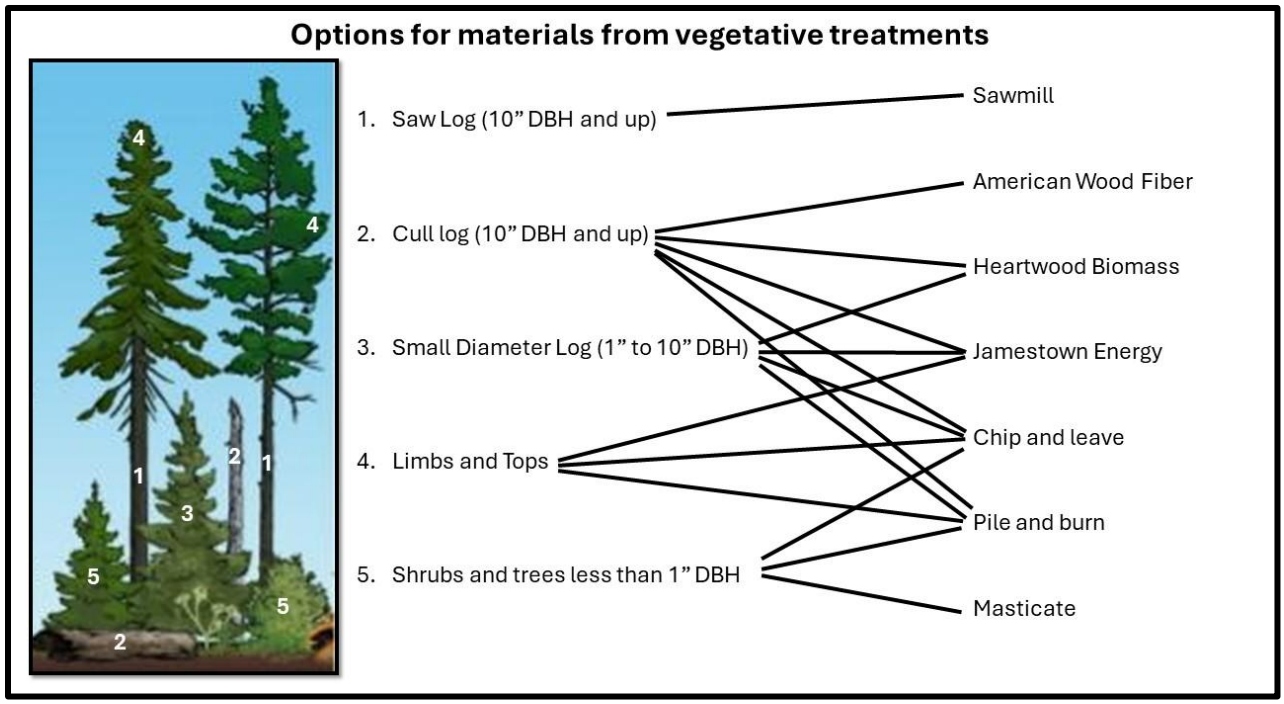
Each activity associated with treating vegetation has a cost per green ton associated with it, and each product has a value associated with it. When the value of the product is greater than the cost to process it, there is a net financial gain. Conversely, when the product has such a low value that the cost of treating it is more than its value, there is a net financial loss. Gains from one type of material can offset the losses from another, making costly activities feasible using the gains from higher value products. Here are the costs of the activities we are analyzing:

Costs in Dollars per green ton	**Logging**	**Road Reconstruction and Other Costs**	**Chipping**	**Hauling**
Sawlog	26.46	14.80	N/A	15.18
Cull Logs	26.46	N/A	N/A	15.18
Trees <10” DBH	26.46	N/A	16.00	15.18
Limbs and tops	12.32	N/A	16.00	14.61

Material	**Revenue per green ton**
SPI Sonora (sawlogs)	$60.24
AWF and Heartwood (cull logs and/or small diameter)	$40.00
Jamestown Energy	$25.00

Subsidies for hauling biomass have recently become available. A federal transportation grant for the G to Z project is still “under review.”

Use the graphic on the next page that summarizes the options available for use (or in the case of low-value products, the disposal) for each type of vegetation.



Resources:

On Wednesday 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 fieldtrip and statements from foresters you work with and interview during Ask a Forester.

Items to be Addressed in Your Presentation:

1. Location, size, and purpose of the SERAL and the G to Z Project
2. Description of the 5 products that result from forest restoration activities and the 6 options for their processing/disposal
3. Existing biomass conditions by type in Unit 340
4. Net cost or revenue of each of the disposal options
5. A recommendation of the best disposal method for each of the 5 products, the net loss or revenue of each, and the overall loss or revenue for Unit 340, based on the relative volumes of the different types of materials
6. How to pay for an overall net loss if one exists

Final Product:

Your goal is to produce a 20 minute PowerPoint presentation that describes best combination of options for the disposal of each type of biomass and the financial analysis for your plan. You are encouraged to use photos and information collected on the fieldtrip, interviews with resource professionals during the Challenge, and the 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.