

2017 SHASTA FORESTRY CHALLENGE

FOCUS TOPIC QUESTION

Introduction:

The 2017 Focus Topic is “Developing a Silvicultural Prescription for the Lost Creek Unit”. The Lost Creek Unit is owned by Fruit Growers Supply Company, a private company in the timber production business in California, Oregon, and Washington. The Unit is 63 acres, one small part of approximately 125,000 acres managed in Shasta and Lassen Counties from the Burney, California office. This unit is primarily an uneven-aged stand of ponderosa pine forest type. Since the last harvest 10 years ago, the trees have grown and it is time for another harvest.

Your job is to assess the stand and recommend a silvicultural prescription. You need to take into account the stand data you collect to come up with a prescription that is economical, practical, and is legal, according to the California Forest Practice Act.

Focus Topic Fieldtrip Location:

We will use school vehicles to travel to the 63 acre Lost Creek Unit, where we will collect data and discuss silvicultural prescription options. A map of the fieldtrip location and plot layout will be provided.

Background Information:

Fruit Growers Supply Company

Fruit Growers Supply Company was organized in 1907. It is the oldest non-profit supply cooperative in the nation. Its primary purpose is to supply citrus growers in California and Arizona with products and services necessary for successful growing, harvesting, packing and shipping.

Before 1907, members of the Southern California Fruit Exchange (now Sunkist Growers) needed a steady supply of reasonably priced box shooks for their wooden shipping crates. In 1907, the Sunkist citrus growers created Fruit Growers Supply Company to buy and manage timberlands and mills, to insure a steady and reasonably priced supply of wood for their boxes. Even though boxes today are made from cardboard, the timberlands remain as part of the company and provide dividends to its members.

History of the Lost Creek Tract

The Lost Creek Tract is a 63 acre unit located in Section 23, Township 32 North, Range 4 East of the Mount Diablo Meridian.

From 1914 through 1917, a series of volcanic eruptions occurred from Lassen Peak. The most powerful of these eruptions occurred in May of 1915. This eruption caused a mud flow down Lost Creek and Hat Creek. This unit is on the lower reaches of the mudflow.

FGS purchased the Unit in 1945 from Red River Lumber Company. Prior to this purchase Red River had only done some light salvage logging in the area. Photographic evidence shows the much of the area was planted by the Civilian Conservation Corps in the 1930's. FGS' initial harvest occurred in 1959. This harvest removed the largest ponderosa pine trees, generally 24 inches dbh and above. The next harvesting was in the late 1980's using the selection method. The most recent harvest in this unit occurred in 2007, again using the selection method.

Silviculture

"Silviculture" is the art and science of managing a stand of trees to meet identified management objectives. Silviculture is rooted in "silvics", which is a study of the relationship between trees and their environment (water, soil, air, and other plants). "Silviculture", then, is the art of applying the science learned in "silvics".

There are many types of silviculture, but the practical options for the Lost Creek Unit are as follows":

- Clearcut – the removal of all or nearly all of the trees, then planting a new stand. For flat forestland like the Lost Creek Unit, the maximum allowable clearcut is 30 acres, or about half of the Unit. If you choose to clearcut on half of the Unit, you will need to choose another silvicultural prescription on the other half.
- Understory Thinning – removal of the smallest trees to achieve a designated desired spacing and increase the average diameter of trees in the stand. For this unit, since more than 50% of the basal area is pine, the Forest Practice Rules dictate that a minimum of 75 square feet of basal area remain after harvesting.
- Individual Tree Selection – removal of individual trees in all size and age classes to create/maintain a stand that is multi-storied at the desired stocking level. The Forest Practice Rules dictate that a minimum of 75 square feet of basal area remain after harvesting
- Group Selection – removal of groups of trees in areas no larger than 2 ½ acres in size on up to 20% of the acreage of the unit. If group selection is chosen, individual selection can be applied to the remainder of the stand, as long as the overall stocking level stays at or above 75 square feet of basal area per acre.

- No Treatment – let the stand grow and reevaluate it at a set time in the future.

Forest Resilience

Ecological resilience is the capacity of an ecosystem to respond to a perturbation or disturbance by resisting damage and recovering quickly. Healthy forest stands are more resilient and are better able to resist bark beetle attacks and stand-replacing wildfire. Typical ways to assess the health of a stand are to examine annual growth rings by using an increment borer to take a core sample, by determining basal area and comparing it to pre-settlement conditions, and by determining the average percent of live crown on the trees. Resilience can be increased by keeping the trees spaced adequately and the fuel loading to a minimum.

California Forest Practice Rules

California is the most highly regulated place in the world in terms of forest management. The Rules specify a “retention standard” to be left after any type of harvest entry except for clearcut. This minimum retention standard is based on the “Site Class”. Site Class is thought of as the production potential of the land and is numbered 1 through 5. The lower the number, the higher the productive capacity of the land. The Lost Creek Unit is considered site 2, therefore the Rules specify the minimum retention standard is 75 square feet of basal area per acre for both single tree selection and thinning. That means that you cannot cut so many trees that the average drops below that level.

Fieldtrip: On Thursday, September 28, you will visit the Lost Creek Unit to conduct a quantitative and qualitative analysis of the stand.

Activity: Collect the following data on pre-marked plots in the east side of the unit: trees per acre, species composition, diameter class distribution, basal area, percent live crown, crown position distribution, and seedlings per acre.

Topics: Demonstration of data collection, examination of a permanent plot, tree health and vigor, silvicultural prescription options.

Pre-Settlement Forest Condition:

The “natural” forest, or the parameters of the forest prior to European settlement, can be considered resilient in that the ecosystem maintained itself. It is generally believed that these pre-settlement stands were more resistant to bark beetle attack and had frequent fires, which controlled the brush and maintained the density of the stands. Larger trees tend to have thicker bark and

thus are less apt to burn up by fire than smaller trees. As a result, many pre-settlement stands were more open, having fewer trees but larger trees.

Resources:

On Thursday evening, you will be given resources on a flash drive to load onto your team's computer. During preparation time, there will be designated computers to do internet research and use that information in your presentation. Additionally, you can use photos you take during the fieldtrip and statements from foresters you work with and interview during Ask a Forester.

Preparing Your Presentation:

Your team will come up with a specific silvicultural prescription for the Lost Creek Unit. Your presentation should address the following:

- Brief history of the Lost Creek Unit, including prior harvests and what it most likely was like prior to European settlement. Include one or more maps to show the general location of the Unit and more details about the Unit such as where sampling occurred.
- Sampling methods: Explain the procedure used to collect the data.
- Current Stand Condition: Report the finding of the group. Specify trees per acre, species composition, diameter class distribution, basal area, percent live crown, crown position distribution, and seedlings per acre.
- **The silvicultural prescription you recommend for the Lost Creek Tract. Demonstrate that the prescription you chose is legal according to the California Forest Practice Rules.**
- Explain how your prescription is practical, economically feasible, and explain why you did not select the other options available.

Final Product:

Your goal is to produce a 15-minute PowerPoint presentation that **describes, in detail, the current stand parameters of the Lost Creek Unit and your silvicultural prescription for the stand.** 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. Remember, there is no "right" answer! Your ideas will be taken into account when a harvest plan is written for the Unit.