

Wilderness Fuels Module 2020 Season Results – Juniper Lake

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The 2020 Wilderness Fuels Module (WFM), consisting of a 5-person field crew, began implementing a fuels reduction in the Juniper Lake region of Lassen Volcanic National Park (LAVO) on the Inspiration unit located on the west side of Juniper Lake. The goals for the Inspiration unit were to reduce vertical and horizontal continuity of fuels along the control line, remove hazard trees and snags to ensure safety during prescribed burn, and to preserve the aesthetics of the wilderness along trails by naturalizing areas and low-stumping felled trees. The season began in mid-June and continued into early November 2020. The season consisted of a total of **64, 10-hour work days in the field**, with ten 4-day spikes and three 8-day spikes. **A total of 459 trees 8" DBH and greater were removed, and 9,271 trees smaller than 8" DBH were removed.** Larger trees (8" and greater) were typically removed using crosscut saws and recorded in Survey123 with data including date, GPS coordinates, species, diameter at breast height (DBH) in inches, height in feet, and notes on tree condition (Alive or Dead). Smaller trees (less than 8") were typically removed with axes, hand saws or loppers, and recorded as a daily tally by species, and the location was also noted. The three main sections of the control line were the Inspiration Point Trail (0.8 miles), Snag Lake Trail (0.4 miles), and North Side (1 mile). **Fuels reduction with an emphasis on defensible space was also performed at Horseshoe Lake Ranger Station and Juniper Lake Ranger Station.**

After a 4-day crosscut training with Dolly Chapman, the WFM crew began the season working at **Horseshoe Lake Ranger Station (HLRS) creating defensible space around the historic cabin, as well as removing trees encroaching on the surrounding wetland areas. A total of 55 trees 8" DBH and greater were removed, and 2,147 smaller than 8" DBH were removed,** the majority of which were lodgepole pines. Burn piles were built with the fuels generated and some boles were bucked and saved for the restoration of the cabin. A crew from American Conservation Experience (ACE) also worked at HLRS, building piles, bucking felled trees, and low-stumping.

The Inspiration Point trail was the first part of the line the crew worked on, and a total of 0.8 miles were prepared for prescribed burn. The prescription for this part of the line was to reduce fuels continuity 50' on either side of the trail because the trail divides the east side of Inspiration Unit and the west side of the East Juniper Unit. Dead and down fuels and freshly cut fuels were moved into the unit when possible, especially within the first 20' on either side of the line, in order to ensure safety and reduce the chances of spot fire during prescribed burn. In addition to tree removal, live trees within 20' of the line were limbed up to a minimum of 12', and all stumps were cut to a height of 4 inches or lower. A total of 116 trees 8" DBH and greater were removed, and 2,686 smaller than 8" DBH were removed, the majority of which were red firs followed by lodgepole pines, white firs, and western white pines. Of the trees 8" DBH and greater, 70% were dead trees or hazard trees. The portion of the unit that goes off-trail from the end of Inspiration Point trail and heads west to connect to the Snag Lake trail was scouted and flagged, but was not prepared pending an archaeological survey.

The crew continued on to prepare the Snag Lake Trail portion of the line, heading north on the east side of the Inspiration Unit for a total distance of 0.4 miles. The prescription for this section of the line was to reduce the fuels continuity on the interior side of the unit only, but trees that presented a hazard to the control line were removed on both the interior and exterior of the unit. Dead and down fuels and freshly cut fuels were moved into the unit when possible, especially within the first 20' on either side of the line

in order to ensure safety and reduce the chances of spot fire during prescribed burn. In addition to tree removal, live trees within 20' of the line were limbed up to a minimum of 12' with a pole saw, and all stumps were cut to a height of 4 inches or lower. There are several wetland areas along this part of the line and in these sections, trees were strategically felled away from these sensitive areas and fuels were moved outside of wetland areas. Wetland areas were also used as natural holding features for prescribed burn whenever possible, and snags were often the only trees removed. A total of 123 trees 8" DBH and greater were removed, and 1,905 trees smaller than 8" DBH were removed. The majority of smaller trees removed were red firs and white firs followed by lodgepole pines and western white pines. The majority of larger trees removed were red firs and lodgepole pines followed by white firs and western white pines. Of the trees 8" DBH and greater, 81% were dead trees or hazard trees.

The next section was the North side of the unit which accounts for 1 mile of the control line. Working this part of the line required hiking in a minimum of 1.5 miles and up to 2.5 miles one way. The prescription for this part of the line was the same as the Snag Lake trail portion. Two small wetland areas (0.1 miles each) were not treated; the areas had heavy fuel loading and will most likely be burned as small sections to reduce the ground fuels before any trees are removed and added to the fuel load. These areas might be revisited in the WFM 2021 season. A total of 152 trees 8" DBH and greater were removed, and 2,532 trees smaller than 8" DBH were removed. The majority of smaller trees removed were white firs followed by red firs, lodgepole pines and western white pines. The majority of larger trees removed were red firs followed by lodgepole pines, white firs and western white pines. Of the trees 8" DBH and greater, 90% were dead trees or hazard trees. A swamper crew from the Sierra Institute assisted with cutting stumps down to 4 inches or lower along this portion of the line; a crew of 3 people worked for a total of eight 10-hour days.

Trees removed around Juniper Lake Ranger Station (JLRS) were for the purpose of defensible space around the cabin. Some hazard trees from a previous wildfire were also removed outside the 100' perimeter around the cabin. Burn piles were built with the fuels generated. The ACE crew also assisted with the pile building and clean up of the area. Most of the work at the JLRS by the WFM crew was done during training and on days when the smoke from wildfires had the potential to be hazardous for strenuous activity.

The crew had no reports of injuries or accidents for the WFM 2020 season. Weekly tailgate safety briefings, daily safety and stretch meetings, and emphasis on situational awareness promoted a safe work environment. The WFM crew had a successful and productive start to the Juniper Lake units. These units, which have never been treated with prescribed fire by LAVO, presented the crew with new challenges, especially in dealing with heavy fuel loadings often near or in wetland areas. The Covid-19 pandemic also required certain protocols and adjustments that delayed the start of the season and necessitated a four 10-hour day per week schedule for the majority of the season. With more firmly established protocols and familiarity with the Juniper Lake units, the crew is well-equipped to complete these units in the 2021 season.



Figure 1: Inspiration Unit. This figure shows the Inspiration unit with the points representing trees greater than 8 inches DBH that were removed along the line. The three sections of the control line are indicated by colored outlines: North (green), Inspiration (red), Horseshoe (blue), Snag (purple), JLRs (orange).

Table 1: Large and Small Trees Removed by Species

Species	Trees <8" DBH	Trees >8" DBH
<i>Pinus contorta</i> var. <i>murrayana</i>	3402	173
<i>Abies concolor</i>	3198	41
<i>Abies magnifica</i>	2425	211
<i>Pinus monticola</i>	245	34
<i>Tsuga mertensiana</i>	1	0
Grand Total	9271	459

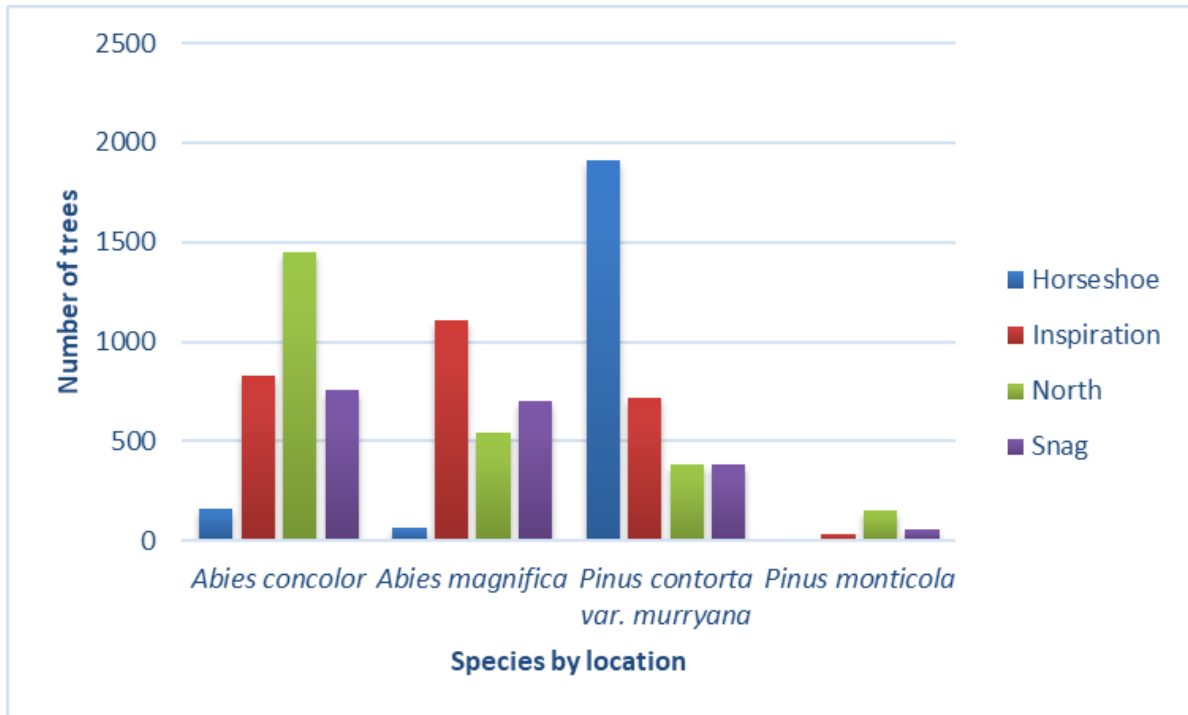


Figure 2: Small Trees Removed. This figure shows trees smaller than 8 inches DBH that were removed in the Inspiration unit. The data are broken down by location of removal and by species of tree.

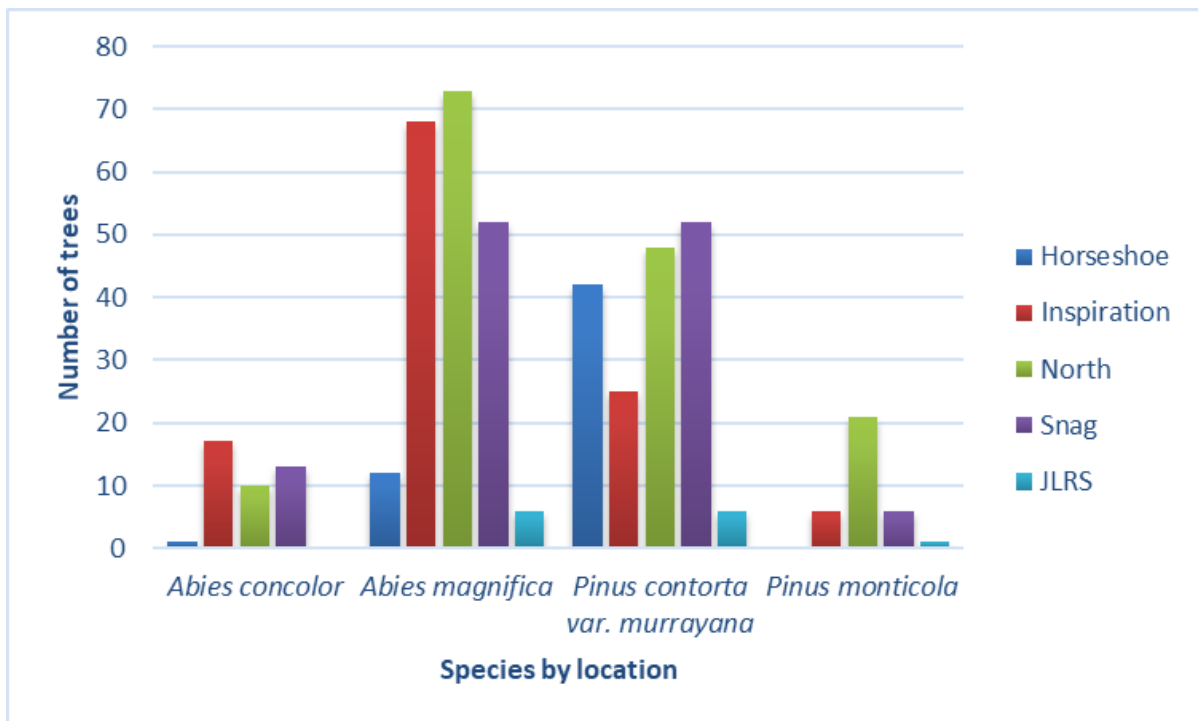


Figure 3: Large Trees Removed. This figure shows trees greater than 8 inches DBH that were removed in the Inspiration unit. The data are broken down by location of removal and by species of tree.

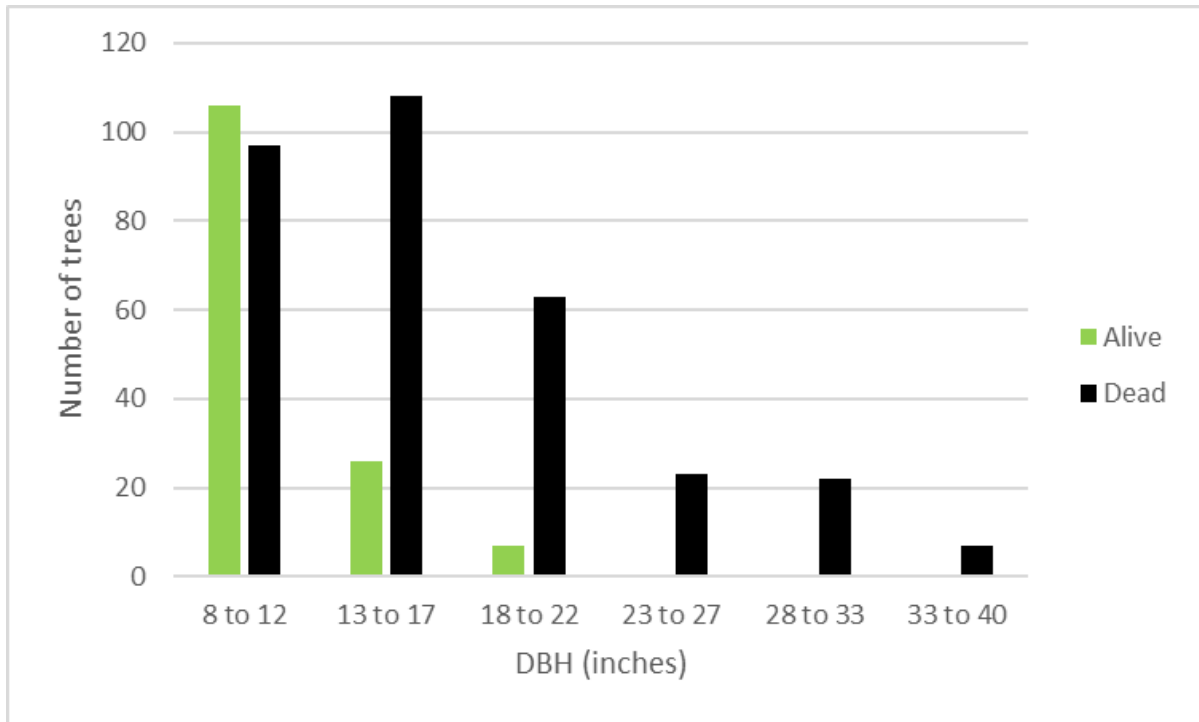


Figure 4: Total trees >8 inches Removed Alive or Dead. This graph breaks down the larger trees removed based on DBH (in inches in increments of 5) and tree condition (Alive or Dead). Total number of live trees removed was 139 and total number of dead trees removed was 320.

Before and After Photos>>>>> (At least one set of photos from each of the parts of the line?)