



A Newsletter from the SNAMP Public Participation Science Team - Volume 5, Number 2, December 2011

## FOREST FUEL TREATMENTS

There are many ways to reduce fuels in a forest stand:

**Mastication** is the reduction of forest vegetation in the stand by grinding, shredding or chopping tree and brush material.

**Forest Thinning** is the selective removal of trees from a forest stand.

**Prescribed Fire** is used to mimic natural fires and their affect on vegetation. Generally, low intensity prescribed fire is applied by trained experts to clear ground of dangerous fuels like dead wood and brush, also known as underburning.

**Underburn** is a fire that consumes surface fuels but not trees and shrubs.

### More Resources:

<http://www.srs.fs.usda.gov/>

<http://dictionaryofforestry.org/>

# the SIERRA NEVADA Adaptive Management Project newsletter

Welcome to our latest SNAMP newsletter! This issue focuses on an October 2011 SNAMP field trip to the Last Chance study site (the SNAMP northern site) to study fuels treatment on the ground. In this newsletter, we retrace our steps, review the stops of the field trip, and highlight some of the significant conversations and realizations made by participants. This field trip was important because we had the opportunity to examine the fuel treatments for the first time and provide a forum for learning through onsite discussion and dialogue among the participants.

We visited five sites, with three different treatments: mastication, thinning and prescribed fire. Please see the left sidebar for definitions. The field trip was organized by the UC Science Team and the US Forest Service. There were 45 people in attendance including Placer County Supervisors Jim Holms and Jennifer Montgomery, Congressman Tom McClintock

representative Norman Gonzales, as well as Sierra Pacific Industries (SPI), state government representatives, conservation groups, and private homeowners.

**SITE #1: FORESTHILL STATION** At the Foresthill Ranger Station, Chris Fischer, USFS District Ranger, gave an overview of the fuels treatment, and Dr. John Battles, lead SNAMP researcher, talked about SNAMP and the Fire & Forest Ecosystem Health (FFEH) team role. John showed preliminary data from the SNAMP sites that suggests that thinning reduces competition between trees and so can improve growth even under adverse environmental conditions. The evidence comes from the absence of a growth decrease during an epic 1976-77 drought from the Last Chance growth chronology. Researchers analyzed tree ring growth from cores taken from trees in the Last Chance project area and found that there was no reduction in growth even during the 1977 drought.

Figure 1. Mastication site.



Figure 2. Tree marked for removal.



**SITE #2: MASTICATION** Our first treatment stop showed an example of mastication (Fig. 1). Here, mastication was being used because the trees were damaged by a fungal tree root disease. Between stops, US Forest Service managers pointed out individual trees that were marked for removal (Fig. 2). A participant asked about the methods for marking trees: is it possible to get the variability in tree size, and the heterogeneous pattern that mixed forests need? The Forest Service representatives responded that there is

spacing variability and clumps of trees. All 30"+ DBH (diameter at breast height) trees are left in place, basal areas are variable and the thinning project should/will not look like a fuel break or plantation. Dr. John Battles added that every 500 meters is a SNAMP plot so variability will be captured during post treatment data collection and analysis.

**SITE #3: FOREST THINNING** At our next stop, we watched a fellerbuncher and a skidder that worked in tandem to de-limb, cut and load felled logs for removal (Fig. 3). Steve Brink, representing California Forestry Association, explained the economics of thinning, and pointed out that the cost of renting and operating these machines and transporting the felled logs down the mountain can be quite high. Because the marginal profit for small trees is low, sometimes it is more economical to burn them along with other smaller material such as limbs and tops onsite.



Figure 3. Fellerbuncher and skidder.

Figure 4. Untreated forest on the left of the road. Treated on the right.



**SITE #4: TREATMENT COMPARISON SITE** To illustrate how much these treatments have thinned the forest, we compared treated and untreated forests on either side of the road (Fig. 4). At this site, participants raised a number of questions regarding how to measure the changes that will take place in thinning the forest. That led to an in-depth discussion regarding the use of lidar, a remote sensing technology. Lidar is being used to map these forests before and after treatments. Drs. Maggi Kelly and John Battles explained that it is critical to acquire another lidar flight while leaves are still on trees and brush because the pre-treatment lidar was flown at full "leaf-out" (when all the deciduous trees have leaves). One licensed timber operator from SPI commented that he now better understood the rationale behind the time frame required for this forest thinning operation.



Figure 5. Underburn site.

**SITE #5: UNDERBURN SITE** At our final stop, we visited another thinning site in which prescribed fire will be used after the thinning treatment is complete (Fig. 5). Participants took time to walk out into the treatment area, then came back for closing comments, questions and evaluations (Fig. 6). This led to a discussion of fire suppression and the expectations of landowners and the public. One participant noted that living in the area came with the risk of fire and that everyone must do their part to reduce the risk.

## REFLECTIONS ON THE FIELD TRIP

Figure 6. Discussion and evaluation at the planned underburn site.

The fuels treatment field trip provided a forum for learning and communication by: 1) allowing participants to see clearly the results of the fuels treatment; 2) stimulating questions and discussions among the participants; and 3) facilitating conversations, information flow, and mutual learning among representatives from different groups in the project.

To read other newsletters and for more information about the SNAMP project, please visit our project website at: <http://snamp.cnr.berkeley.edu>.

