

A question of forest health

Jill Coppler

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"Forest health is something we're all interested in defining," said UC Berkeley scientist John Battles to a group of 45 gathered to learn more about the Sierra Nevada Adaptive Management Project (SNAMP) during a field trip last week. "There are many conceptions about forest health, but unlike beauty, forest health isn't in the eye of the beholder."

Forest health, he said, can be qualified with a simple metric: the probability of survival into the next year.

Battles introduced the group to SNAMP's forest health team -- a group of scientists, professors and graduate students, mostly from Berkeley, who have been extracting thousands of tree core samples over the past two years, which they are using to analyze the overall health of trees within select forested areas, such as Sugar Pine and Nelder Grove.

The field trip, one of several hosted by SNAMP, was an open-invitation to learn about their research and tree health as it relates to fire management practices.

Scientists with SNAMP, which has several divisions, are analyzing wildfire prevention practices in order to advise the Forest Service in their future planning. Their advice will be based on a broad study of forest health, waterways, wildlife and spatial analysis at a northern site near Tahoe and the southern site, here in the Oakhurst and Fish Camp region. A seven-year process of data collection and study, SNAMP began in 2007 and will give final recommendations in 2014.

Last week's group was an assemblage of scientists and conservationists, along with representatives from the Department of Fish and Game and the United States Geological Survey.

Nearby residents were also a part of the mix -- folks like Lowell Paulsen who lives near the Sugar Pine fire treatment area.

"I'm here because I want more than research," he said during group introductions. "I want to know exactly where my tax dollars are going."

For Paulsen and other area residents, the project is critical, in part, because it's in their own backyards. They are acutely aware that every summer season brings increased risk of fires, which endanger those who live in the urban-wilderness interface, where the towns dotted in the Mountain Area meet the forests.

Last summer alone, the region was plagued by several large-scale wildfires including the Oliver, Cascadel and Telegraph fires.

As the population of the Mountain Area continues to grow, with the population projected to triple by 2040, so too does the need for fire management.

That's where SNAMP enters the picture.

"This is very much a learning enterprise," Battles said. "We don't have all the answers locked in an ivory tower and we don't rely on a strategy of hope or hoped for outcomes.

"We're here to analyze what happens to a sweep of elements because we know you can't push on one and have the others not effected."

And that, SNAMP officials say, is key. It's also the reason behind their study of myriad elements related to fire management as well as their push for public involvement.

Last week's field trip gave the group a first-hand look at just one of the study areas. After a short drive from the Batterson station in Oakhurst to the Sugar Pine treatment area, the group was given instructions for how to extract tree core samples using a simple tool called an increment borer, which drills a hole into the trunk of a tree, just smaller than finger width. Once the hole is drilled to the center of the tree, the core, which provides a living document for the tree, can be extracted.

The core shows each of the tree's rings, or years of life, and those rings provide important information about the tree's rate of growth, age and health.

One of several small groups was lead by forester Gary Roller, whose work included coring 3,100 trees last year for analysis. Demonstrating the use of the borer, he set his group to extracting samples from a variety of trees.

The forest health study will provide three years of data before a Forest Service fire management treatment and another two years of data following treatment to determine its effects on forest health.

District Ranger Dave Martin told the group that the ultimate goal of these Forest Service treatments is to restore the forests to conditions that mimic what the forests looked like in the 1800s, where the trees were spread farther apart with less ground cover and other plants creating what are considered "ladder fuels" when fires erupt. Wildfires typically move up this "understory" level of the forest to the tree canopy, or the top of the trees, where wind can quickly spread

the fire over a great distance.

"The ability of fire to move from one crown to another in those days virtually didn't exist," Martin said.

Although Martin said he doubted the Forest Service would be able to mimic those conditions exactly, it provides the goal for preventing catastrophic fires.

"We don't want to prevent fire, that's a natural mechanism of a forest. We want to prevent catastrophic fire, fires that are destructive and very difficult to fight.

"We don't want a fire to get from a forest to a community or from a community to a forest, the later being the more common," he said.

The fire treatments will aim to create what Martin describes as a large scale canopy "mosaic," which will reduce a fire's ability to move as quickly. That will be carried out by two means of thinning, mastication (where brush and trees too small to be harvested are ground up) and mechanical thinning where larger trees can be harvested and sold as lumber.

The treatments are a working model with SNAMP research providing an analysis of its effects.

"We all start with a love of the forest and the knowledge of unacceptable fire risks," Battles said. "The controversy is what to do about it, that's why we're all here."

For more about SNAMP, contact Anne Lombardo, SNAMP public participation coordinator, (559) 676-0576; e-mail: amlombardo@ucdavis.edu; website: <http://snamp.cnr.berkeley.edu/>. SNAMP science workplans can also be found online.