



National Park Service
U.S. Department of the Interior

Sequoia & Kings Canyon
National Parks

47050 Generals Highway
Three Rivers, CA 93271

559 565-3703 phone
559 565-3789 fax

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Redwood Canyon Prescribed Fire: Celebrating the History while Planning for the Future

Redwood Canyon holds a special place in fire management history in the National Park Service. It is home to one of the largest giant sequoia groves in the world and is also the birthplace of prescribed fire in the western United States. Starting in 1963 and 1964, researchers discovered that giant sequoias are adapted to fire and use fire for regeneration. Sequoia and Kings Canyon National Parks began using prescribed fires in 1968.

This unit was last burned in 1977. At the time, fire managers believed that this area burned too hot. However, an extensive crop of sapling sequoias demonstrated that these trees thrive in a relatively hot fire that opens the canopy, thins competing vegetation, and releases the tiny seeds to the nutrient-rich ash and mineral soil below. The parks' fire management program learned about fire in the Sierra Nevada in these years.

Historically, natural fires occurred in sequoia forests approximately once every 10-15 years. Therefore, this area had not yet returned to its natural fire cycle. In fact, the crop of sequoias from the 1977 burn had grown quickly in the sunny area, leading to over competition for water and other nutrients. The result was stunted sequoia saplings densely grown together to create a continuous fuel source.

For fire staff, the challenge was to bring fire back to the grove to re-introduce this natural process that thinned the forest and some sequoias so that the survivors would be healthier. The heavy build up of fuels in the sequoias could burn all the 1977 regeneration if active fire was established.

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*Mari Knowles of Crew 91 completes hand ignitions.
NPS photo by Tony Caprio*



*These young sequoia trees grew from a 1977 prescribed fire. Thinning some of these trees was desired for this year's project to reduce competition for sunlight and water.
NPS photo by Tony Caprio*

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This year's significant snowpack and cool spring were part of the solution. The 626 acre unit was completed on the cool end of the prescription. In fact, cold and foggy days prevented approximately 100 acres of the unit from being completed during the initial ignitions. Firefighters also used deliberate ignition techniques (starting fire at the top of the ridge and slowly backing it down) to encourage the fire to spread downhill. This prevented uphill growth that would have led to greater fire intensity and greater mortality.

However, the fire has slowly smoldered and crept through the forest throughout the summer. Many parts of the forest remain unusually wet this year. The result is a low intensity fire that has spread through the areas of the 1977 regeneration, reducing the fuels and removing some of the trees.

This sequoia grove is now at lower risk of an unwanted fire and the forest will be more open and sunny, as should be with a Sierra Nevada forest.

"It's a credit to the firefighters who completed the 2011 Redwood Canyon Prescribed Fire. It required skill and finesse to complete this project with such a successful outcome," said Tom Nichols, NPS Chief of Fire and Aviation Management. Nichols was on hand for both the 1977 burn and this year's project. "The sequoias that were the product of the 1977 burn will be healthier and stronger from this year's fire and some of these trees may now grow to maturity."

Contact: Deb Schweizer
Fire Education Specialist
Phone: (559) 565-3703



Pedro Gutierrez, Captain of Crew 91 completes ignitions in the 1977 regeneration. The trees were densely grown together, making the task a challenge.

NPS photo by Tony Caprio.



Approximately 40% dead and down fuels were consumed by the fire and 50% of the young sequoia trees.

NPS photo by Tony Caprio.