



Kudos to the Structural Fire Program

Did you know that firefighters at Sequoia and Kings Canyon National Parks respond to building fires, too? Hundreds of park structures are protected by our structural fire engine companies, as are the private, residential buildings in the community of Wilsonia and overheated vehicles on Generals Highway.



Structural fire fighters extinguish a vehicle fire as part of training. The vehicle can be ignited repeatedly for practice.

NPS Photo by Malanie Lloyd

A new fire training facility, completed in March, allows fire fighters to practice attacking structural fires (see photos above and above right). A large shipping container simulates a building; with a fire ignited inside it gives company members practice in navigating a burning building to save lives and extinguish flames. Similarly, a “vehicle” fitted with propane burners replicates a car fire.

This cost-effective means of simulating structural fires for training contributes to the park’s ability to increase staffing and expand our capability to respond quickly when needed. The growing program reaches across all park divisions, with employees participating from all areas of the parks.



Company members work in full gear at the new “live fire” training facility in the park. They extinguish a fire in a large shipping container repeatedly during practice.

NPS Photo by Malanie Lloyd

Progress made in this program over the last several years has been recognized by the National Park Service national office. These parks received the 2013 Superior Achievement Award for efforts to “develop and maintain an effective and safe structural fire suppression program” (see photo below).



Park employees who have been instrumental in improving our structural-fire program proudly accept the Superior Achievement award, symbolized by a silver fire ax.

NPS Photo by Malanie Lloyd

Prescribed Fire Project Locations for 2014

The parks are planning **nine projects** this year, totaling up to **2,941 acres**. The projects are designed to improve protection of the parks and our neighbors from wildfire, and to restore or maintain forest health. The timing and completion of burns depends on smoke and air-quality concerns, local and national fire activity, availability of firefighters, funding, fuel moisture, and weather. Mechanical treatments remove fuel without the use of fire, generally by thinning out small trees and brush.

1 Grant Grove Mechanical

(25 acres)
Summer, mechanical

2 Lookout Mechanical

(4 acres)
Summer, mechanical

3 Valley Floor

(45 acres)
Completed in March
Prescribed fire

4 North Boundary

(248 acres)
Prescribed fire

5 Swale West

(191 acres)
Completed in April
Prescribed fire

6 Goliath

(769 acres)
Prescribed fire

7 Bear Hill

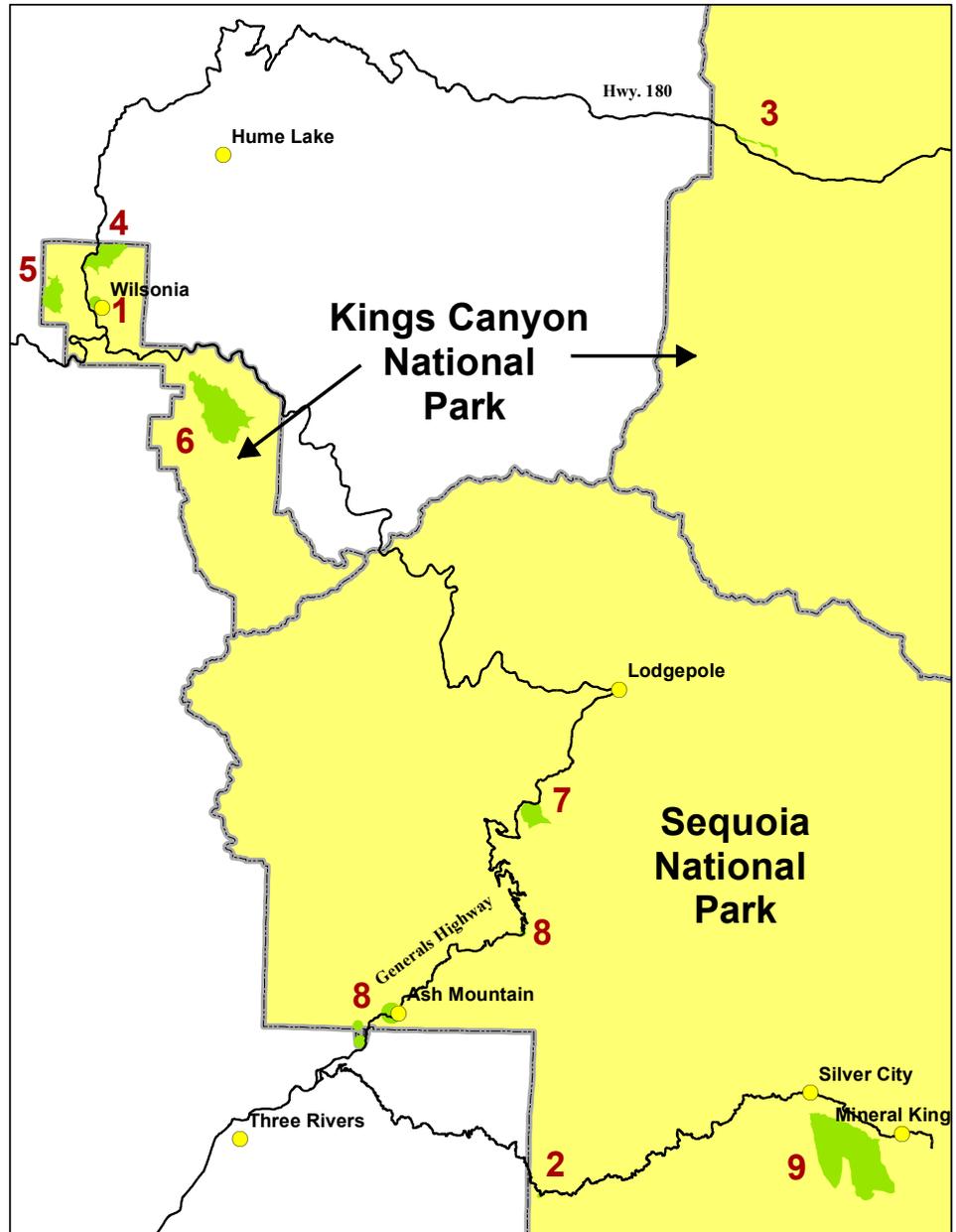
(149 acres)
Prescribed fire

8 Ash Mountain/ Hospital Rock

(25 acres)
Prescribed fire

9 Mosquito

(1,485 acres)
Prescribed fire



What About Unplanned Fires?

Lightning fires and human-caused fires are unplanned events. National Park Service crews are trained to respond to these situations. When necessary, the parks shift priorities from planned projects to respond to unplanned fires.

Long-Term Drought and its Impacts

We all know that the southern Sierra Nevada has been experiencing a deep, three-year drought. The impacts on municipal water supplies and on California's agriculture industry have made high-profile news.

The drought also impacts wildland fire. A number of wildfires burned in California this past winter, a time generally considered outside of "fire season".

In addition to being a historic curiosity, this drought is affecting Sequoia and Kings Canyon National Parks now. River levels are very low and wells in the area are being affected. While recent rains have provided welcome relief, they have not yet been sufficient to substantially improve the seasonal outlook.

Plants, animals, and ecosystems are being affected as well. Effects of the drought on our foothill deciduous trees, particularly the blue oaks and buckeye, became evident at the height of last summer when they began to lose their leaves prematurely.



These browning interior live oaks in the parks are experiencing drought stress.

NPS Photo by Tony Caprio

Highly drought resistant blue oaks will likely survive, but there is concern that interior live oaks may begin to die off (see photo above). Many iconic red-barked manzanita shrubs are experiencing yellowing and dying back.

This spring, the parks' delayed a prescribed fire scheduled for Lewis Camp in the Cedar Grove area due to drought related mortality of trees over the last several years (see photo at left).

Fire managers are getting questions as fire season approaches such as "How will the 2014 prescribed fire program be different in light of the current drought?". As always, the highest priority will be protecting human life and property. Crews will be ready to provide high levels of fire protection along with our state, federal, and local partners.

In addition, fire managers are mitigating the effects of the drought by 1) starting the prescribed fire program a month earlier while fuel moistures are higher and 2) focusing burns in areas with lower fuel loads, unless late season moisture is received.



NPS Photo by Tony Caprio

Ponderosa pine tree in Cedar Grove under attack by pine beetles. Trees under drought stress are vulnerable to beetle attack. Pitch is exuded by the tree in an attempt to prevent beetle entry.

Long-Term Drought and its Impacts (*continued*)

As always, we consider a variety of factors when determining whether or not to ignite a prescribed fire. These include smoke and air quality concerns, local and national fire activity, availability of firefighters, funding, fuel moisture, and weather.



Fire effects crew member dries a live fuel sample to calculate its moisture percentage. This determines whether fuel moistures are within the prescription window.

NPS Photo

In addition to these factors, we review the burn plan prepared in advance for each unit. Central to this document is the identification of a “prescription window”, which gives prescribed fire its name. The prescription window defines both upper and lower limits for the conditions of fuel moisture, temperature, relative humidity, and winds under which it is both safe to burn and fire behavior will meet management goals.

Important to this discussion are fuel moistures. During the weeks preceding the ignition of a unit, sample fuels are dried in an oven to determine the percent of moisture in the fuel (see photo at above). This helps to ensure that prescribed fires are only ignited only under desired conditions. During execution of every prescribed fire, weather information is collected hourly, at a minimum. This allows fire managers determine if the fire is burning within the prescription window and to respond to changing conditions (see photo at right).

Given the drought, early-spring fuel moistures are unseasonably low. The amount of precipitation received as what remains of spring unfolds will determine when and where the parks will experience desirable conditions to ignite prescribed fires.

The parks use many sources of information to adapt the fire program and mitigate risks. In addition to historical information and data gleaned from natural sources such as tree rings and soil cores, the parks collect weather and air quality data. Analyzing this data and comparing it to the past, when possible, can help frame the current drought in a historical context. From the long-term perspective, both giant sequoias and southern Sierra Nevada ecosystems in general have experienced similar drought conditions in the past.

As we move into the 2014 fire season, managers encourage all of us who live or work in and near these parks, as well as those who visit, to use extra caution to prevent unwanted wildfires.



A firefighter collects weather every hour on a prescribed fire, providing managers with up-to-date weather conditions.

NPS Photo

Online Web Cams Show Smoke in Real Time

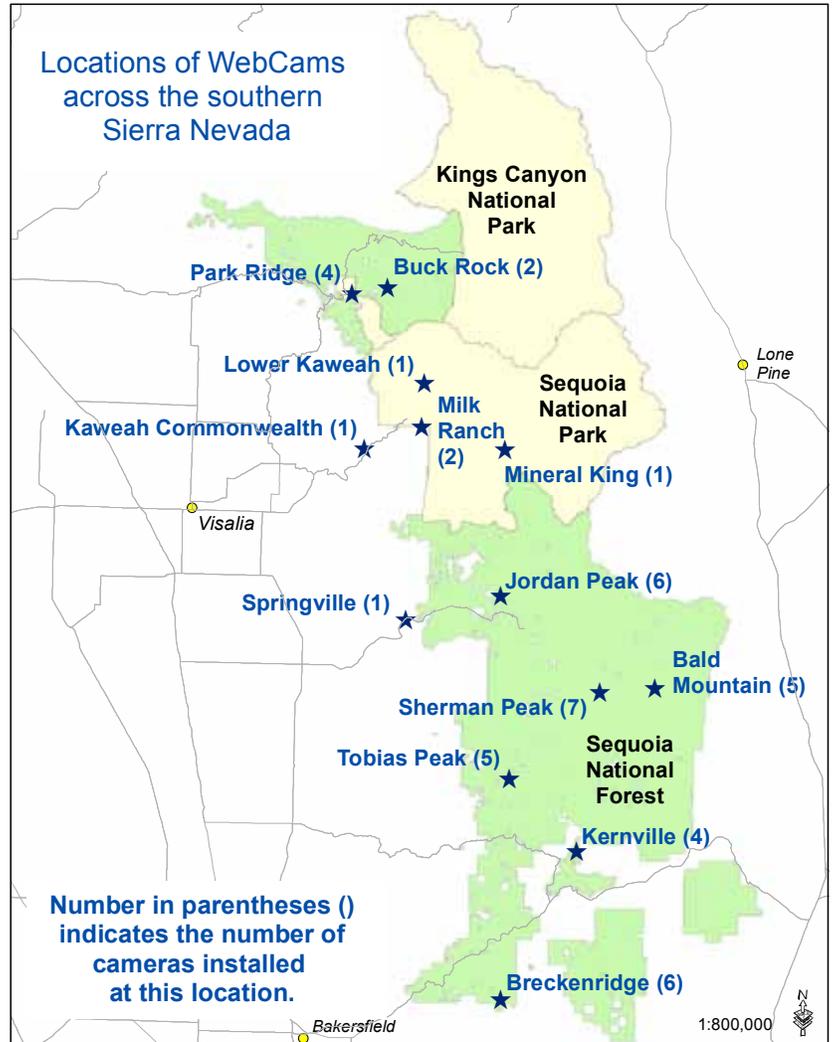
If you have ever wanted to view smoke in real time as it rises from fires in the southern Sierra Nevada, the Sierra Wildland Fire Reporting System (SWFRS) website is for you (<http://sierrafire.cr.usgs.gov/>).

Some 45 web cams deployed across the area are linked to this website (see map). While not all fires can be seen via web cam, many of the larger ones can be observed from one or several cameras. Images captured every five minutes during daylight hours may allow you to watch events unfold.

This past January, the Soda Fire ignited in the Kern drainage about 65 miles north of Lake Isabella on the Sequoia National Forest. The Bald Mountain #1 web cam captured its first hours on January 13. At 2:24 p.m. (photo and web link on back page) it shows a small smoke column just below the arrow. When viewing online, you can move to earlier images by clicking the “<” symbol - left of the time stamp - to see the first visible smoke in the 2:02 p.m. image.

Five days later, on January 18 at 12:51 p.m. (second photo and web link on back page), this camera captured an impressive image showing the increased smoke column.

The Soda Fire grew about 200 acres on January 18 and reached a total of 1,274 acres by the end of January. Fire behavior on this unseasonable January fire was beneficial, with low-intensity fire crawling its way across the ground - consistent with historical fire behavior before fire suppression in the early 1900s.



You can find the SWFRS website at <http://sierrafire.cr.usgs.gov/>; just follow the Web Cams link.

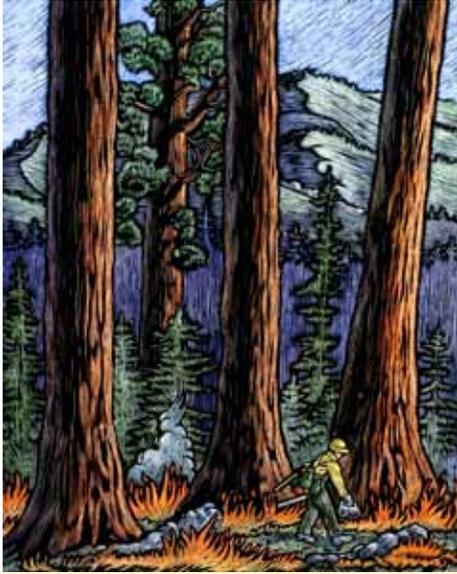
Note: Web cams lead a difficult life. They are usually placed on mountaintops that become inaccessible in winter. Snowload and winter storms may cause them to fail or to aim in a different direction than was intended. Snow and ice may obscure their lenses. As the sites become accessible in spring (which arrives late at 8,000 feet in elevation), they are maintained for the upcoming fire season.



National Park Service
U.S. Department of the Interior

Sequoia and Kings Canyon National Parks

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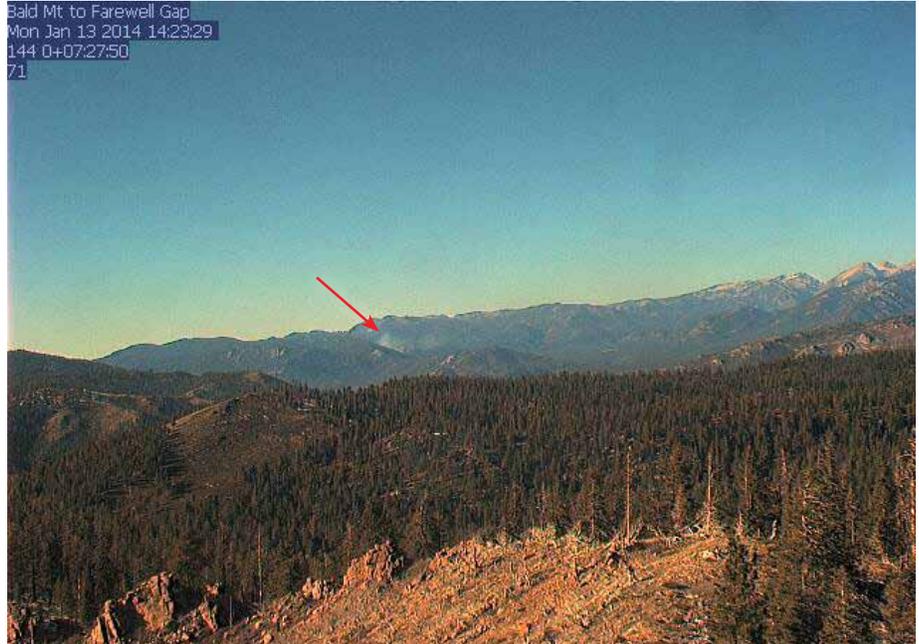
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For more information
[www.nps.gov/seki/naturescience/
fire.htm](http://www.nps.gov/seki/naturescience/fire.htm)

**Contact us for questions,
comments, or requests to
be added to this email list.**



January 13, 2014 - 2:24 p.m. Smoke from the Soda fire in Sequoia National Forest appears in the background, just below the arrow, on the day it was discovered.

See [this and other photos](#) on the SWFRS website.



January 18, 2014 - 1:23 p.m. An impressive smoke column towers over the Soda Fire, which grew about 200 acres this day.

See [this and other photos](#) on the SWFRS website.