



SAVE  
CA

## SIERRA NEVADA WATERSHED FACTS

### WILDFIRE TRENDS IN THE SIERRA NEVADA

- The amount of area consumed by fire in the Sierra Nevada continues to increase. More land has burned in the first five years of this decade than in each of seven entire decades in the past.
- Between 1984 and 2010, there was a significant increase in the number of acres within a forest fire burning at high-intensity, from an average of 20% in mid-1980s to over 30% by 2010. The 2013 Rim Fire, the largest fire in the recorded history of the Sierra Nevada, burned 257,000 acres, almost 40% of which was at high intensity.

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**Not only are wildfires becoming more damaging, they are also becoming more expensive. Suppression costs alone for the 2013 Rim Fire exceeded \$127 million. The King Fire cost an estimated \$5 million per day to fight, with a total suppression cost of \$118.5 million.**

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### THREATS TO SIERRA NEVADA WATER SUPPLY

- High-intensity burn areas can experience runoff and erosion rates five to ten times greater than low- or moderate-intensity burn areas. The sediment that is carried in the runoff not only degrades water quality and damages infrastructure, it fills reservoirs, reducing storage capacity. These fires can also sterilize the soil making recovery more difficult.
- The majority of mercury-impaired reservoirs are found in central California, many of which store water that comes from Sierra Nevada watersheds. As sedimentation reduces storage capacity, the presence of these toxins significantly complicates restoring capacity.

THE URGENCY TO

RESTORE

OUR PRIMARY  
WATERSHED



CONTINUED

# SIERRA NEVADA WATERSHED FACTS CONTINUED

- 535 miles of rivers and creeks and 104,000 acres of lakes in the Sierra are listed as mercury impaired. Mercury in its methylated form is a very serious health hazard. Methylmercury is a neurotoxin that affects the nervous system, leading to brain and nervous system damage as well as other impairments. Methylmercury is a bioaccumulant, entering the bottom of the food chain at low levels of concentration, but entering humans at high levels of concentration through the consumption of fish.

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**Overgrown forests can impede snow from reaching the ground to create snowpack. Healthy forests have openings for snow to accumulate while maintaining adequate shade to protect the snowpack, a characteristic that will become even more important as future snow fall in some parts of the Sierra is predicted to decrease dramatically.**

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- Sierra meadows have become degraded, resulting in a loss of natural storage that would be released slowly over the dry months when flows are needed most. Healthy meadows also filter sediment and pollutants, contributing to higher quality drinking water.

## THREATS TO CALIFORNIA'S CLIMATE

- Annually, Sierra forests sequester enough carbon to offset the annual carbon emissions of almost 2.7 million cars. However, one megafire can undo much of the annual carbon storage benefits these forests provide in a very short period of time. For example, estimates are that the 2013 Rim Fire produced the same amount of greenhouse gas emissions that 2.3 million vehicles produce in a year.
- Early estimates indicate that in just a few weeks, the 2014 King Fire released 2,293,920 tons of greenhouse gasses, or roughly equal

to the emissions that more than 440,000 passenger cars would release in a year.

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**A recent study in the Sierra Nevada shows that historically many forests were sparse and dominated by large trees that sequestered over 25 percent more carbon than the overgrown, small tree-dominated forests of today.**

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- The larger, more intense fires that we are experiencing in the Sierra today, like the Rim and the King Fires, can lead to type conversion over some of the burn areas – In other words, areas that were forested before the fire do not grow back as forest, but instead become shrub or grasslands. The regrowth of shrub and grasslands store less than ten percent of the carbon that healthy forests do and are more susceptible to future high-intensity fire.

## THREATS TO WILDLIFE AND HABITAT

- The Sierra Nevada Region is home to 60 percent of California's animal species and over one-third of these animal species are listed by the Department of Fish and Wildlife as rare, threatened, or endangered.

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**Habitat for many species, including listed or proposed for listing species such as the California spotted owl, great gray owl, and Pacific fisher, can be drastically altered by large uncharacteristic wildfires. For example, the 2014 King Fire in Eldorado and Placer Counties consumed 14 spotted owl Protected Activity Centers (PACs), or areas where the owls are known to roost and nest.**

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