

## Rim Fire - California, 2013

The Rim Fire was the third-largest in California's recorded history, burning 402 square miles and destroying 112 structures primarily in drought-stricken national forest and national park lands.

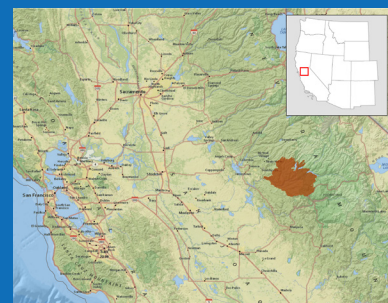
Blackened ecosystems ranged from lower-elevation wet meadows and chaparral to diverse subalpine forests of pine, oak, and aspen. Important nesting areas for spotted owls and goshawks were destroyed. The burned area supplies drinking and irrigation water to the San Francisco Bay Area and California's Central Valley. The fire quickly and completely consumed dense stands of pine and other vegetation on high ridges and in steep canyons, but burned as a lower-intensity (some say beneficial) ground fire around a critical reservoir.<sup>1</sup>



*Rim Fire, Yosemite and Stanislaus (NASA, International Space Station, 08/26/13). Image credit: NASA*

### DATA COLLECTION

The San Francisco Public Utilities Commission hired Earth Economics – a Tacoma, WA-based organization that specializes in putting a dollar value on “ecosystem services” – to collect environmental data and compile a rapid assessment of economic impacts. Based on satellite data collected in mid-September 2013 before the fire was completely contained, Earth Economics estimated losses for the first year based on a range of environmental values available in academic, peer-reviewed literature. Losses to 10 categories of environmental benefits (ecosystem services) totaled \$100 million to \$736 million and considered air quality, carbon sequestration, moderation of extreme events, soil retention, biological control, water regulation, pollination, habitat and biodiversity, aesthetic values, recreation and tourism.<sup>2</sup>



### SUMMARY

**Date:** August-October 2013

**Setting:** The Sierra Nevada Mountains of central California, east of San Francisco in the Stanislaus National Forest and Yosemite National Park.

**Burned area:**  
257,314 acres (402 square miles)

**Buildings destroyed:**

- 3 commercial buildings
- 98 outbuildings
- 11 residences

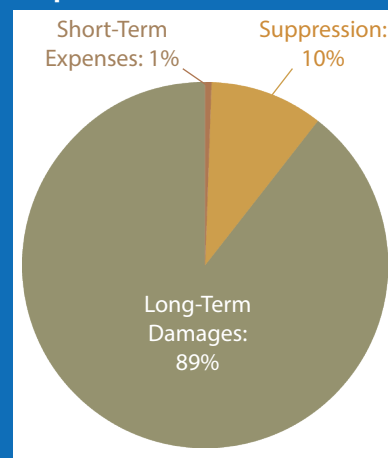
**Injuries:** 10

**Land ownership:**

- 91% federal
- 9% private

**Estimated costs:**  
\$388 million to \$1.271 billion

### Proportional Costs of Wildfire



## EXPENSES AND DAMAGES

The cost of fire suppression was more than \$127 million.<sup>3</sup> The cost included the loss of several commercial buildings and 11 residences. In addition, the fire cost:

- \$8.5 million for emergency road, trail, and watershed stabilization<sup>4,5</sup>
- \$900,000 to purchase alternative energy when three hydroelectric powerhouses had to be taken offline
- Losses “in the millions” to the ranching community for destroyed grazing land, killed livestock, and damaged infrastructure
- Between \$102 million and \$797 million for the loss of carbon storage
- Between \$49.7 million and \$265 million for losses to private property values
- Between \$100 million and \$736 million for loss of ecosystem services – that is, environmental benefits. (These costs are being tabulated more often as ecosystem service valuation becomes more accepted in courts to support damage assessments.)



USFS image of a firefighter after starting back fires to help suppress the Rim Fire. Photo: Mike McMillan, USFS

## COSTS NOT EVALUATED

- Ecosystem services not evaluated due to lack of data or absence of appropriate studies included food provisioning, raw materials, medicinal resources, soil formation, and science and education
- Impacts on water supply, quality, timing, and reliability
- Impacts of hydrophobic soils (i.e., ash-encrusted soil that repels water, thereby increasing runoff and decreasing infiltration)
- Longer-term economic damages (loss of property taxes, decreased economic activity, increased insurance premiums, etc.)
- Rehabilitation and restoration
- Public health including physical and mental injury, stress, and trauma incurred during the fire and in succeeding years

## WHO PAYS

In the case of the Rim Fire which burned primarily on federal land, the federal government paid for most of the firefighting costs. However, ongoing environmental costs will be paid by the general public, including the 2.6 million Bay-area users of drinking water that originates in the Rim Fire area.

1 Batker D, Christin Z, Schmidt R, and de la Torre I. 2013. *The Economic Impact of the 2013 Rim Fire on Natural Lands: Preliminary Assessment*. Tacoma, WA: Earth Economics. <http://www.energyenvironmentallaw.com/files/2014/01/Earth-Economics-Rim-Fire-Report-11.27.20131.pdf>.

2 Ibid (Batker et al.)

3 InciWeb Incident Information System <https://inciweb.nwcg.gov/incident/3660/>

4 Sierra Nevada Conservancy. *The Rim Fire: Why investing in forest health equals investing in the health of California*. Auburn, CA: State of California. <http://www.sierranevada.ca.gov/factsheets/10.31rimfirefactsheet.pdf>

5 <http://www.energyenvironmentallaw.com/files/2014/01/Earth-Economics-Rim-Fire-Report-11.27.20131.pdf>