Loma Fire - California, 2016

California's Loma Fire blew up fast in the drought-stricken Santa Cruz Mountains south of San Francisco Bay and the Silicon Valley area in 2016. The 4,474-acre fire burned in a sparsely populated part of Santa Clara County, one of the most affluent counties in the U.S.

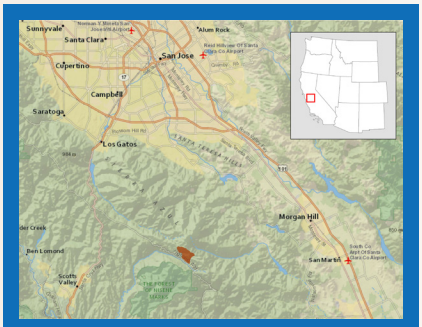
Steep, dry, mountainous terrain is primarily covered with mixed hardwood and evergreen forests interspersed with coastal scrub and grasslands. Several fish, wildlife, and botanical special-status species were present in the burned area.[1] The fire burned sections of two watersheds that drain into reservoirs that provide flood control and recharge groundwater.

The high-intensity fire was followed by the heaviest rainfall in California's recorded history, resulting in landslides, failed culverts, damaged roads, and increased sediment in streams.

Loma Fire - Santa Cruz Mountains. Photo credit: Don DeBold

DATA COLLECTION

Earth Economics, a Tacoma, WA-based organization that specializes in putting a dollar value on "ecosystem services," was hired by the Santa Clara Valley Open Space Authority (OSA) to conduct a comprehensive cost analysis of the fire soon after it had been extinguished. Data were collected from state and county fire and emergency response officials, water and power utilities, the Santa Clara Valley Open Space Authority, and local realtors. Earth Economics also estimated ecosystem services losses based on a range of environmental values available in academic, peer-reviewed literature.



SUMMARY

Date: September-October 2016

Setting: The remote and rugged Santa Cruz Mountains south of San Francisco Bay and the Silicon Valley area.

Burned area: 4,474 acres

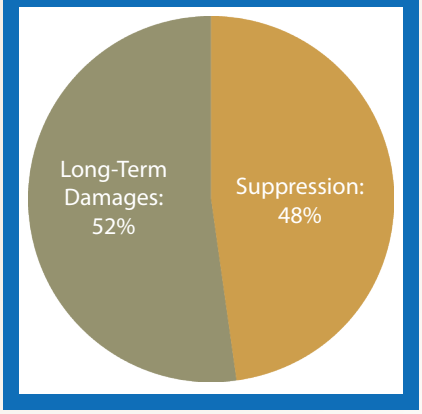
Buildings destroyed:
- 16 outbuildings
- 12 residences

Land ownership:
- 54% private
- 46% two community open space districts

Estimated costs:
$29 million to $34.5 million

Most expensive costs:
- Depreciated property values
- Suppression costs (State)
- Degraded ecosystem services

Proportional Costs of Wildfire



EXPENSES AND DAMAGES

The cost of fire suppression and response was estimated at $16,548,224 with the California Department of Forestry and Fire Protection (CalFire) covering 96 percent of that cost and the county paying the balance. In addition, the fire cost:[2]

- $756,584 for immediate loss of ecosystem services, including waste treatment and stormwater retention, recreation and tourism, moderation of extreme events, habitat, carbon sequestration, biological control, and soil erosion control.
- Up to $1 million/year for loss of ecosystem services for the next nine years
- Up to $3.1 million for the loss of carbon storage in soils and mature vegetation

Loma Prieta Fire. Photo credit: Travis Wise

- Up to $2.9 million projected for dredging reservoirs downstream from the fire for one year (Erosion is likely to continue for multiple years.)
- $7.2 million for the loss of 12 homes
- $1.7 million for rebuilding gas and electric utility infrastructure
- $1.3 million for restoration including planning and mapping, field work, and stabilizing and widening roads

COSTS NOT EVALUATED

- Property loss – destruction of outbuildings and damage to residences
- Evacuation shelters for displaced families provided by the Red Cross
- Ecosystem services such as food provisioning, raw materials, medicinal resources, soil formation, and science and education
- Financial risk of future damages from flooding or landslides to homes and other structures, culverts, and roads
- Longer-term economic damages such as lost recreation and tourism, decreased taxes due to lower property values, increased insurance premiums, etc.
- Public health including physical and mental injury, stress, and trauma incurred during the fire and in succeeding years

WHO PAYS

Fire suppression and response were paid almost entirely by the State of California; the county incurred suppression costs as well. Insurance paid for property losses (homes and utilities), that were insured. Post-fire restoration of public areas was undertaken by a local Open Space special district funded by a property tax. Losses to ecosystem services and ongoing environmental costs are paid by all.

1 State of California. 2016. *Loma Fire: Watershed Emergency Response Team Final Report.* Pub. No. CA-SCU-006912. http://www.fire.ca.gov/communications/downloads/Watershed_reports/20161026_LomaWERT_FINAL.pdf.

2 Christin Z, Mojica J, Cousins K, and Chadsey M. 2017. *The Economic Impact of 2016 Loma Fire.* Tacoma, WA: Earth Economics. http://www.openspaceauthority.org/news/pdf/The%20Economic%20Impact%20of%20the%202016%20Loma%20Fire%20FINAL%2020170505.pdf