

# Mokelumne Watershed Avoided Cost Analysis

Kim Carr, Sierra Nevada  
Conservancy



# Sierra Nevada Conservancy

Initiate, encourage and support efforts that improve the **environmental, economic and social well-being** of the Sierra Nevada Region, its communities and the citizens of California



***“We’ve realized the water does not come from the streams, it comes from the forest.”***

-Denver Water Board member

# Why An Avoided Cost Analysis?

To answer the question –

Does it make economic sense to increase investment in fuel treatments to reduce the risk of large, damaging wildfires?

# What is the focus of the Avoided Cost Analysis?

Calculate the avoided costs of implementing forest treatments to reduce fire risk compared to paying costs associated with wildfire.



# Primary Goals of the Project

- Through collaboration, identify forest treatments and locations that show multiple benefits.
- Encourage new investment in forest treatment to increase pace and scale and reduce fire risk.
- Identify new investment/investors.
- Education – link headwaters to water users/rate payers

# Untreated & Treated Forest Area



Amador County

# Water and Fire

## California's Sierra Nevada - Your Source of Water

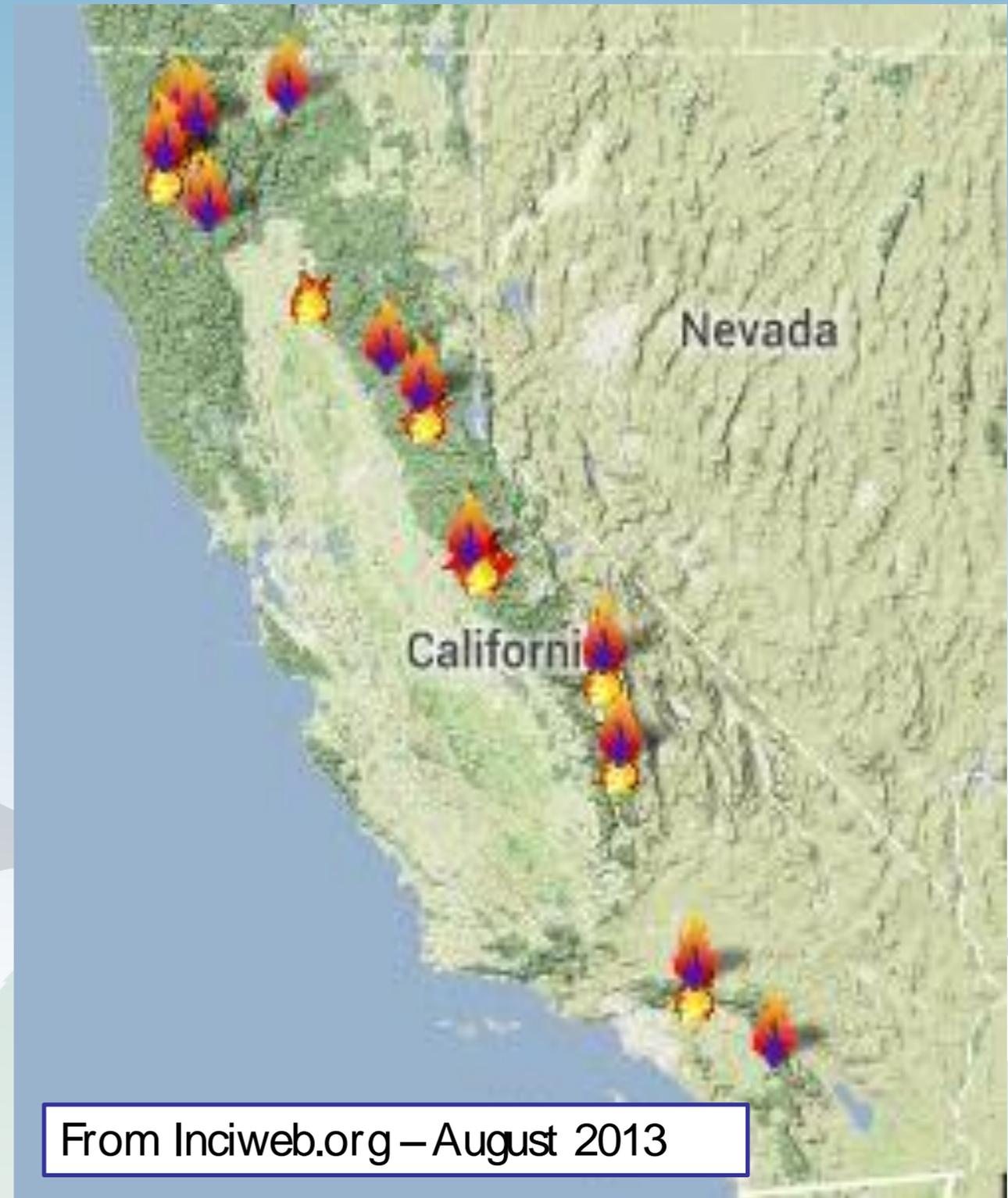
California's instate water supply mainly comes from the Sierra Nevada and southern Cascade mountains. The map shows the range of water yield throughout the state, water that is potentially available for use. The highest amount of water yield is depicted in dark and lighter blue and the more arid areas are shades of beige.

The naturally wet areas of California support and sustain the dry areas. The map shows the primary end users of the water by use of the faucet icon.



**Data Sources:**  
California Water Yield: The Nature Conservancy  
Water Sources & Destinations: Calculator  
Shaded Relief: ESRI/ArcGIS Online  
Urban Areas: ESRI Data and Maps

Prepared by: Sierra Nevada Conservancy



From Inciweb.org – August 2013



Don Bartletti Los Angeles Times

[WWW.SIERRANEVADA.CA.GOV](http://WWW.SIERRANEVADA.CA.GOV)

**San Francisco Chronicle**

**Yosemite fire shows water resources at risk**

**Los Angeles Times**

Cost of battling massive Rim fire hits \$100 million

**San Jose Mercury News**

BAY AREA NEWS GROUP

**Rim fire: Disaster shows need to invest in Sierra forests and California's water supply**

# Partners

## Planning Team:

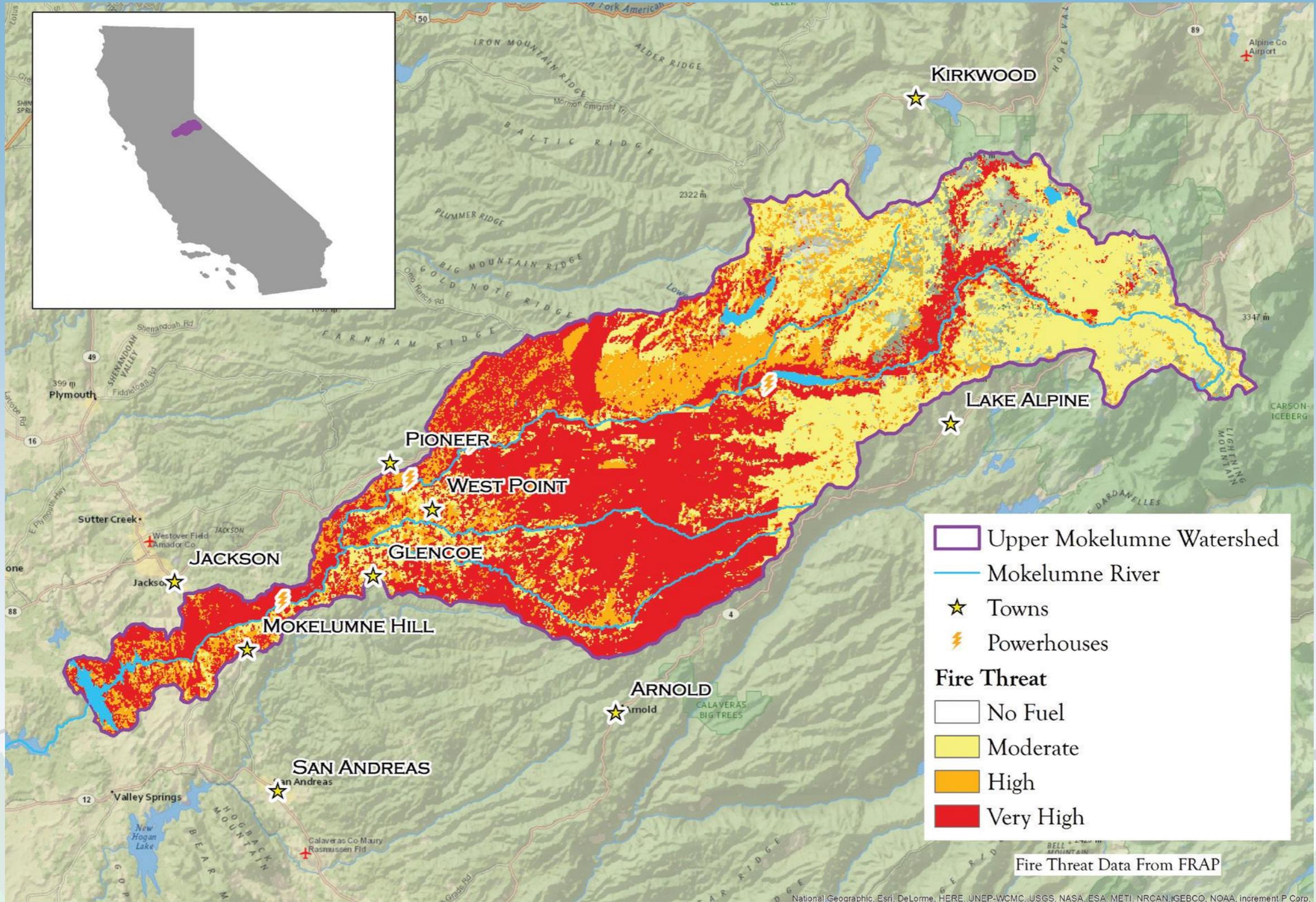
- US Forest Service Region 5
- Sierra Nevada Conservancy
- The Nature Conservancy



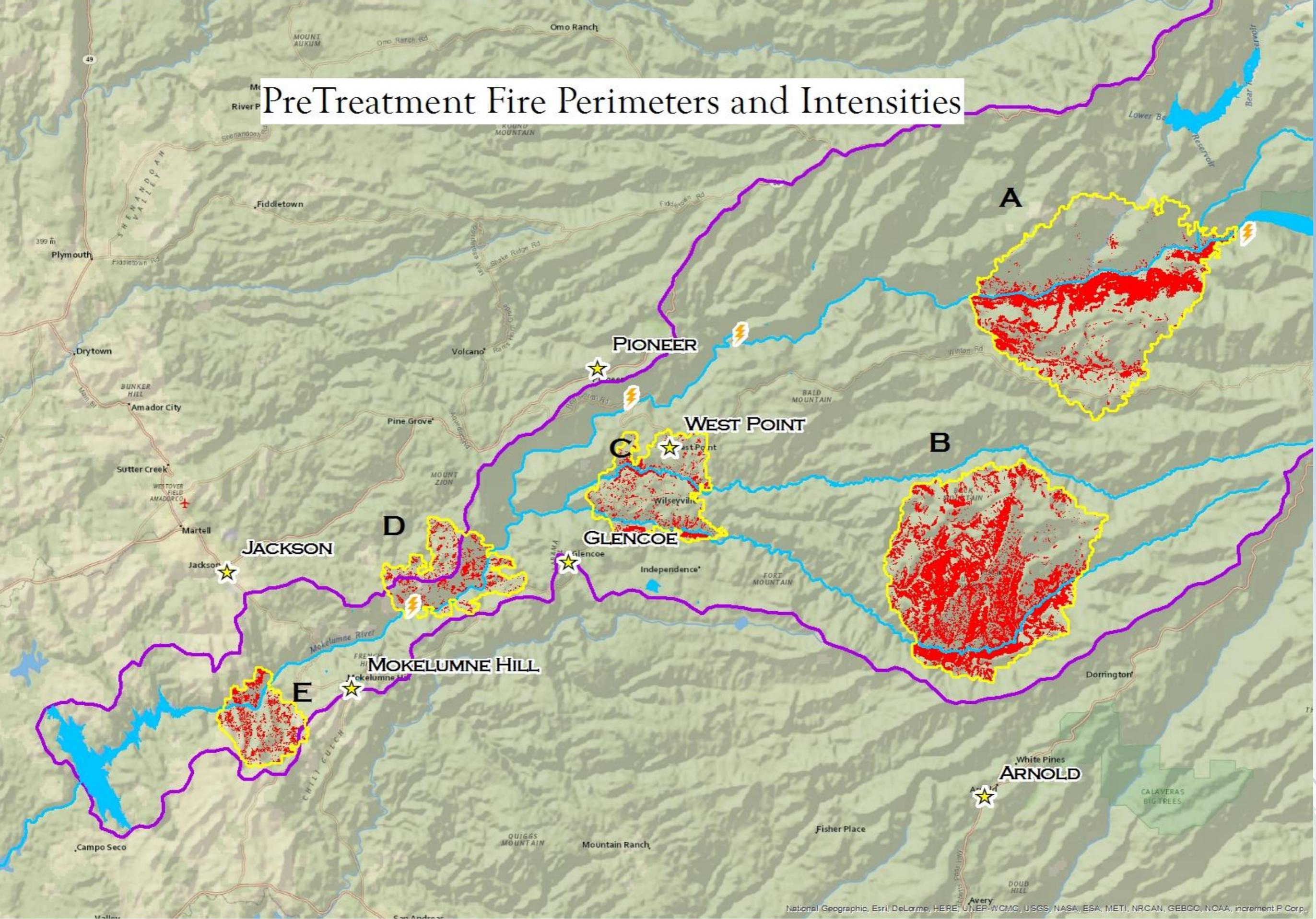
## Advisory and Technical Teams:

- East Bay Municipal Utility District
- Pacific Gas & Electric
- Eldorado National Forest
- Stanislaus National Forest
- Bureau of Land Management
- Sierra Pacific Industries
- Environmental Defense Fund
- Native American Community
- Foothill Conservancy
- Sustainable Conservation
- Department of Water Resources
- CALFIRE
- Local Fire Districts
- Amador & Calaveras Counties

# Upper Mokelumne River Watershed



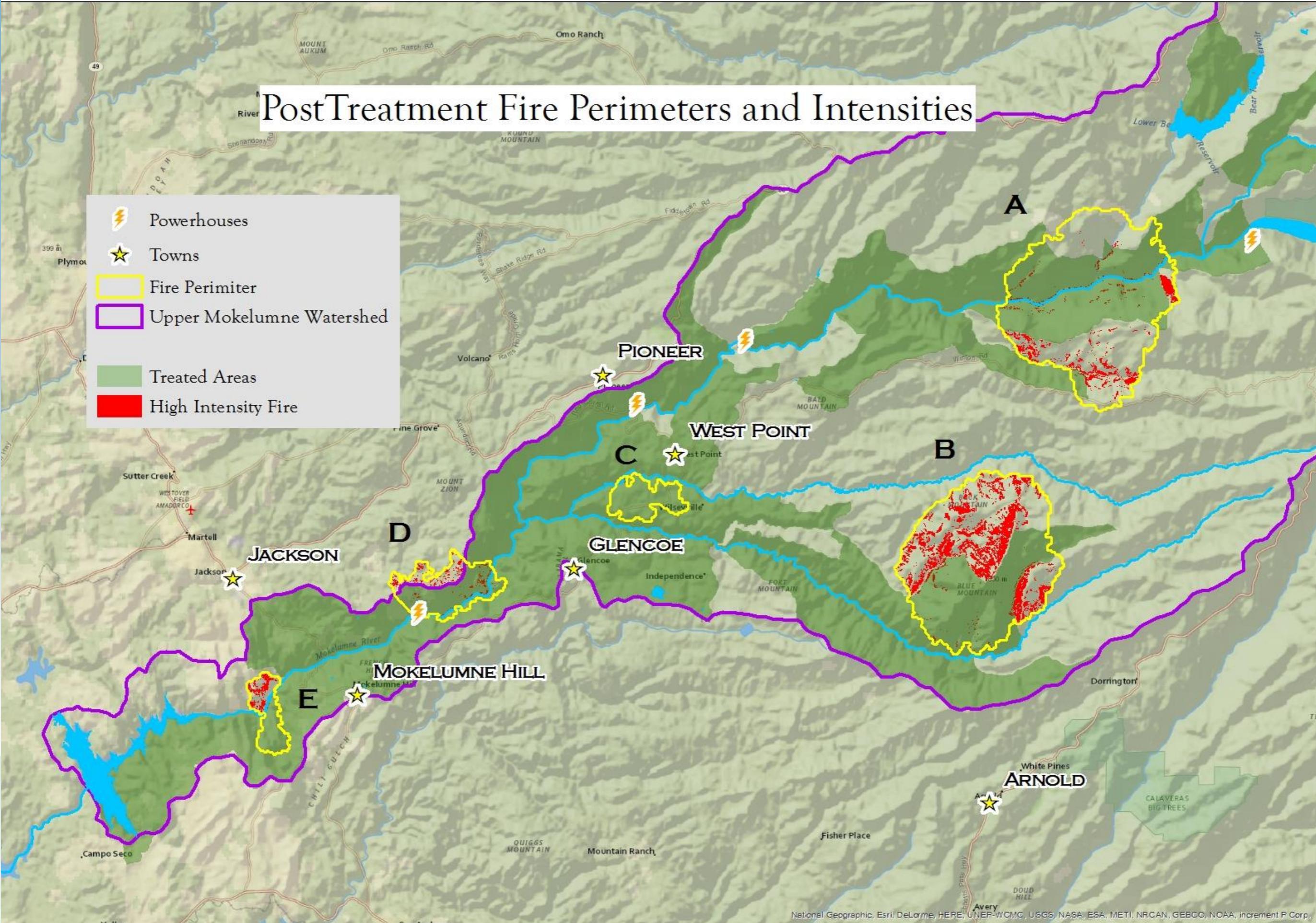
# PreTreatment Fire Perimeters and Intensities



National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

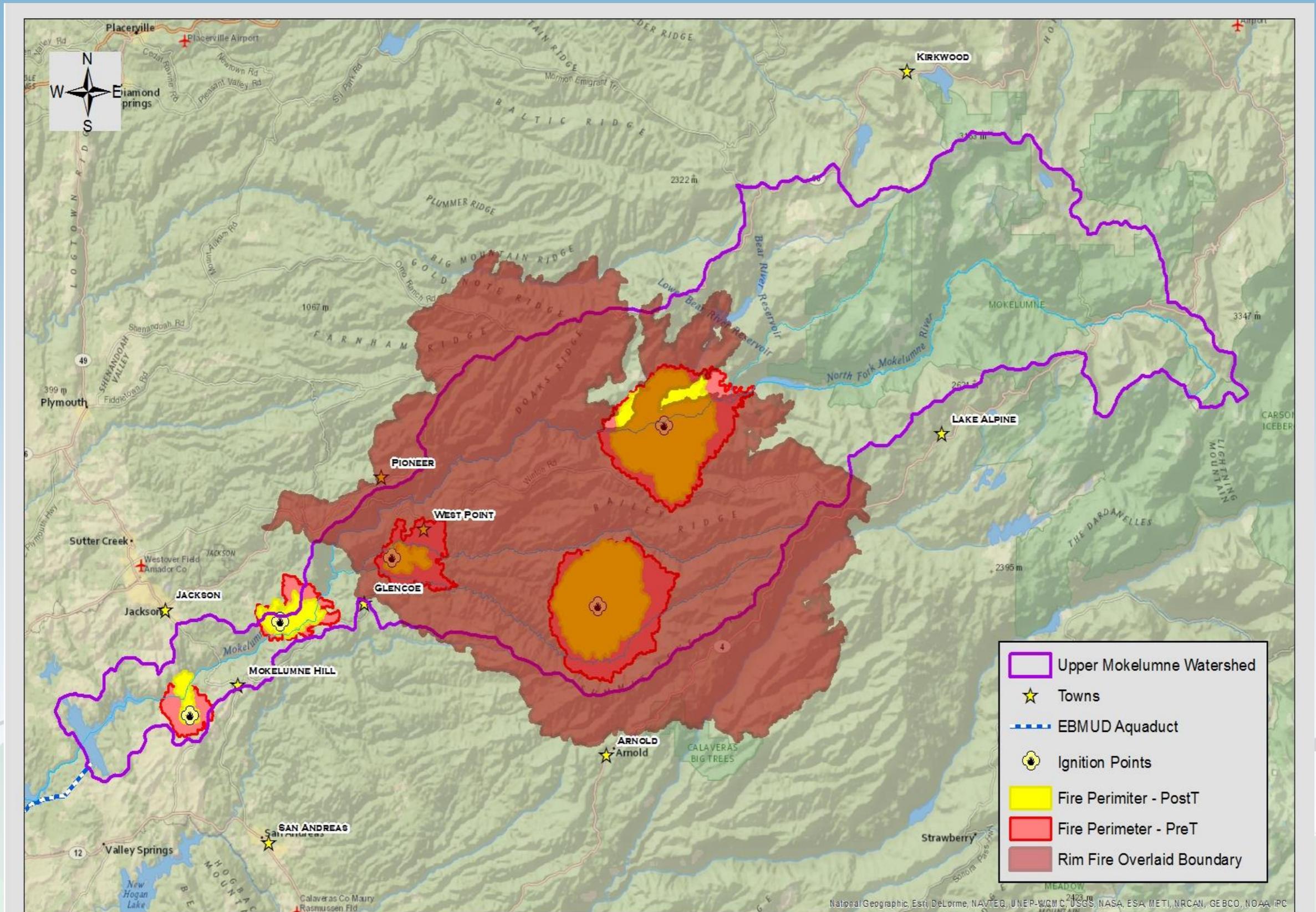
# Post Treatment Fire Perimeters and Intensities

-  Powerhouses
-  Towns
-  Fire Perimeter
-  Upper Mokelumne Watershed
-  Treated Areas
-  High Intensity Fire



National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

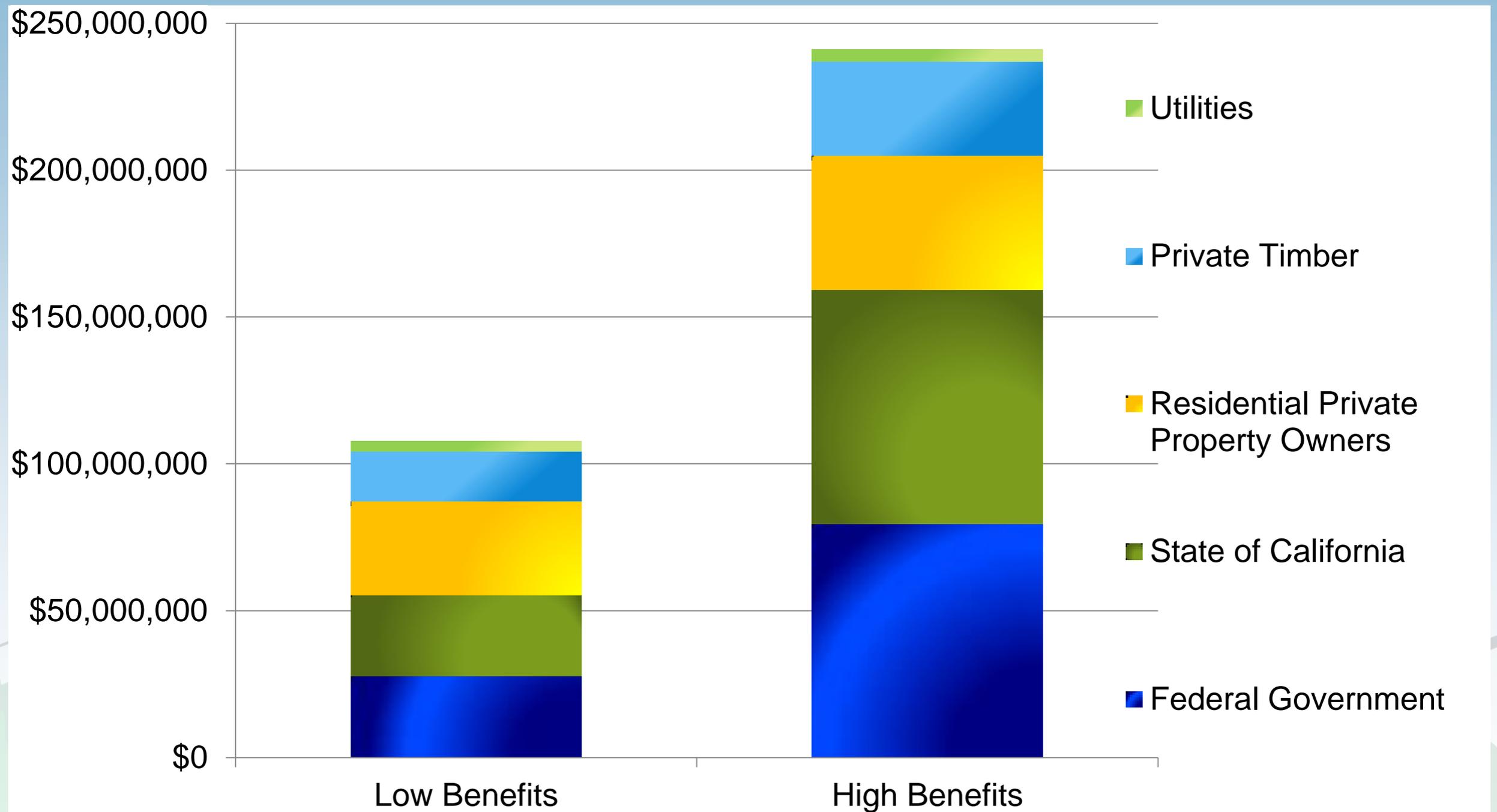
# Rim Fire Boundary and Modeled Wildfires



# Costs and Benefits

<i>Costs</i>		
Fuel Treatment	\$68,000,000	\$68,000,000
<i>Benefits</i>	<i>Low</i>	<i>High</i>
Structures Saved	\$32,000,000	\$45,600,000
Avoided Fire Cleanup	\$22,500,000	\$22,500,000
Carbon Sequestered	\$19,000,000	\$71,000,000
Merchantable Timber from Treatment	\$14,000,000	\$27,000,000
Avoided Suppression	\$12,500,000	\$20,800,000
Biomass from Treatment	\$12,000,000	\$21,000,000
Avoided Road Repairs and Reconstruction	\$10,630,000	\$10,630,000
Transmission Lines Saved	\$1,600,000	\$1,600,000
Timber Saved	\$1,200,000	\$3,130,250
Avoided Sediment for Utilities (water supply)	\$1,000,000	\$1,000,000
<b>Total Benefits</b>	<b>\$126,430,000</b>	<b>\$224,260,250</b>

# Fuel Treatment Beneficiaries



# Key Findings

- Fuel treatments can significantly reduce the size and intensity of wildfires
- The economic benefits of fuel treatments can be three or more times the costs
- There are many beneficiaries from increased fuel treatments, especially taxpayers
- The estimated volume of sediment from post-fire is estimated to be large, however the avoided costs to downstream utilities were less than anticipated

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Mokelumne Watershed Fund

# Action Since Report Release

- Large media coverage
- Briefings to:
  - Federal Agencies
  - California Congressional staff
  - California State legislator's
  - East Bay Municipal Utility District
- Steps to establish a Forest to Faucet Model

**[SierraNevada.ca.gov/Mokelumne](http://SierraNevada.ca.gov/Mokelumne)**

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