

# Agenda Item XII Mokelumne Watershed Avoided Cost Analysis

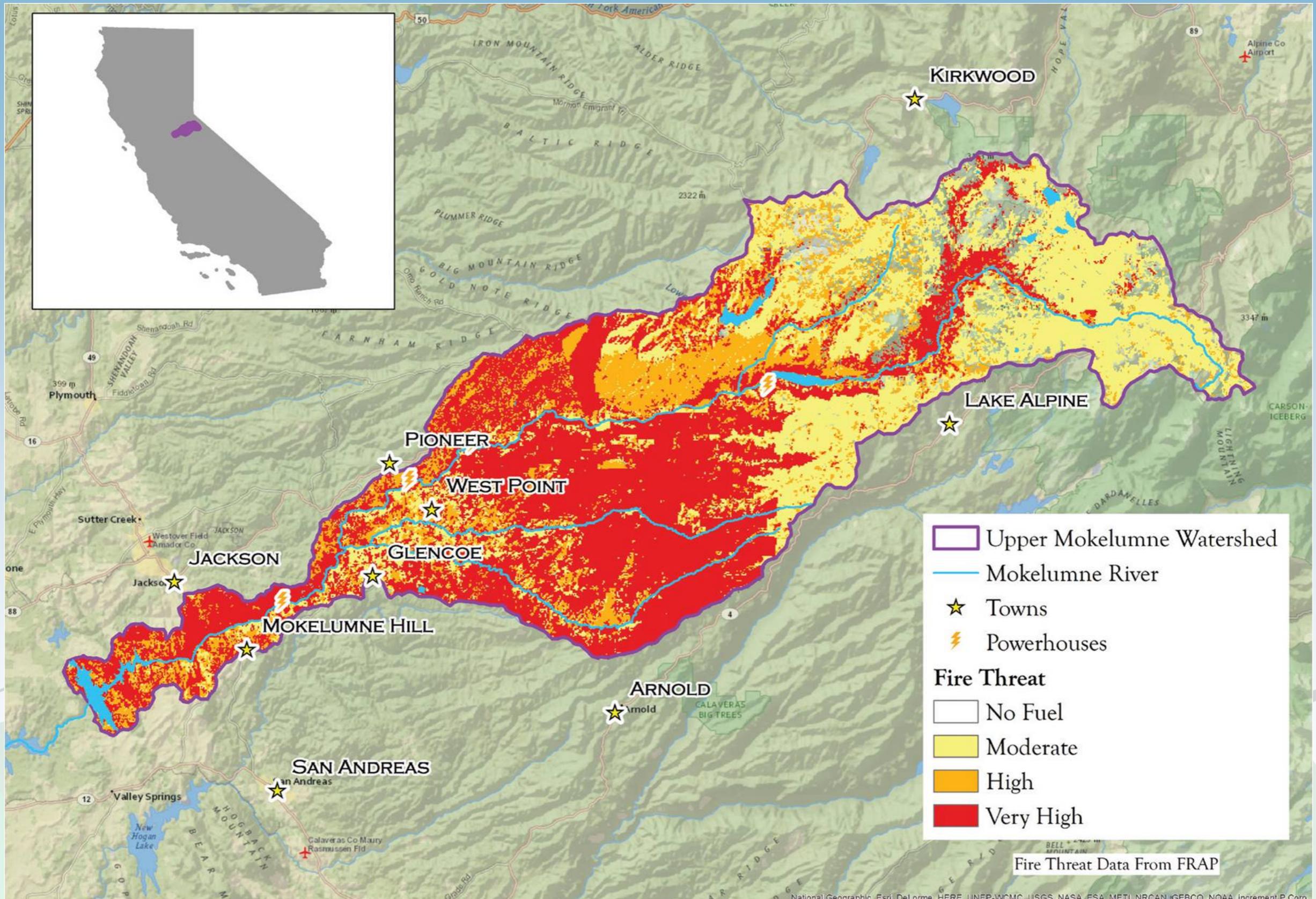
Presented By:  
Kim Carr



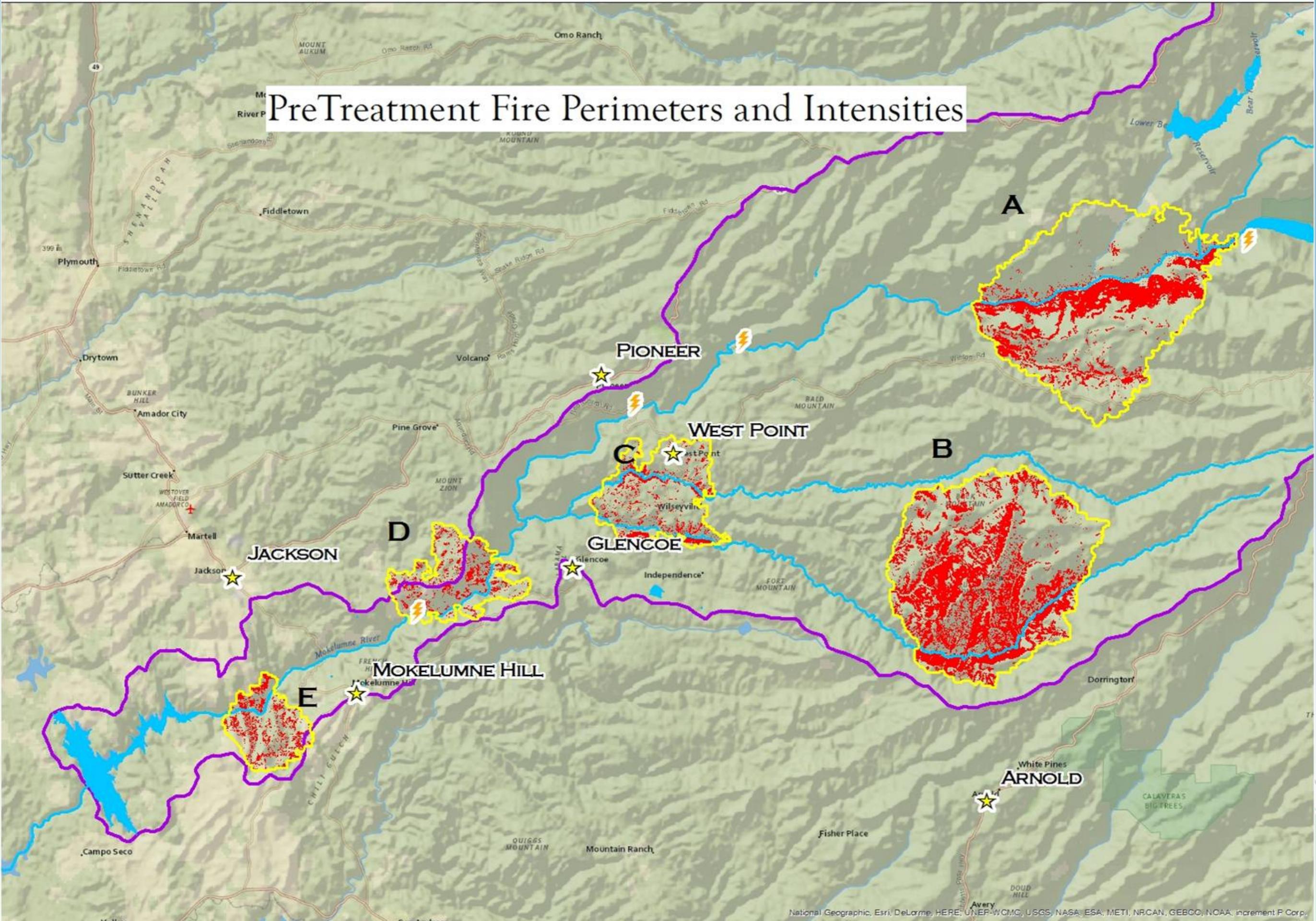
# Key Findings

- 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.

# Upper Mokelumne River Watershed



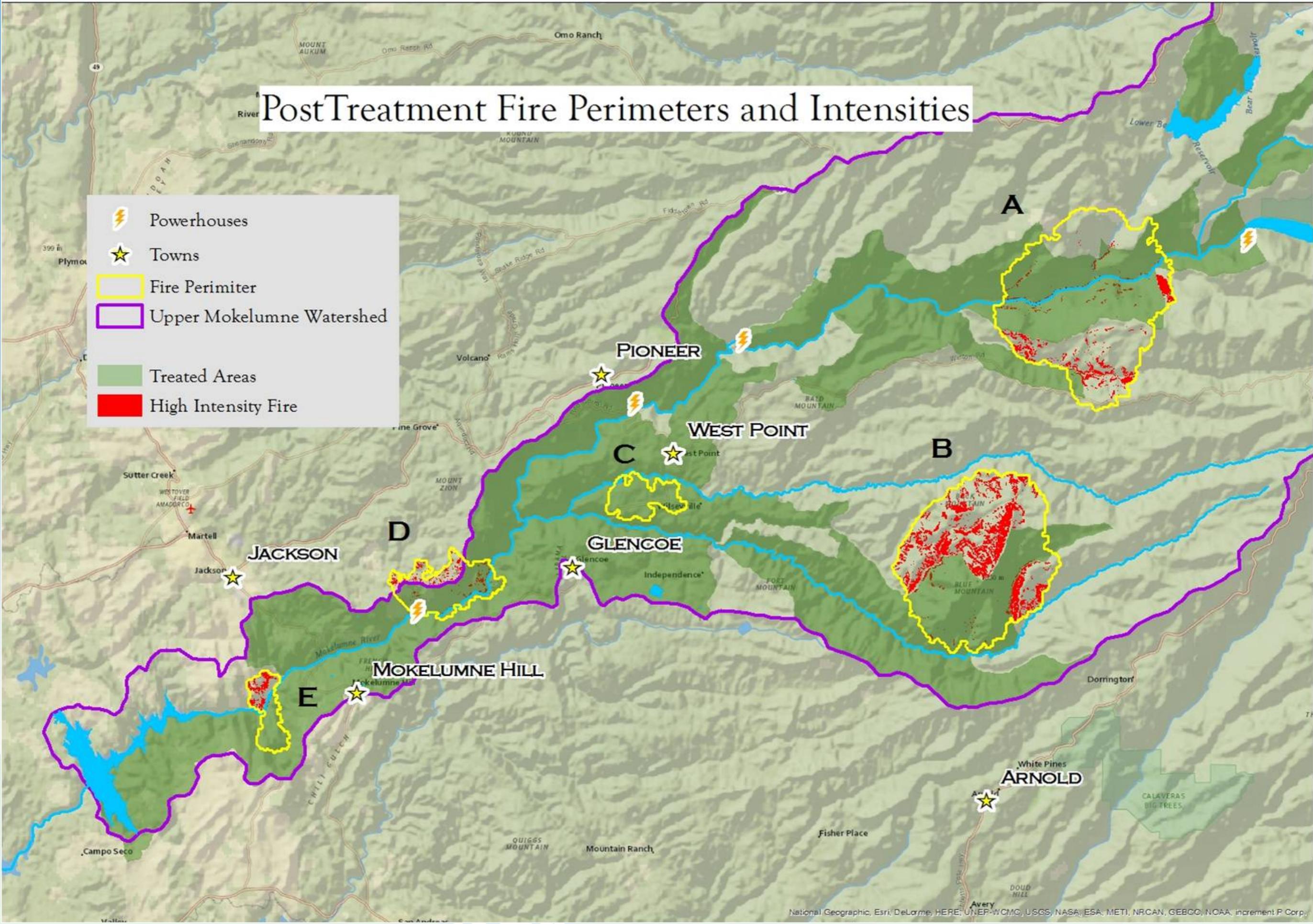
# PreTreatment Fire Perimeters and Intensities



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

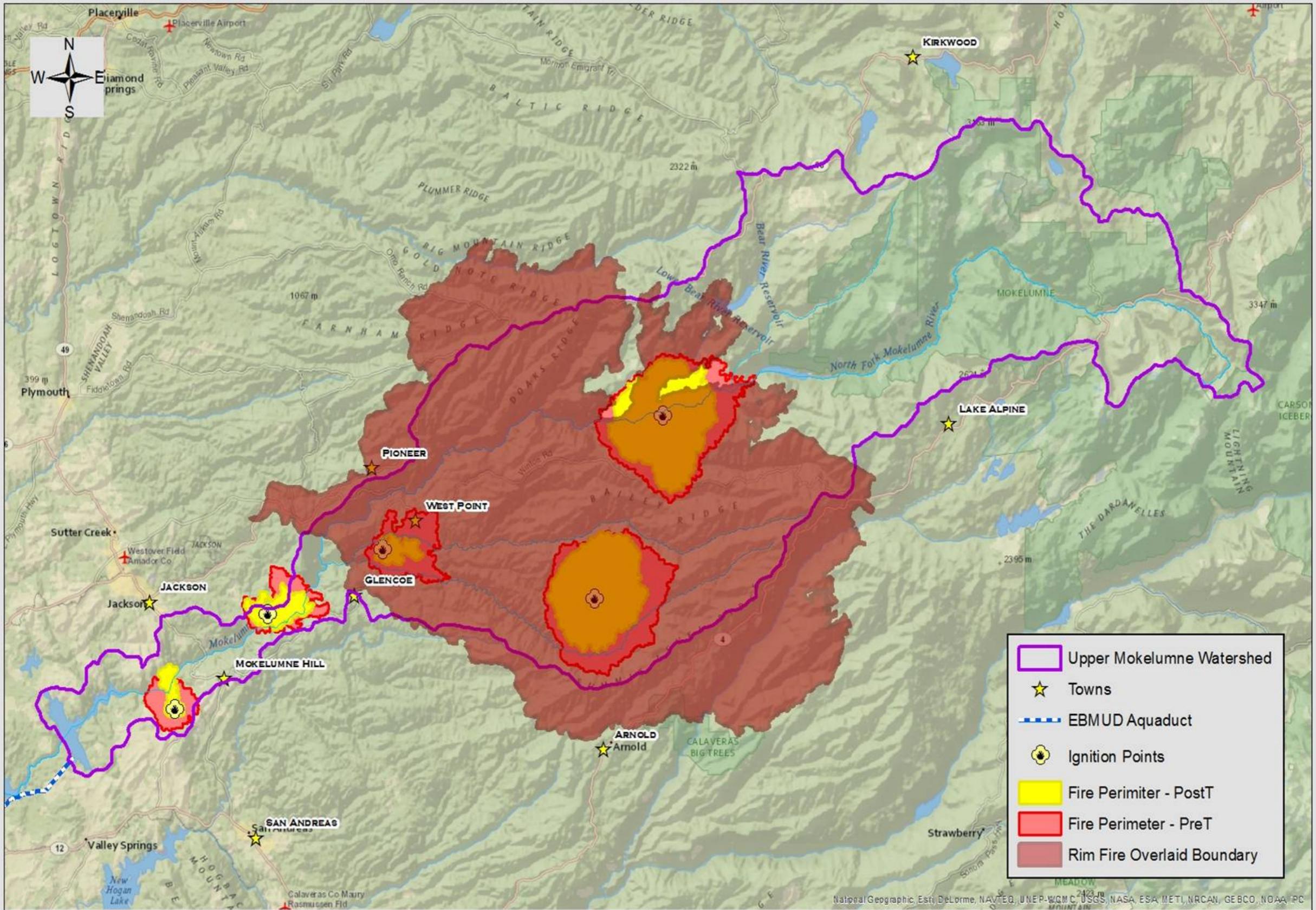
# Post Treatment Fire Perimeters and Intensities

- ⚡ 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.

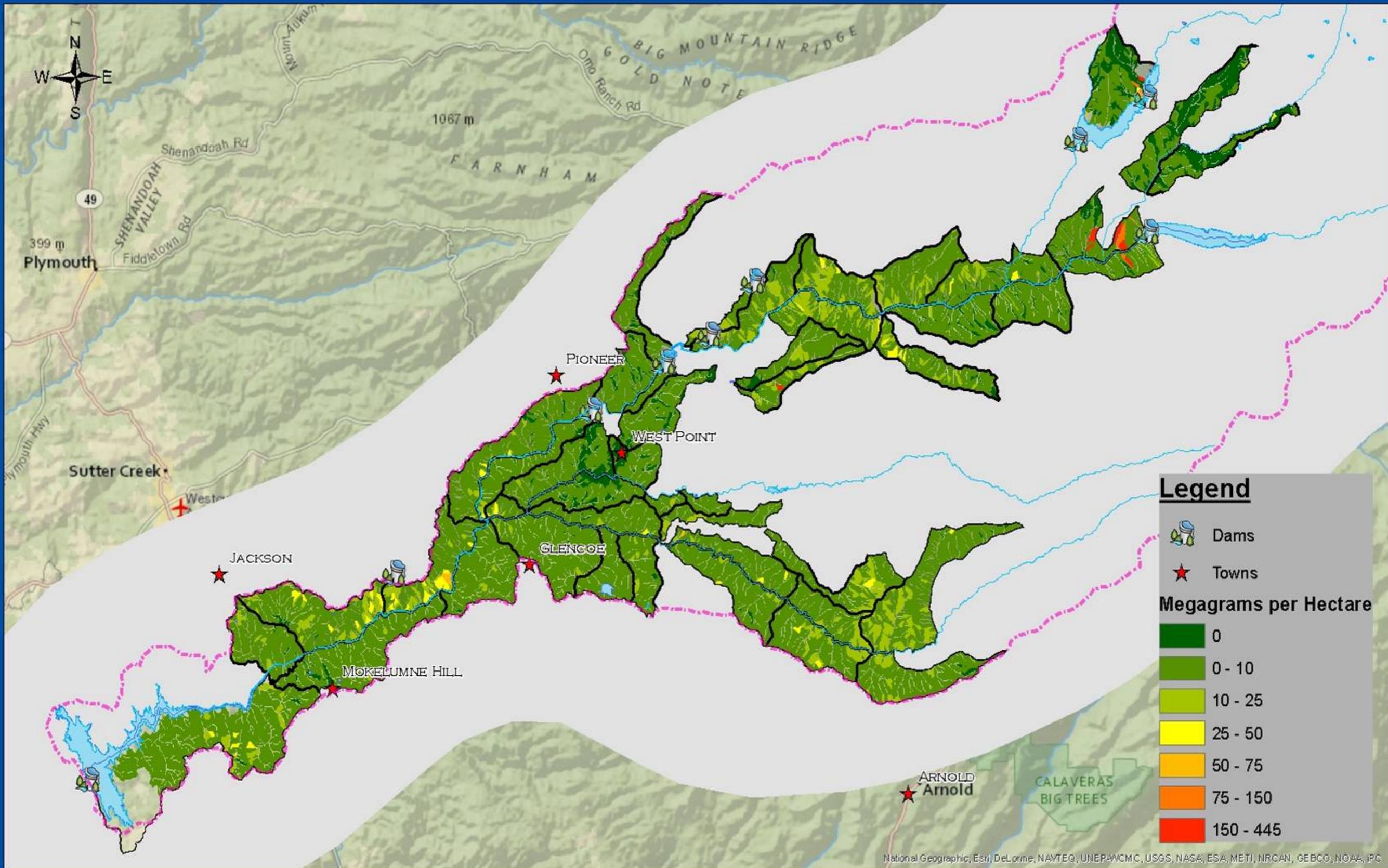
# Rim Fire Boundary and Modeled Wildfires



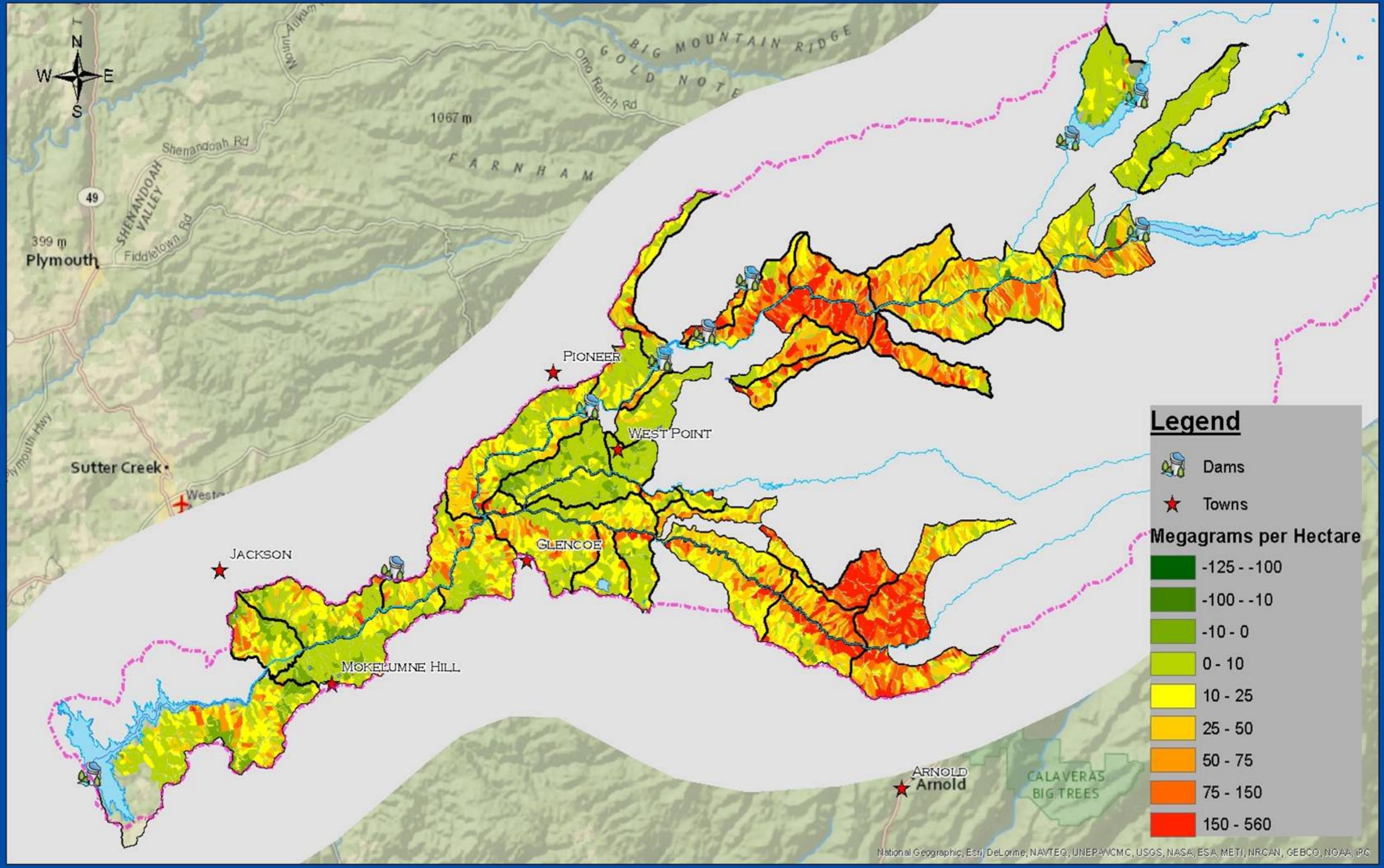
# Costs Not Included

- Water yield and quality
- Air quality
- Pollination
- Habitat and biodiversity
- Aesthetic values
- Recreational values
- Cultural resources

# BASELINE: EROSION OF <2MM-SIDED SEDIMENT UNDER CURRENT CONDITIONS

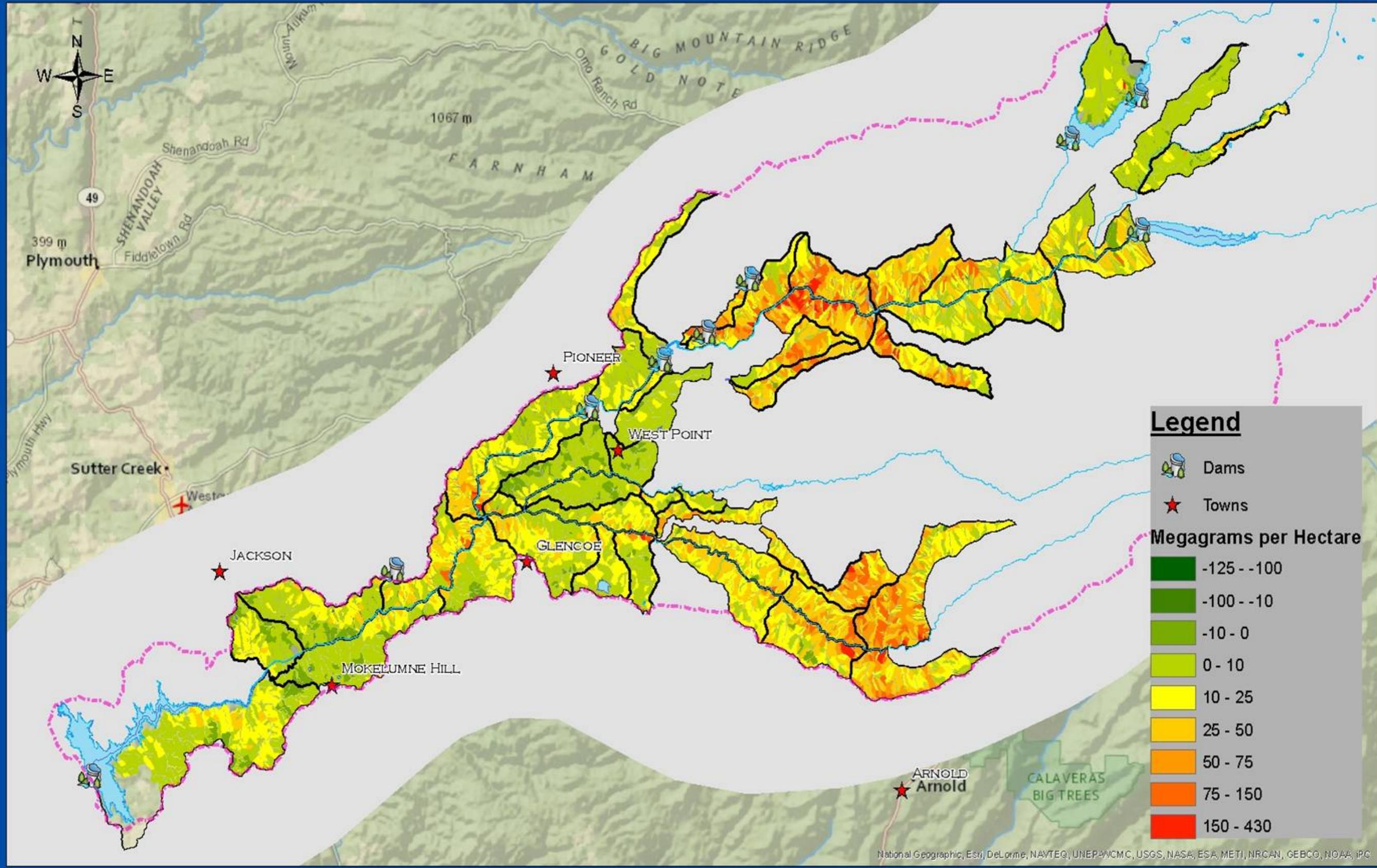


# CHANGE IN <2MM-SIZED SEDIMENT EROSION AFTER FIRE AND NO TREATMENTS



National Geographic, Esri, DeLorme, NAVTEQ, UNEP/WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, IPC

# CHANGE IN <2MM-SIZED SEDIMENT EROSION AFTER TREATMENTS THEN FIRE



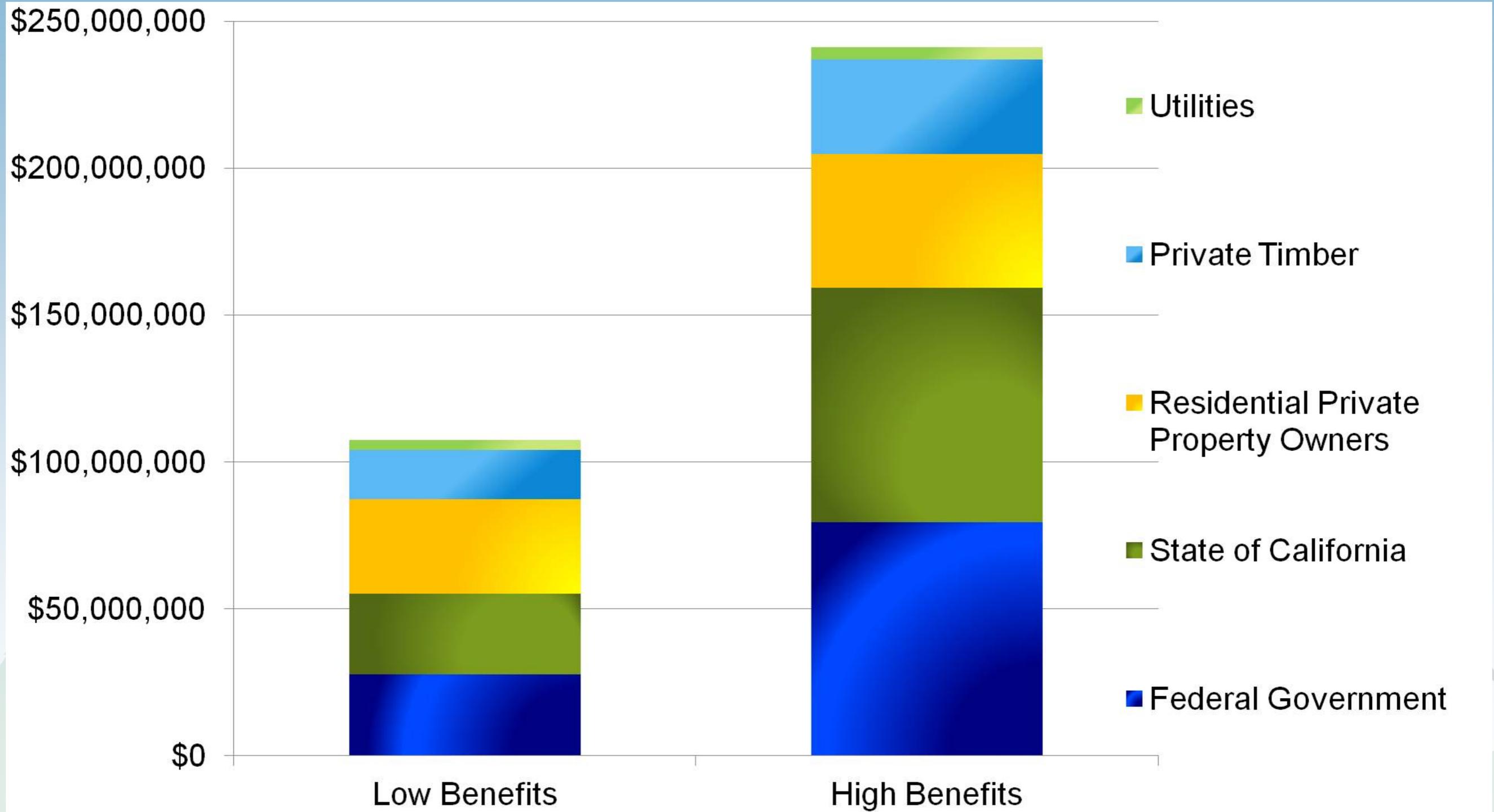
National Geographic, Esri, DeLorme, NAVTEQ, UNEP/WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, IPC

# Costs and Benefits of Modeled Fuel Treatments

Figure ES-4. Total costs and benefits for fuel-treatments scenario

| <i>Costs</i>                                  |                           |                      |
|---|---------------------------|----------------------|
| Fuel Treatment                                | \$68,000,000 <sup>1</sup> | \$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



# Actions Since Report Release

- Large media coverage
- Briefings:
  - Federal agencies, California Congressional offices and Federal Natural Resource Committee staff
  - State legislators and staff
  - EBMUD Board members and staff
- Established NFF's Mokolumne Fund

# Ultimate Goals

1. Establish financial mechanisms to raise funds from Water Users to invest in Mokelumne Watershed fuel treatments (Forest to Faucet Program).
2. Develop and implement a large landscape pilot project to promote forest resilience and reduce the risk of high-severity wildfire, with a strong research component to assess ecological impacts.
3. Develop a unit value for water yield savings due to fuel treatments. Use this to raise funds from investors.