

# Epic Forum

Don't Shrub it Off: Forest Biomass and its Many Uses

Restoring Forests and Communities

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February 25, 2020

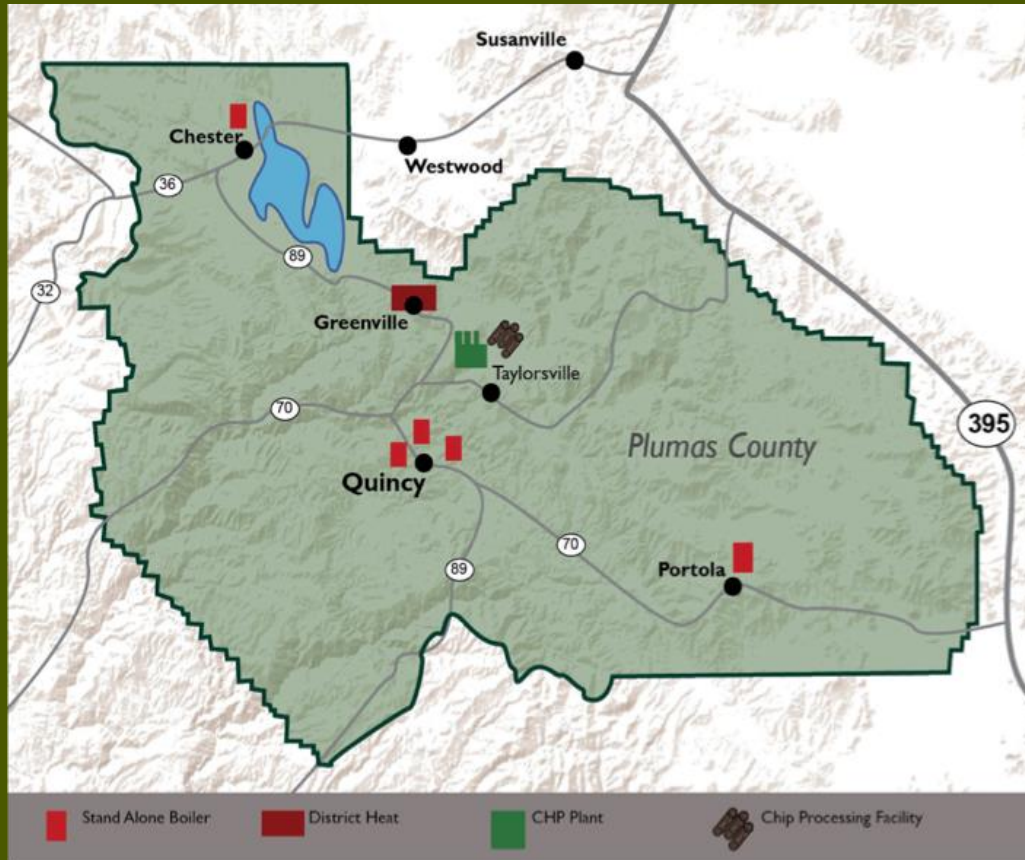
Jonathan Kusel, Ph.D.

# Plumas County: Rural and Heavily Forested, and a Vital Watershed



**Sierra Institute**  
for Community and Environment

# Plumas Energy Efficiency and Renewables Management Action Plan, 2013





# Plumas County Health and Human Services Center

**\$2.3M EPIC Grant, 2015**

- Biomass boiler + Organic Rankine Cycle power
- 400-750 bone dry tons/year chips
- Boiler building—Cross Laminated Timber (first in the state)



# System overview



Hot water  
220° F



Warm water  
80° F



60° F



Power revenue and  
\$ savings





# Cross laminated timber building construction—December 2017






Full building  
erected in two  
days.





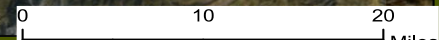


## Upper Feather River Basin Fire History ~1900-2000

-  1900-2000 Known Fire Events
-  Upper Feather River Watershed
-  Major Rivers and Lakes



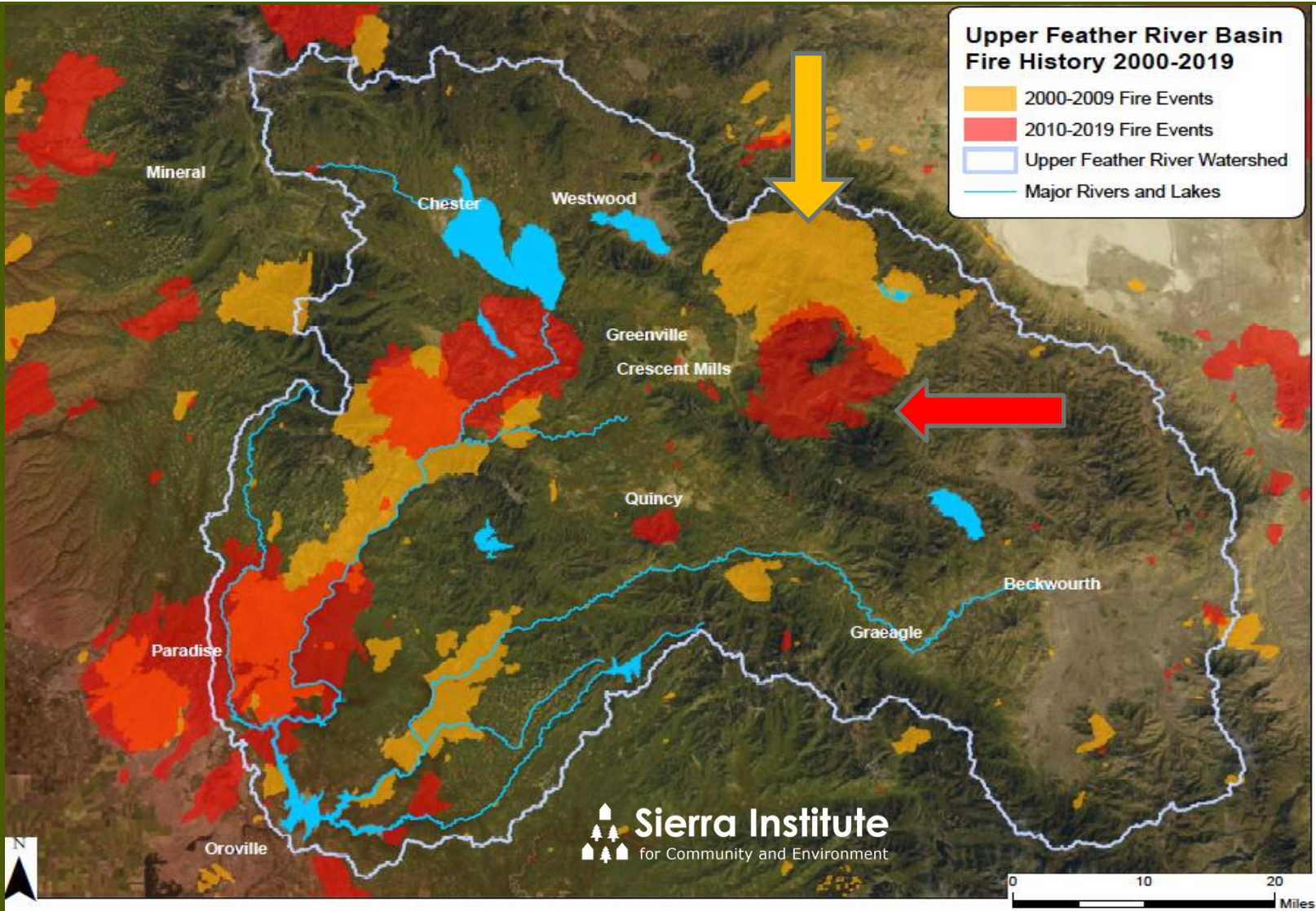
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# Upper Feather River Basin Fire History 2000-2019

- 2000-2009 Fire Events
- 2010-2019 Fire Events
- Upper Feather River Watershed
- Major Rivers and Lakes







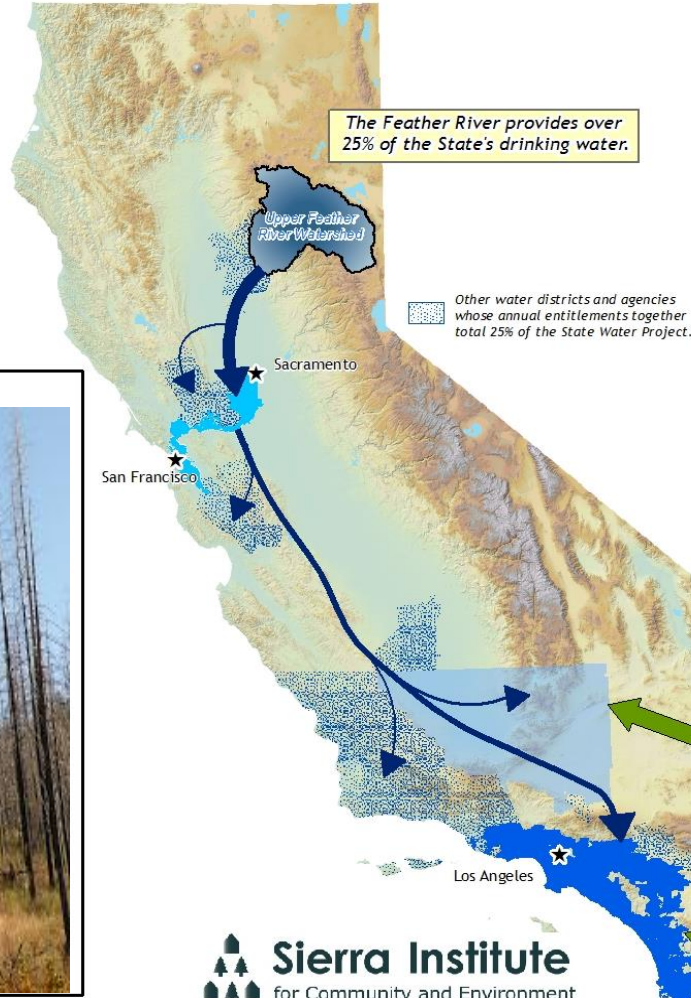


# The Upper Feather River: Fire, Water Supply, and Energy

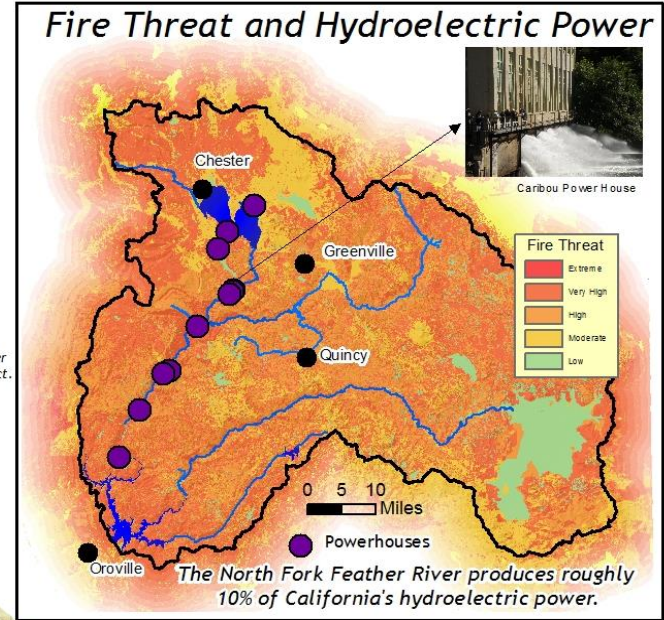
The Upper Feather River Watershed is roughly the size of Yellowstone National Park and fills the principal water storage facility for the State Water Project.

Since 1960, annual flows have decreased by 400,000 acre-feet.

State Water Project deliveries vary from year to year based on supply, but annual entitlements total 4.1 million acre-feet.



## Forests and Fires



# Paying for Forest Health: Improving the Economics of Forest Restoration and Biomass Power in California

Camille Swezy  
Kyle Rodgers  
Jonathan Kusel, Ph.D

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Thank you

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<https://sierrainstitute.us/>

# Value of Increasing Wood Utilization

- Reduce the risk of wildfire
- Improve forest and watershed health
- Improve air quality, reduce black carbon emissions
- Revitalize the wood products industry, create jobs
- Reduced reliance on fossil fuels
- Stabilize heating costs

