Collaboration of Local, Regional, State and Federal interests to protect the Mokelumne River Watershed

A United Front
Speakers

Rich Farrington
Director, Amador Water Agency and Director, Upper Mokelumne River Watershed Authority (UMRWA)

Michael Pickard
Area Representative, Sierra Nevada Conservancy (SNC)
- Mokelumne River Watershed natural resources are under increasing stresses like elsewhere in the Sierra and Foothills

- A growing ‘united front’ of concerned agencies are aligning their energies to mitigate those stresses:

  • Amador Calaveras Consensus Group (ACCG)
  • Sierra Nevada Conservancy (SNC)
  • US Forest Service (Stanislaus and Eldorado National Forests)
  • Upper Mokelumne River Watershed Authority (UMRWA)
UMRWA Snapshot

- UMRWA is a **Joint Powers Authority** formed in 2000 to address improvements in:
  - Water quality
  - Water supply
  - Watershed resources
- 8 member Board of Directors
- Supported by part-time Executive Officer, Landmark Environmental, and Member Agency in-kind support

Member Agencies

- Alpine County
- Alpine County Water Agency
- Amador County
- Amador Water Agency
- Calaveras County
- Calaveras County Water District
- Calaveras Public Utility District
- East Bay MUD
Sierra Nevada Conservancy Snapshot

- California State Agency created in 2004

- Mission to 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.

- 16 Member board
  - 5 Governor appointees
  - 2 Legislative appointments
  - 6 Local government representatives
Introduction

Presentation Topics

- Mokelumne Watershed Overview
- ACCG Collaborative Beginning & Actions
- SNC Investment in the Watershed
- UMRWA – USFS Master Stewardship Agreement
- Intricacies of Implementing Actions
- Progress Today and into the Future
- SNC’s Watershed Improvement Program
THE CHALLENGE: PROTECT MOKELUMNE RIVER & WATERSHED
RUNOFF FROM BUTTE FIRE, FEB 2016, 4 MOS. AFTER FIRE
KING FIRE MUD, APR. 2015, 5 MOS.  
AFTER FIRE IN OCT. 2014
6 - AMADOR CO. FIRES FROM 1950

161,167 ac Total

BUTTE - 2015
70,846 ac

SAND – 2014 4,240 ac

POWER - 2004
16,983 ac

MEISS - 1981
14,125 ac

QUARRY - 1976
20,869 ac

RANCHERIA – 1961 34,104 ac
Increasing Major Fires (444,336 Ac) in Mokelumne Watershed and Adjacent Counties (2008 – 2017)

<table>
<thead>
<tr>
<th>Wildfires &gt; 1,000 acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name (Year)</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>King (2014)</td>
</tr>
<tr>
<td>Sand (2014)</td>
</tr>
<tr>
<td>Rim (2013)</td>
</tr>
<tr>
<td>Power (2013)</td>
</tr>
<tr>
<td>Ramsey (2012)</td>
</tr>
<tr>
<td>Knight, Wildcat &amp; Harden (2009)</td>
</tr>
<tr>
<td>Angora (2008)</td>
</tr>
</tbody>
</table>

**444,337 Ac**
Studies Show:

Healthy Forests Resist Fire & Drought
1926 - Old growth Ponderosa pine stand between Beaver and East Panther Creek in Amador County.
Mokelumne Watershed Overview

Watershed Basics:

- **Area**: 218,880 acres (342 sq. mi.)
- **Elevations**: Ranges from 696 at Pardee Res. to 10,382 feet at Round Top Mountain
- **Total Population**: 84,107 [Alpine 1,102, Amador 37,953, and Calaveras 45,052]
- **Population Density**: 33/square mile [Alpine 2/sq mi, Amador 63/sq mi, Calaveras 39/sq mi]
- **Annual Precipitation**: Ranges from 21” to 50”
- **Overlaps with two National Forests & BLM**:
  - Eldorado NF
  - Stanislaus NF
Mokelumne Watershed Overview

Mokelumne Water Infrastructure

Amador County (5 Cities pop. served 25,000)
- AWA’s Amador Water System
- AWA’s Central Amador Water Project
- PG&E’s Project 137 – Mokelumne River Hydro

Calaveras County (pop. served 6,000)
- CPUD’s South Fork Mokelumne System
- CCWD’s West Point/Wilseyville System

East Bay Municipal Utility District (pop. served 1.4 million)
- Pardee Dam and Reservoir
- Camanche Dam and Reservoir
- Mokelumne Aqueducts
UMRWA Integrated Regional Water Management Plan Area (MAC IRWM)
PG&E Lower Bear River Res.  
N. Fk Mokelumne Watershed  
AMA Co.
PG&E Regulator Res. N. Fk.
Mokelumne Watershed, AMA Co.
CPUD Schaads Reservoir
Middle Fork Mokelumne
Calaveras Co.
CPUD So. Fork Mokelumne
Calaveras County

Pump Station

Diversion
EBMUD Pardee Reservoir
Water for 1.4 million
High Quality
Mokelumne River Water
Mokelumne Watershed Overview

Declining Health of Mokelumne Forests

• Fire exclusion, overcrowding, and insufficient management =
  • Increased susceptibility to drought, insects, pathogens, and **FIRE**

• **Key contributors to Mokelumne Forests’ declining health:**
  • Pine and Engraver beetles
  • Diseases, Mistletoes, Fungus
  • Climate Warming/Drought

Result = Increased Conifer Mortality and Risk of Catastrophic Fire [Past 7 years an avg. 4,970 acres have had some level of tree mortality]
## Mokelumne Watershed Overview

### Acres with beetle caused tree mortality (2007 - 2012)

<table>
<thead>
<tr>
<th>Host Species</th>
<th>Total Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lodgepole Pine</td>
<td>8,487</td>
</tr>
<tr>
<td>White Fir</td>
<td>6,319</td>
</tr>
<tr>
<td>Mixed Conifer</td>
<td>6,118</td>
</tr>
<tr>
<td>Firs</td>
<td>4,434</td>
</tr>
<tr>
<td>Pines</td>
<td>3,892</td>
</tr>
<tr>
<td>CA Red Fir</td>
<td>3,127</td>
</tr>
<tr>
<td>Ponderosa Pine</td>
<td>1,583</td>
</tr>
<tr>
<td>Western White Pine</td>
<td>383</td>
</tr>
<tr>
<td>Jeffrey Pine</td>
<td>307</td>
</tr>
<tr>
<td>Sugar and Whitebark Pine</td>
<td>132</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>34,781</strong></td>
</tr>
</tbody>
</table>
Mokelumne Watershed Overview

Wildfire Consequences to Watershed & Downstream Users

• Degrades water quality
• Increases water temperature
• Damages soil and increases erosion
• Increases sedimentation
• Degrades fish and aquatic wildlife and habitat
• Reduces reservoir capacity
• Reduces carbon sequestration
• Reduces recreational opportunity
• Increases water runoff and reduces retention
Amador-Calaveras Consensus Group
Creation & Actions of the Collaborative

Dec 2008, Calaveras Consensus Group Formed

Feb 2009, Amador County Added

Sep 2010, Adopted MOU

Jan 2011, Developed Cornerstone Project Application

Feb 2012, USFS Selected Cornerstone as one of the 10 CFLR Projects funded nationally

May 2016, USFS Signs Master Stewardship agreement with UMRWA

Signing the Memorandum of Understanding, September 2010
Amador-Calaveras Consensus Group

• A community-based organization that works to create fire-safe communities, healthy forests and watersheds, and sustainable local economies.

• The economies, natural environments, and communities of Amador, Calaveras, and Alpine Counties are healthy and sustainable.

• Representation from Federal, State, and Local agencies, industry professionals, environmental organizations, private businesses, non-profits, and private citizens.
USFS Collaborative Forest Landscape Restoration (CFLR) Program

- Omnibus Public Land Management Act of 2009

- Cornerstone CFLR Project applied for in 2011, and funded in 2012.
  - 391,000 Acres in Upper Mokelumne Watershed
  - 10 years of funding (2012 – 2021)

- Hemlock Landscape Restoration
  - 14,000 Acres
  - NEPA Completed in 2015
Progress Towards Meeting Targets Described in the Cornerstone Proposal

- Property Line Maintained
- Fuels Treatments - In WUI
- Fuels Treatments - Outside WUI
- Volume of Timber Sold
- Timber Sales
- Forest Vegetation Improved
- Forest Vegetation Established
- Biomass Removed
- Trails Improved
- Trails Maintained
- Passenger Car Roads Maintained
- Passenger Car Roads Improved
- High Clearance Roads Maintained
- High Clearance Roads Improved
- Road Decommissioned
- Rangeland Improved
- Noxious/Invasive Weeds
- Terrestrial Habitat Restoration
- Stream Restoration
- Lake Restoration
- Aquatic Organism Passages
- Watershed Improvement

0% 50% 100% 150% 200% 250% 300% 350%

Early SNC Investment into the Watershed

Does Forest Restoration make economic sense?

Photo credit: Pat McGreevy, USFS, M. Pickard
SNC Mokelumne Avoided Cost Analysis
Planning Team:
• US Forest Service Region 5
• The Nature Conservancy
• Sierra Nevada 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
Primary Goals of the Project

- Calculate the avoided costs of implementing forest treatments versus current conditions.
- Identify treatments and locations that maximize net benefits.
- Increase pace and scale of forest treatments through new investment sources.
- Use modeling to forecast future events.
Pretreatment Fires
Post-Treatment Fires
Post-Fire: Treatments and Erosion of <2mm Sized Sediment
Post-Fire: Erosion of <2mm-Sized Sediment with no Treatments
Utilities
Private Timber
Residential Private Property Owners
State of California
Federal Government
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.
Butte Fire – Modeled vs Reality
Rim Fire Perimeter on Mokelumne Watershed & Modeled Fires
Effectiveness of Treatments – Rim Fire

Fire Severity and Snow

Effectiveness of Treatments - Drought

Treated vs Untreated
Effectiveness of Treatments – Carbon Stored

Original photo courtesy of the U.S. Forest Service Pacific Southwest Research Station.

Master Stewardship Agreement

USFS – UMRWA Partnership
- Exploratory joint workshop July 2015
- Cornerstone CLFR Project provides Stanislaus & Eldorado NFs special fed. restoration funding
- Mutual FS – UMRWA interests:
  - Restore Mokelumne Watershed
  - Facilitate federal expenditures in the Watershed
  - Leverage federal $ with state $
  - Use UMRWA’s contracting efficiencies
  - Implement ‘on the ground’ projects quickly

Master Stewardship Agreement (May 2016)
- Describes partnership goals (fuels reduction, water quality and water supply protection, reforestation)
- Prioritizes implementation of Cornerstone projects
- Requires Supplemental Project Agreements (SPAs)
Master Stewardship Agreement

UMRWA’s Role Under the MSA
• Maintain planning, management and financial capabilities
• Explore project funding opportunities
• Work w/USFS to develop project-specific SPAs
• Fulfill CEQA requirements for SPA projects
• Provide qualified personnel & contractors to implement SPA projects
• Manage UMRWA contractors in coordination w/USFS

Two Ongoing SPA Projects
• Pumpkin Hollow (2017) treats 971 total acres
  • SNC grant - $500,000
  • USFS funds - $609,000
• Cabbage Patch (2018) treats 1,219 total acres
  • SNC grant - $500,000
  • USFS funds - $702,000
UMRWA MSA responsibilities:

**Grant writing and administration**
- Secure grant $ to fulfill USFS match requirements
- Seek other funds to defray UMRWA’s uncovered costs

**Contracting**
- Collaborate with FS on project specs
- Prepare/circulate Requests for Proposals
- Conduct contractor workshop(s)
- Conduct pre-proposal meetings for prospective proposers
- Review/select ‘best qualified’ proposers
- Enter into and administer General Service Agreements with selected contractors
Intricacies of Implementation

Project Implementation

- Job site pre-ops meetings
- Regular field inspections
- Facilitate FS approvals of completed units
- Process contractor invoices
- Invoice grant funding sources
- Maintain accounting and treasury functions
UMRWA Accomplishments

Watershed Improvement Program
Entered in a 10yr MSA Agreement with USFS
Completed Hemlock Project (SNF) CEQA
Secured two SNC grants totaling $1M
Leveraged $1.3 M in USFS project funding
Total acres authorized for treatment = 2,200

Water Resources Program
• Mokelumne-Amador-Calaveras IRWM (Integrated Regional Water Management) Plan
• Secured three Prop. 84 grants for local infrastructure projects
• Total pass-thru grant funding = $10.1M
Progress Today and into the Future

Increase the ‘Pace and Scale’ of Improvements in Mokelumne Watershed

Challenges:

• Overcome FS staff shortages and high turnover
• Ensure ACCG support for partnership projects
• Establish sufficient bid-ready projects to compete for grants from multiple sources
• Organize projects in logical units for contracting
• Complete NEPA and CEQA requirements
• Maintain UMRWA organization depth
Understanding Restoration Needs in the Sierra Nevada
Testing New Approaches on the Ground
Continued Investment

PROP 1
GOVERNOR EDMUND G. BROWN, JR.
WATER BOND 2014
RELIABILITY | RESTORATION | RESILIENCE

PROP 68
State of California
Parks & Water Bond 2018
Questions/ Comments?

Mokelumne River
above Pardee Reservoir
April 2018