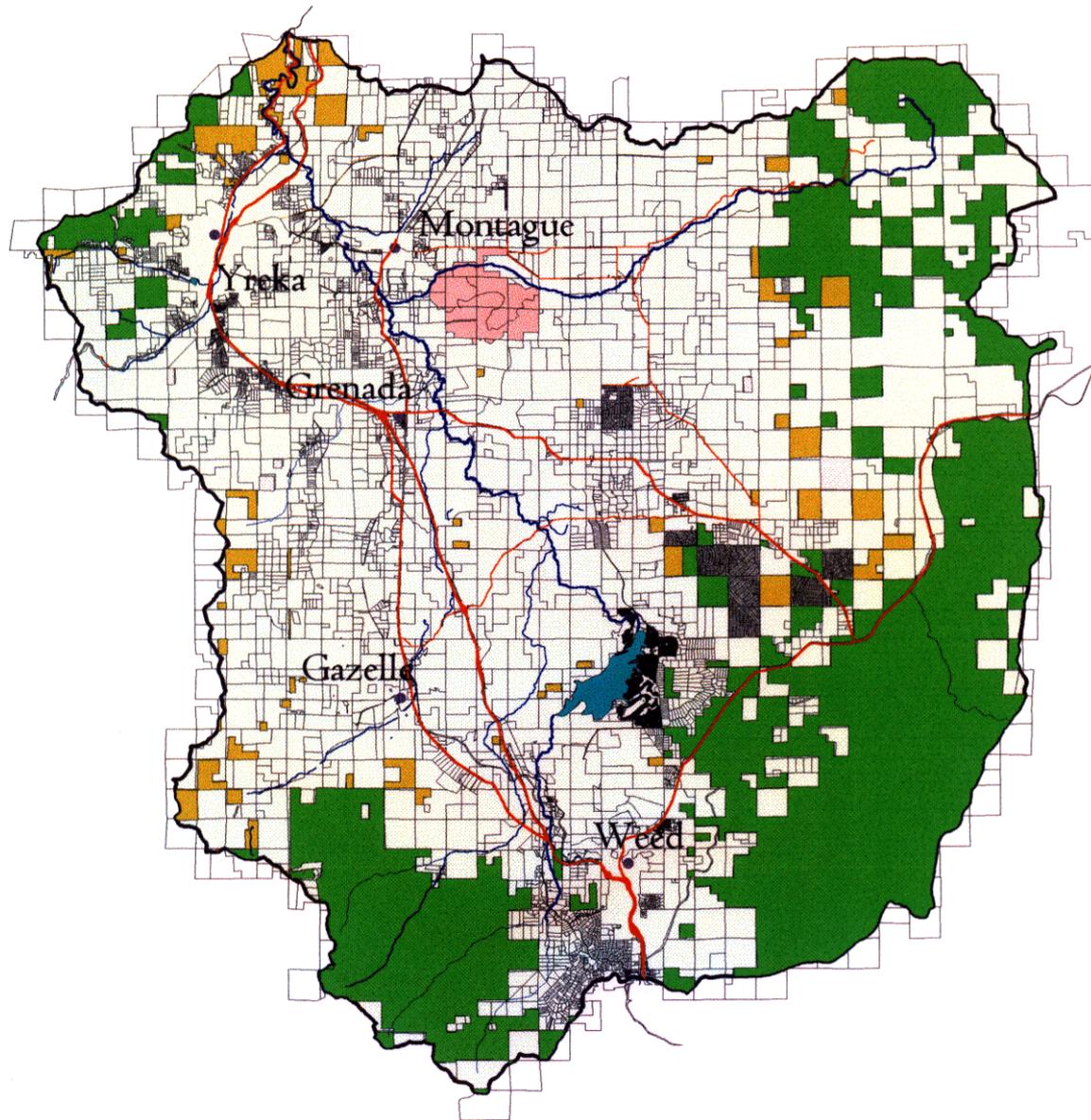


# Shasta River TMDL Efforts

Dave Webb, Shasta Valley RCD



# Public/Private Ownership Shasta Valley



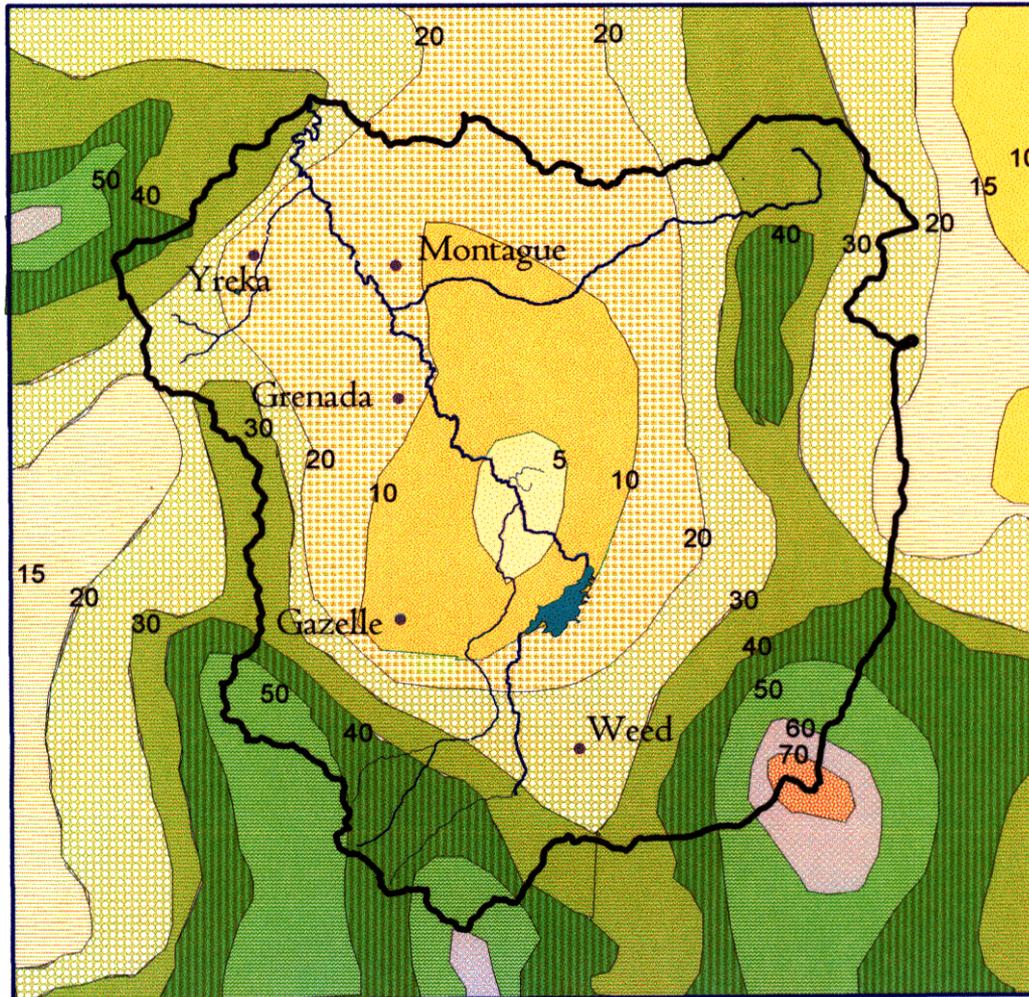
Shasta Valley RCD—  
Special District,  
technically part of  
county government.

Focused on resource  
issues on private  
lands.

Shasta Watershed—  
800 Square miles, ~  
65% privately owned.

# Shasta Valley--Total Annual Precipitation, Inches

Rainfall Data 1905-1955



Fundamental  
Challenge—

Sustaining cold water  
fish in a desert  
environment.

2007 TMDL mandate--Remove/re-engineering/redesign small impoundments

E. Fiock Dam—RM 10  
1889-1995



E. Fiock Dam and impoundment—Typical Temperature, Dissolved Oxygen and Fish Passage issues



Araujo Dam—RM 12  
1856-2007  
R.I.P.



Shasta Water Association  
Dam—RM 18  
1912-2008  
RIP



Hole in the Ground Dam—  
RM 36  
Dates approximate  
(~1928?-2008)  
RIP



- RCD initiated efforts in ~ 1994 with the Fiock Dam removal, then included in its 1997 *Shasta Watershed Restoration Plan* revision a call to investigate impacts of the impoundments on fish and water quality.
- Initial Studies: *Flashboard Dam Alternatives, 2002*; *Shasta Water Use Efficiency 2004*; *NRCS Engineering and AG Design Work Araujo Dam 2005*, *Araujo Final Instream Designs 2006* *SWA Final Instream Designs 2007*
- *Araujo Removal 2007, SWA Removal 2008*
- Construction Costs: E. Fiock 6 cfs, est. \$150,000, Araujo 12 cfs, est. \$3,500,000, SWA 46 cfs, est. \$5,000,000.
- By others—Hole in the Ground Dam removal—est. 10 cfs, est. \$300,000
- Water Quality monitoring ongoing, mainly associated Araujo and SWA due to finding availability.
- Major related issue not directly addressed: Tailwater

### **Key elements for success**

- sufficient baseline funding to allow embarking on a 10+ year process;
- identify elements of a win-win approach;
- sufficient credibility to allow securing funding for initial studies + secure critical first dollars for actual removal;
- key staff able to handle the challenges;
- team approach with all participants,
- persistence, agency help, **luck**.

TMDL related agricultural structures yet to be addressed:

Grenada Irrigation District/Huseman Ditch Dam—RM 30, 1916-???

Novy-Rice Dam—RM 25, 1928-???, Cardoza (Parks Creek)—RM 2, 1903-???



TMDL mandate—Riparian fencing and trees to 90% of site capability





# Riparian Fencing

% below Dwinnell Res. & accessible to livestock protected

- Shasta River mainstem—87%
- Parks Creek—?%
- Little Shasta River—58%
- Yreka Creek—3%
- Oregon Slough—30%



## Tree Planting and Survival

- Success rates ranging from ~ 60% down to near zero.
- Climate --dry conditions very hard on phreatophytes.
- Hydrologic problems —1) lack of floods to create bare areas suitable for tree colonization due to upstream reservoir, 2) rapid reduction in flows for irrigation season leaves native trees out of phase.
- Browse problems —beavers eat the willows and cottonwoods, mice eat the water birch and deer eat the alders.
- Soil problems —alkali soils cause severe moisture stress, anaerobic fine textured soils inhibit root growth.
- Present RCD course of action —Scaled back tree planting efforts; limited ground-up investigation and field trials with NRCS and TNC looking into variables. Concurrently top-down efforts by DFG are taking the form of mandatory 5-yr. 80% survival standards.

Then there's the TMDL mandated water issue: create 45 cfs of cold water.

Shasta Valley has 50,000 acres currently irrigated, with an additional 60,000+ acres suitable for irrigation, but without readily available water. Demand vastly exceeds supply.

Shasta River classified as over allocated May-October, but riparian rights not constrained by that so we are seeing some new water uses.

All cold surface flows derived from groundwater. Groundwater usage presently unrestricted and growing; aquifers poorly understood.

1932 Water Adjudication allocated nothing for instream flows. DWR watermasters have limited flexibility in water management; often prevent voluntary efforts to allocate water to instream flows.

1707 (1991) process essentially broken and largely unusable; other aspects of water law so confusing that no one knows what they can safely and reliably do, and no one can tell them.

But—Recent work by TNC seems to be taking us some big steps towards that goal!

## RCD use of available approaches:

Do no harm—don't increase water demand

Initiated basin-wide groundwater investigations in ~2004; Phase 1 report completed in 2007; initiated formation of local groundwater advisory group to develop better local awareness and understanding of groundwater status and needs in 2006. Proceeding cautiously.

Developing a water trust to pursue water for instream flows. Effort grossly under funded at present, but proceeding.

Working directly with key irrigators who are initiating steps on their own to avoid catastrophic low flow conditions, especially at the start of the irrigation season (after April 1) coupled with greater coordination and attention to instream flows in September when Chinook arrive.

Considering starting state-level efforts to address water related legal uncertainty and hurdles via legislation.

## Elements of success

- Reasonably reliable baseline funding to allow focus on larger more difficult problems.
- Ongoing monitoring of both past efforts and adequate to meet future planning needs.
- More broad public information/outreach from a variety of sources to keep the topics alive.
- Appropriate level of agency oversight keeping our feet to the fire, and also to address “bad actors” in a timely and effective fashion.
- Coordination and information sharing among funders and with agency field staff to assure that projects are honestly and accurately described and that they are appropriately prioritized for funding—i.e. they must get better at performing their fiduciary responsibility with the public funds they oversee.
- Restoration groups need to walk a fine line with anything resembling enforcement or mandatory actions. The agencies have to do their jobs and not just try to push them off to RCD’s etc. And remember that shooting the messenger is a normal human response to bad news.

### **What I see us missing:**

- Any meaningful mechanism to recognize and provide ongoing public recognition for those persons stepping forwards to do the things that need to be done to repair the river.
- Some way to inject fun and joy into the work and the work product for ourselves and the community.
- Additional ongoing funding focused on kids to allow outreach not intended to yield an immediate beneficial result, but instead to build for the future and provide a link to parents.

## Funding:

American Rivers, NOAA, NRCS-WHIP,  
DFG, USFWS, NCRWQ, US BOR, Calif.  
Governor's Special Klamath Funding, Calif.  
Prop 40 and 50, PSMFC, SWRQCB,  
Siskiyou RAC, Cantara Trust.

