

AUGUST 2024 ADVISORY COMMITTEE MEETINGS

Shasta Valley Groundwater Advisory Committee Meeting



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ASSOCIATES
science | policy | solutions



Agenda

- GSP Implementation Updates
 - SGMA Compliance and GSP Updates
 - Fee Study and Economic Analysis
 - Well Inventory
 - Groundwater-Surface Water Connectivity Study
 - Upland Management

Timeline – Implementation Projects

2023 Q3

- Formation of work groups in August AC Meetings
- Work groups approve draft project scope and schedule
- Final grant awards expected in September

2023 Q4

- October AC Meetings- review of final funding awards
- Detailed scope and schedule for funded projects provided to Advisory Committee

2024 Q1

- February AC Meetings- updates from project work groups, updates depend on individual project schedules
- SGMA Compliance- Annual Report for WY 2023

2024 Q2

- May AC Meetings- Update on implementation projects, discussion on upland management project selection

2024 Q3

- August AC Meetings- Update on implementation projects

Timeline through Fall 2024

2024 Q3

- Summer sample collection
- Select upland management projects and preliminary monitoring design plan
- Continue development of well inventory and approach to the fee study
- Preliminary Database Management System (DMS)
- August AC Meetings

2024 Q4

- Model scenario results with different management actions
- October AC Meetings
- Continued data collection
- Continue upland management project selection and preliminary monitoring design plan
- Continue well inventory and approach to the fee study

Jan 1 Feb 1 Mar 1 Apr 1 May 1 Jun 1 Jul 1 Aug 1 Sept 1 Oct 1 Nov 1 Dec 1 Dec 31



 In Progress	 Added to Backlog
 Complete	 Blocked

Implementation Grant Progress *Through August 2024*

#	Component	Notes	Status
1	SGMA Compliance and GSP Updates		
1.1	GSP 5-year Evaluation	Due January 2027	In Progress
1.2	Reporting (Data and Annual Report)	Annual Reports due April 1 of each year (Submitted AR 2023)	In Progress
1.3	Model Updates and Scenario Evaluation		In Progress
1.4	Data Gaps and Monitoring Expansion and DMS		In Progress
2	Fee Study and Economic Analysis		
2.1	Evaluation of Fee/Rate Options and Schedule Development		Not Started
2.2	Parcel scale groundwater use estimate		In Progress
2.3	Economic Analysis		Not Started
3	Well Inventory		
3.1	Database Development and Well Risk Assessment		In Progress
3.2	Monitoring Well Construction or Well Instrumentation		Not Started
4	Groundwater-Surface Water Connectivity Study		
4.1	Monitoring and data analysis	Identify new wells, install stream gauges, pumping tests	In Progress
5	Upland Management		
5.1	Project Planning and Environmental Documentation	Develop workplan	In Progress
5.2	Monitoring Design, Data Collection, and Data Analysis	Assess monitoring needs,	In Progress

2. SGMA Compliance and GSP Updates

- GSP Evaluation and Response to DWR Comments
- Data Gaps, Monitoring Network Expansion, Equipment Installation
 - Expansion of monitoring: west side, CDFW, Shastina, geochemistry/isotopes
 - Finalizing automated QAQC of collected data
 - Water Level
 - Water Quality
 - Precipitation (Western Weather)
- Data Management and Development of DMS
- Model Updates: integrating diversion reports, well screens
- Land Use Maps
- PMA Implementation

2. SGMA Compliance and GSP Updates

DWR GSP Evaluation and Corrective Actions (Slide 1 of 2)

- Improve understanding of the basin's bottom, and three water-bearing formations (alluvial deposits, Pluto's Cave Basalt, volcanic debris flows). Further identify data gaps in the conceptual model.
- Better describe groundwater storage conditions and changes, and provide a current water budget.
- Evaluate interconnected surface water (location, volume, timing of depletion), and surface water depletion due to pumping.
 - Monitor to support SVIHM estimates of ISW and surface water
 - Define undesirable results for ISW

2. SGMA Compliance and GSP Updates

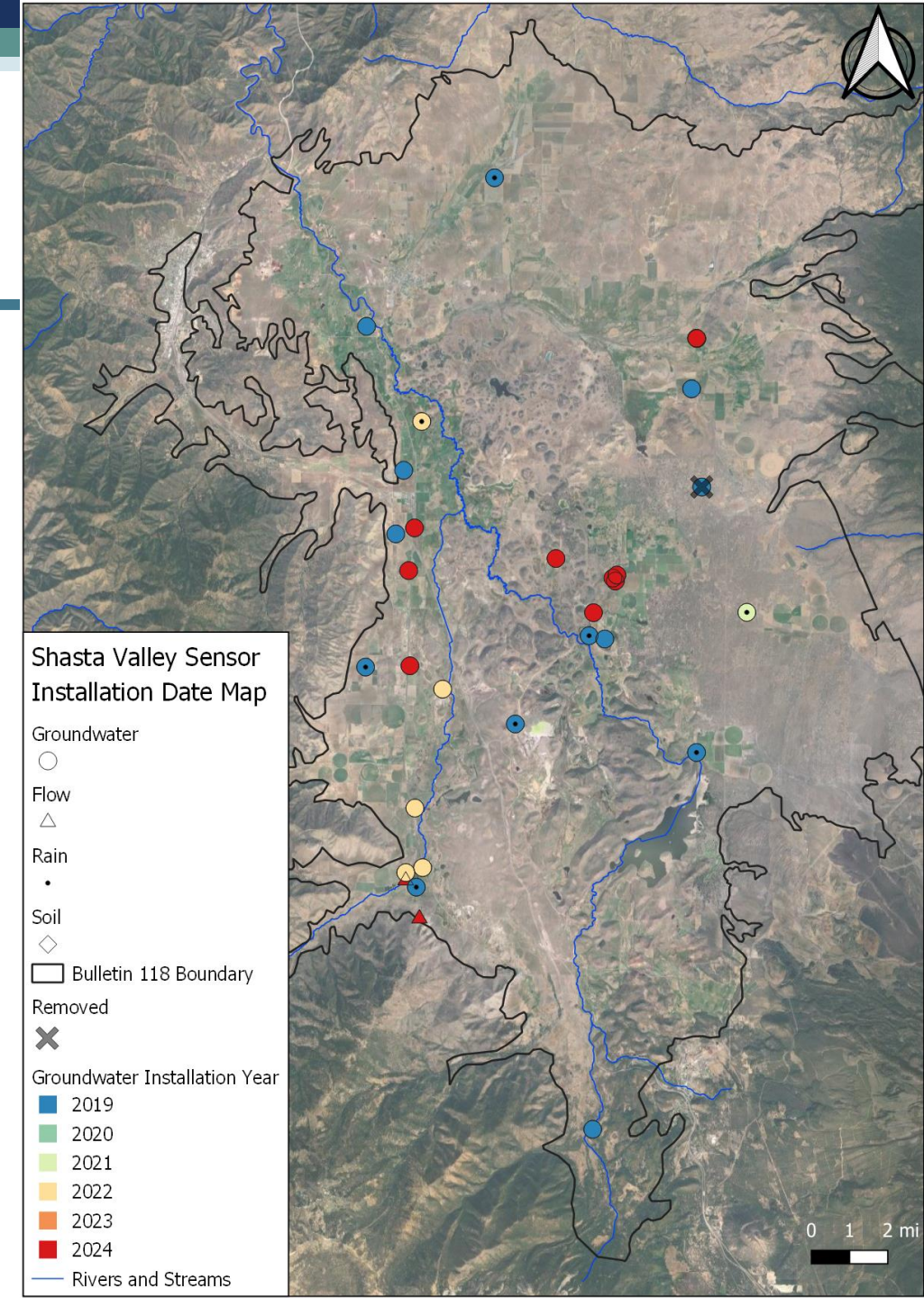
DWR GSP Evaluation and Corrective Actions (Slide 2 of 2)

- Describe relationship between groundwater level MTs and avoidance of Undesirable Results
- Revise water quality SMC, and develop process to determine when management or extraction degrades GW quality.

2. SGMA Compliance and GSP Updates

Monitoring Network Expansion, Equipment Installation

- Monitoring station installation, by date and type



2. SGMA Compliance and GSP Updates: DMS

Database Management System - <https://siskiyou-sgma.gladata.com/#>

Map Layers

- Siskiyou County GSA
Opacity: [Slider]
- Monitoring Points
Opacity: [Slider]
- Filter by Status**
 - All / None
- Filter by Type**
 - All / None
- Filter by Other**
 - Contains Water Quality Data
 - Contains Water Level Data
 - Contains Production Data
 - Representative Monitoring Site

Entity: [All] [v]
Aquifer: [All] [v]

Top of Screen Depth Greater (Deeper) than [] Feet
Bottom of Screen Depth Less (Shallower) than [] Feet
[OK] [Clear]

Zoom to...

Basin: [Shasta Valley] [v]
Monitoring Point: [Labels] [v]
[Select an Option] [v]

Shasta National Bureau of Land Management, Esri, HERE, Garmin, NGA, USA

PMA Implementation - Recharge

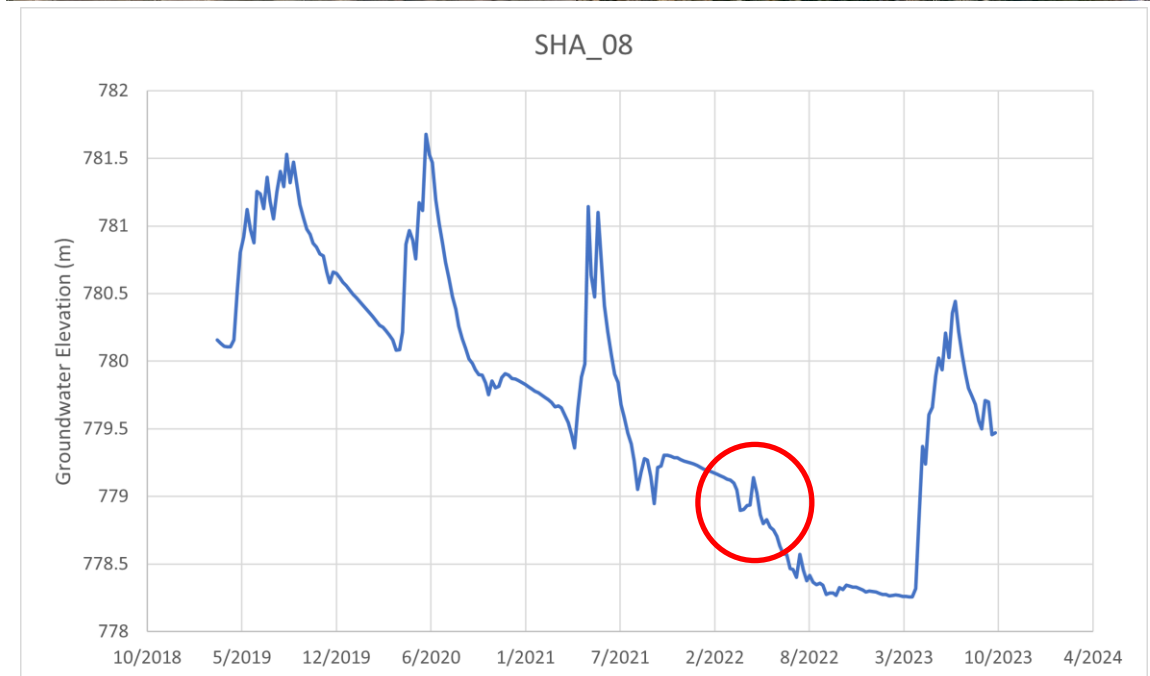
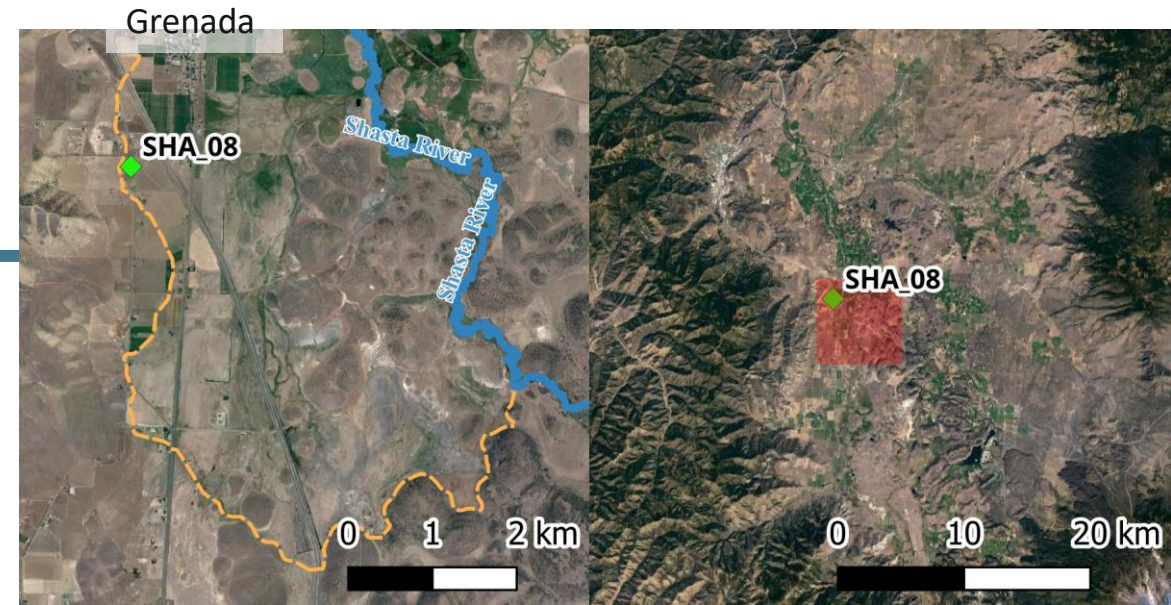
West Side Recharge – Shasta River Diversion

- December 1 – March 31
- 90/20 Streamline Approach (Initial Permit)
 - Daily Shasta River flowrate > 90th Percentile to divert
 - Maximum diversion limited to 20 Percent of flow (40 cfs pump capacity)
- Flood irrigation field recharge
- Domestic Drinking Water Beneficial Use
 - Well recharge in the Grenada Area
 - Number of dry wells
 - Evaluation of China Ditch water use on Gazelle and Grenada area wells will be incorporated into the secondary analysis of this project

PMA Implementation – Recharge

Potential groundwater recharge projects, why implement?

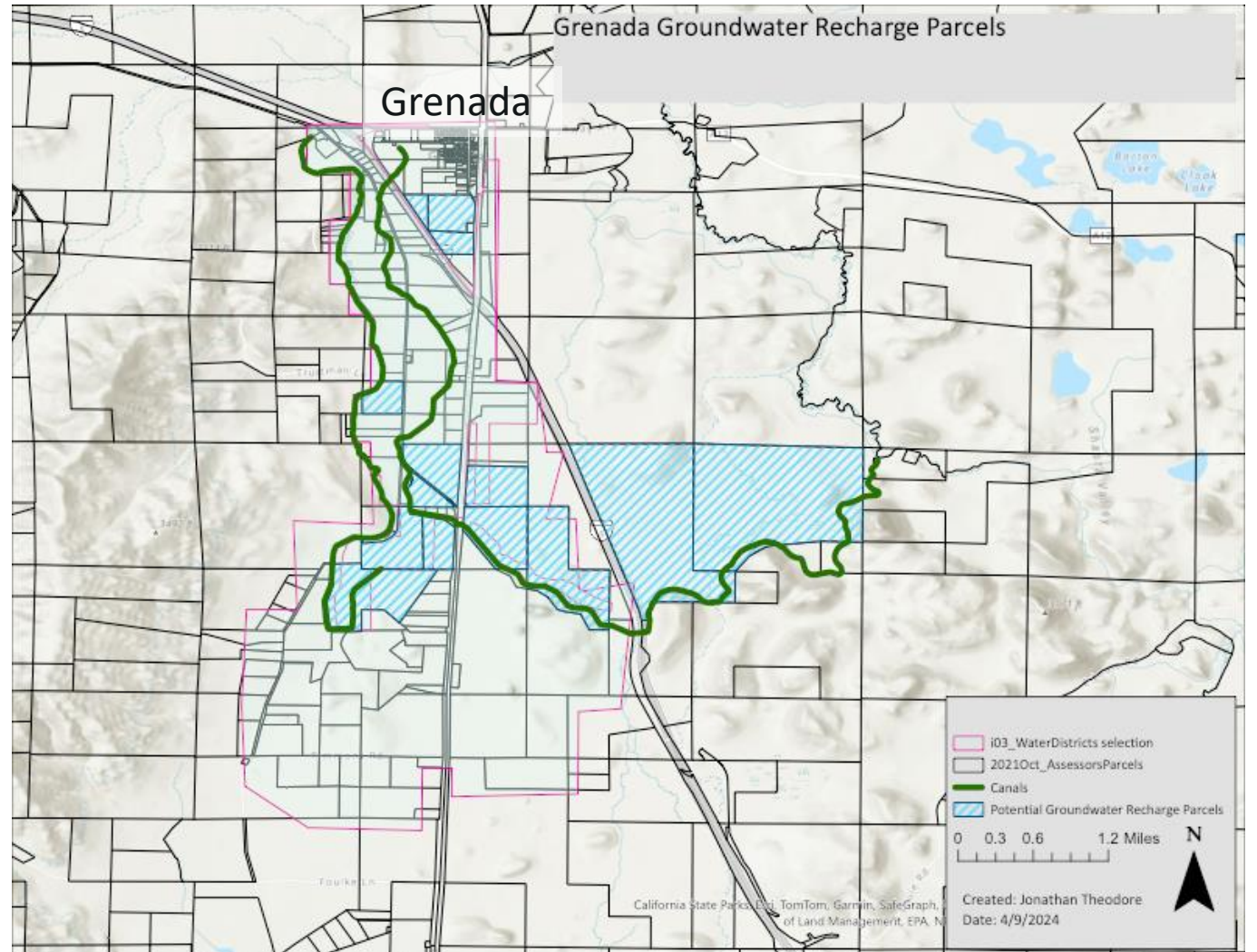
- Well SHA_08
- No seasonal spike on 2022
- Likely due to dry irrigation ditch



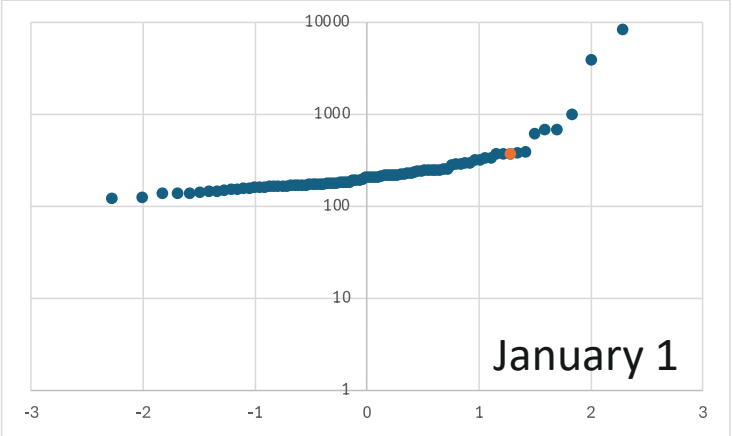
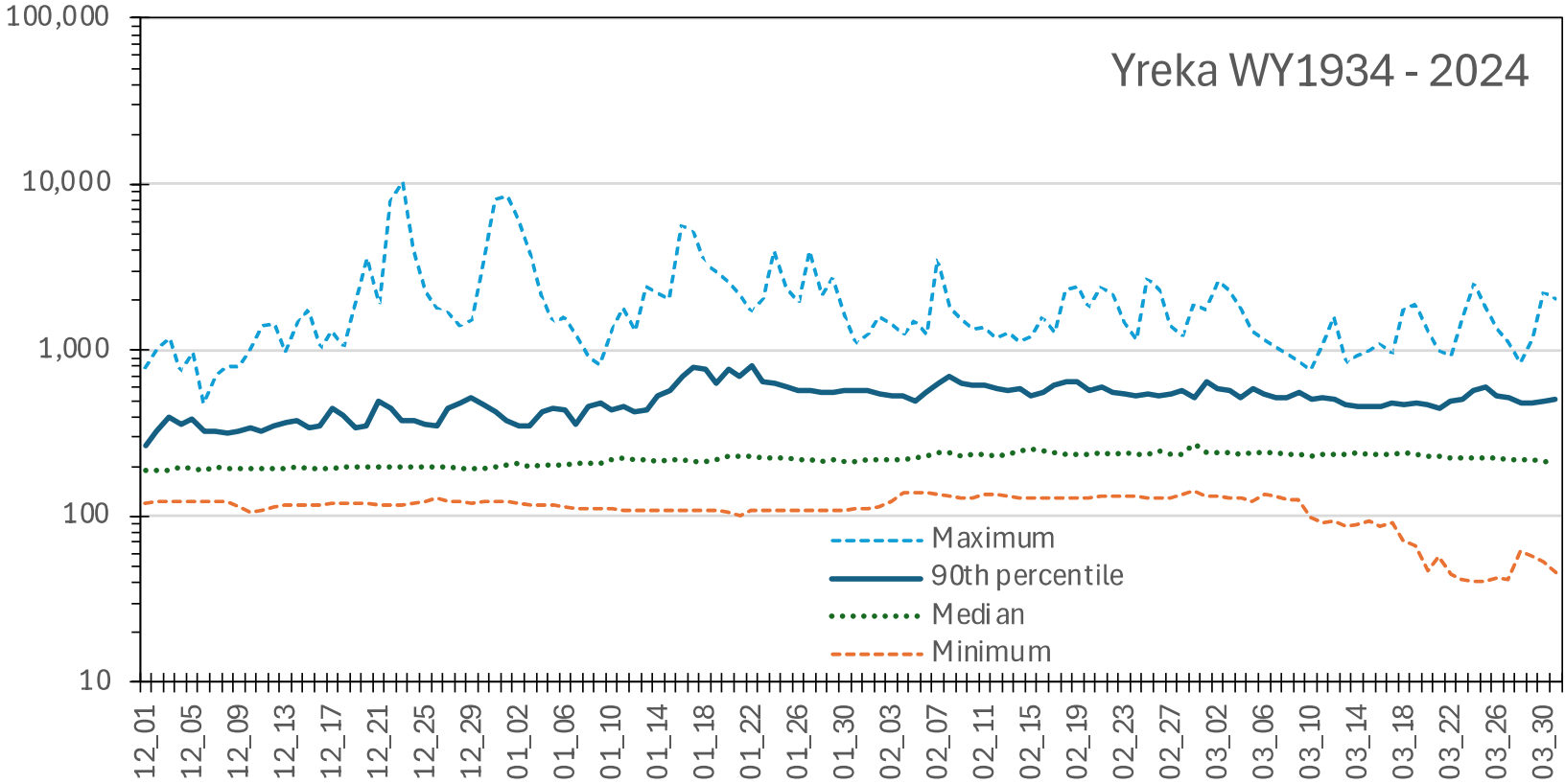
PMA Implementation - Recharge

GID Diversion and Delivery

- Existing Diversion
- Existing Fish Screens



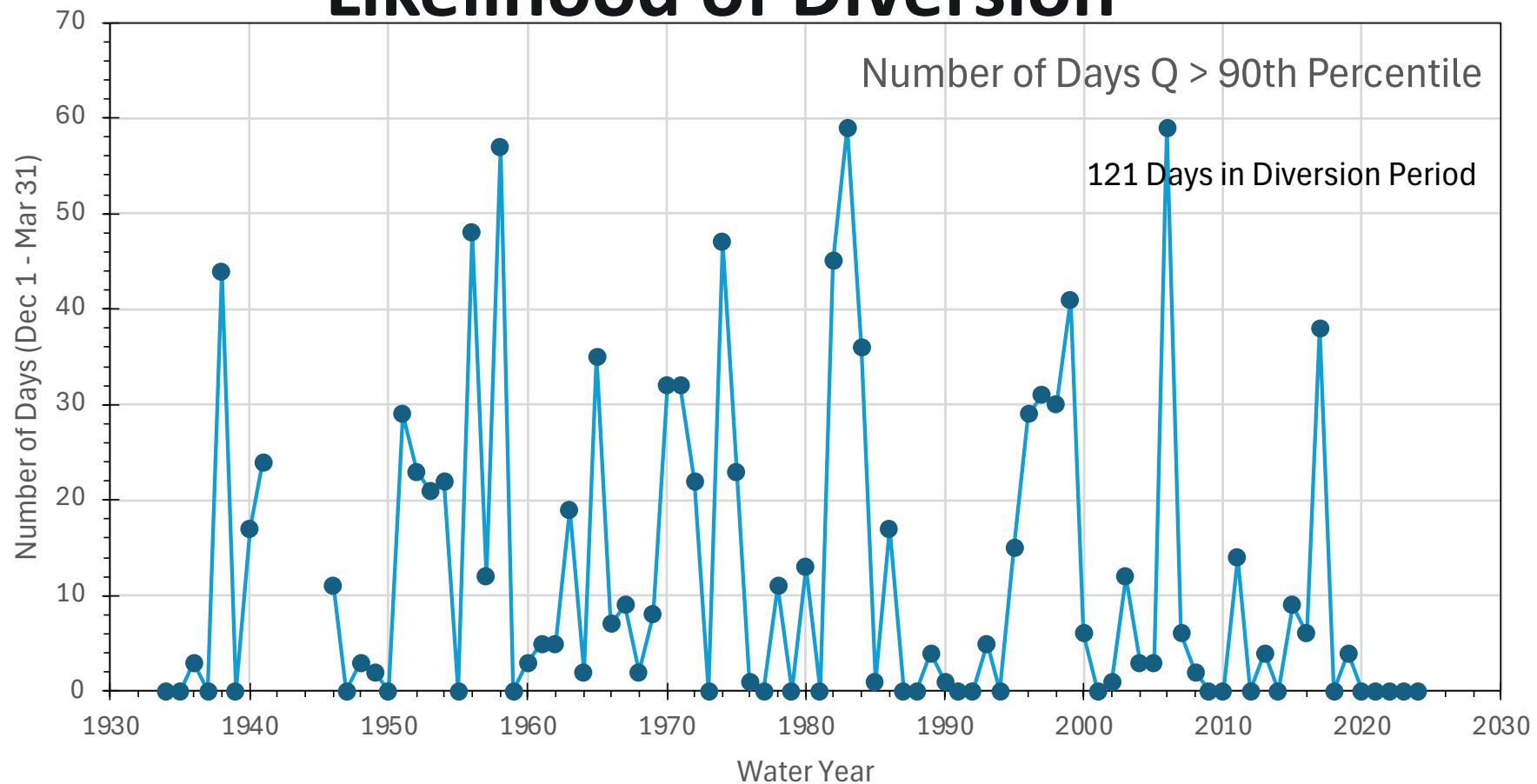
Shasta River Yreka Gage (USGS 11517500)



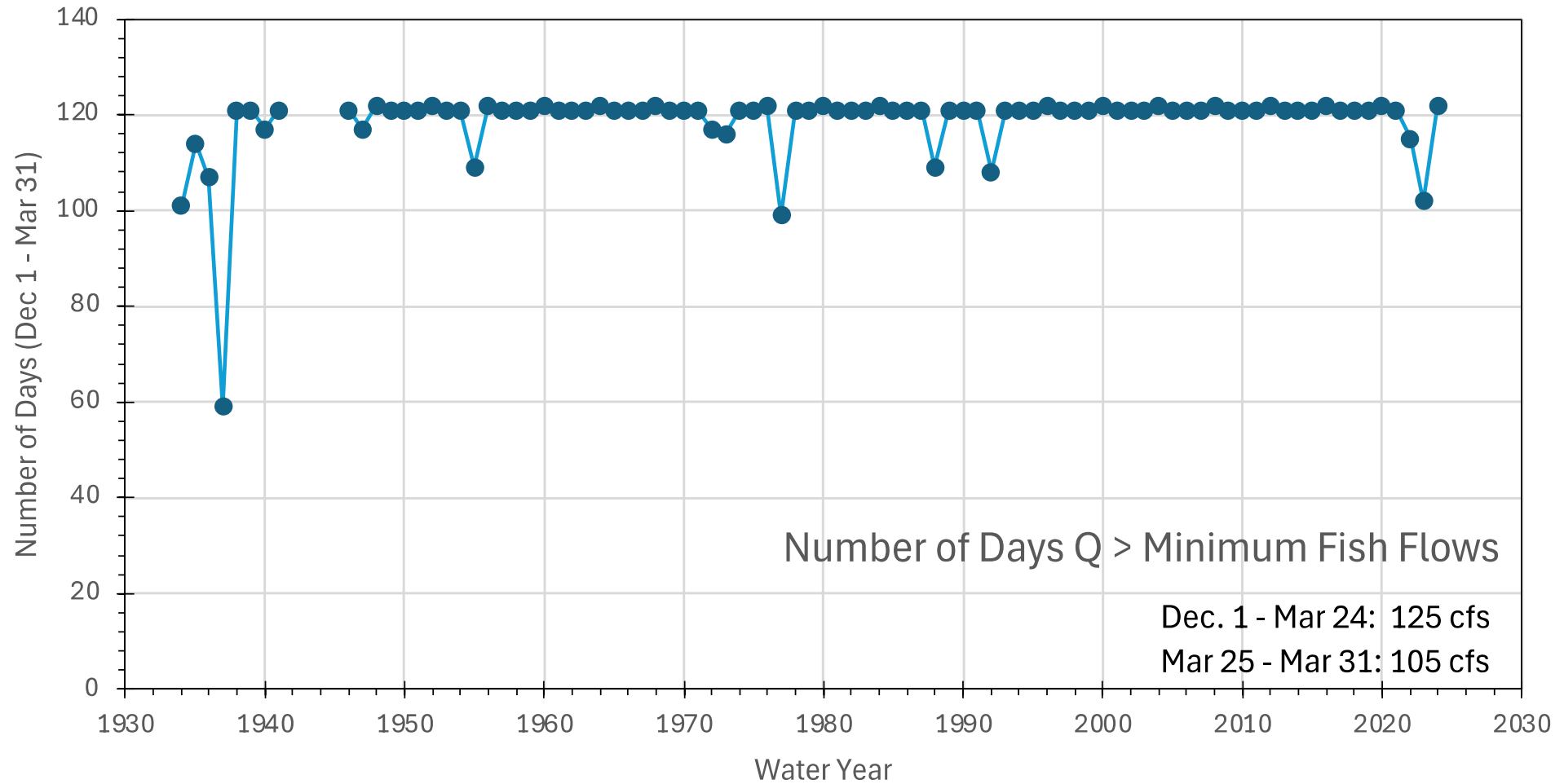
- 90th Percentiles range 264.4 – 800.7 cfs

PMA Implementation - Recharge

Likelihood of Diversion



Minimum Fish Flows at USGS 11517500



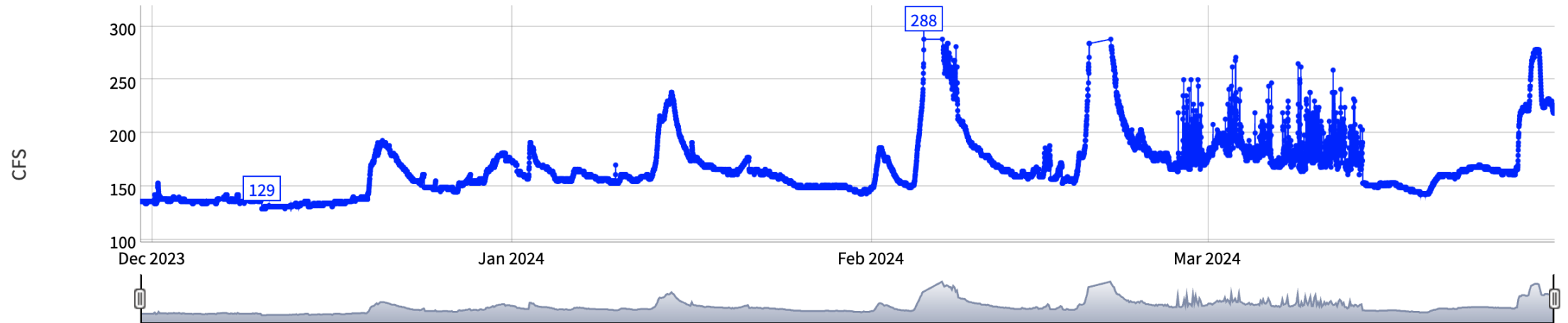
Gage at Grenada Pump Plant

SHASTA R AT GRENADA PUMP PLANT (SPU)

Date from 11/30/2023 00:00 through 03/31/2024 00:00 Duration: 122 days
Max of period: (02/05/2024 14:00,288) Min of period: (12/10/2023 12:15, 129)

SENSOR ID: 36595

— FLOW CFS



2. SGMA Compliance and GSP Updates

Surface Water Gage – Big/Little Springs

- Stage/discharge measurement discrepancy
- Coordination with CDFW and DWR to improve data quality

BIG SPRINGS CREEK NEAR GRENADA (BGG)

Date from 05/24/2024 00:00 through 08/22/2024 00:00 Duration: 90 days
Max of period: (07/21/2024 18:00,96) Min of period: (06/21/2024 13:15, 52)

SENSOR ID: 37774
— FLOW CFS



3. Fee Study

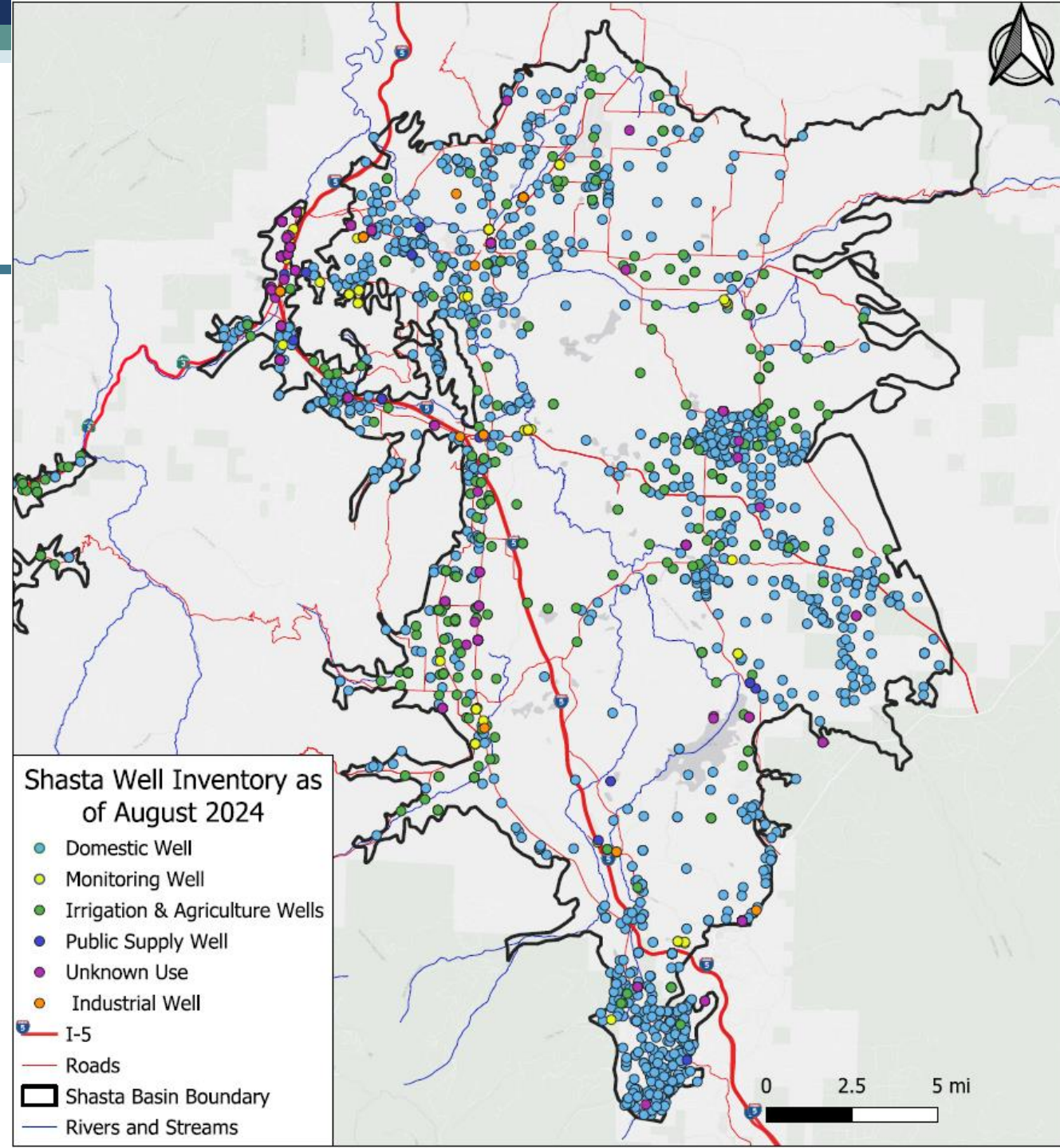
- Evaluation of Fee/Rate Options and Schedule Development
- Groundwater Use Estimate
- Economic Analysis
 - Existing studies: “Economic Analysis of Agriculture in the Klamath Basin”

4. Well Inventory

- Well Inventory Development and Database
 - Integrating existing well datasets into DWR's WCR dataset
 - Develop inventory of unknown or missing wells
 - Mailer? Paper Records?
 - Model to inform water level and estimate well depth
- Well Risk Assessment and Mitigation Program
 - Well Outage Risk Maps
 - Monitoring to assist with the well risk assessment (volunteers?)

4. Well Inventory

- Progress as of August 2024
- Next steps include:
 - Integrating location of known wells from previous/existing datasets
 - Identifying wells that are not included in DWR's Online System of Well Completion Reports (OSWCR), or other existing datasets



5. GW-SW Connectivity

- Monitoring
 - Wells on CDFW property
 - Surface water data: Big Springs Creek, China Ditch, Willow Creek
 - Wet season monitoring (Feb 2024)
 - Dry season to occur in August 2024, further identify sampling locations
- Flow data collection in ditches
 - Big Spring Creek
- Pump tests, evaluation of cone of depression
 - Volunteers?
 - Interested in Big Springs Creek, Shasta River
- Input results to SWGM and update ISW SMCs

6. Upland Management

- Purpose
- Upland Management Projects and Monitoring
 - Project Planning and Design
- Evaluation of stream gauge data correlated with spatial datasets
 - Forest fires
 - Timber harvest locations
 - Forest management projects
 - Stream gages: Existing gages, Whitney Creek?
- Modeling integration
 - Forest service meadow model
 - PRMS

6. Upland Management

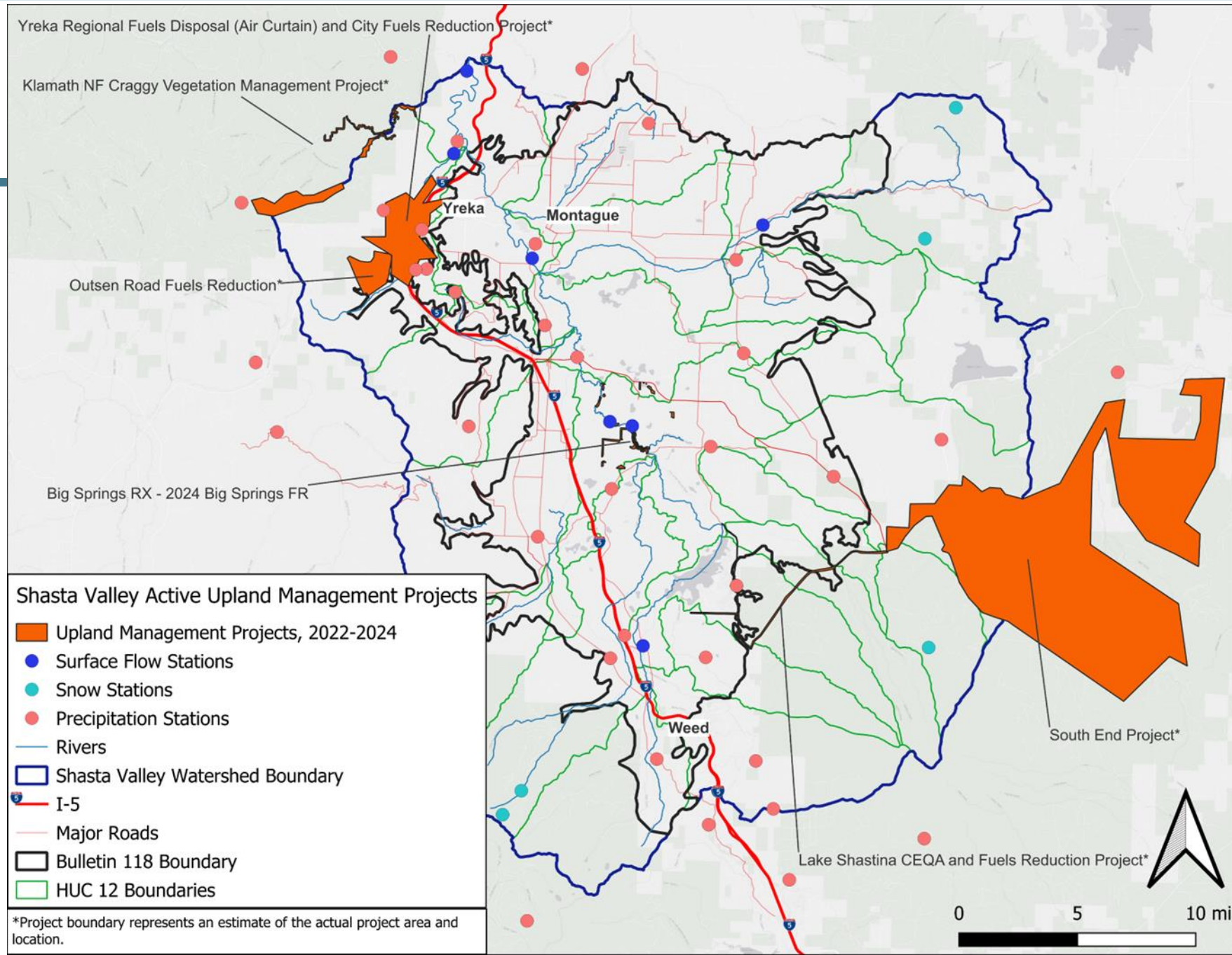
Sheep Rock area, 1860's



Upland Management Projects

Active Upland Management Projects with potential for monitoring

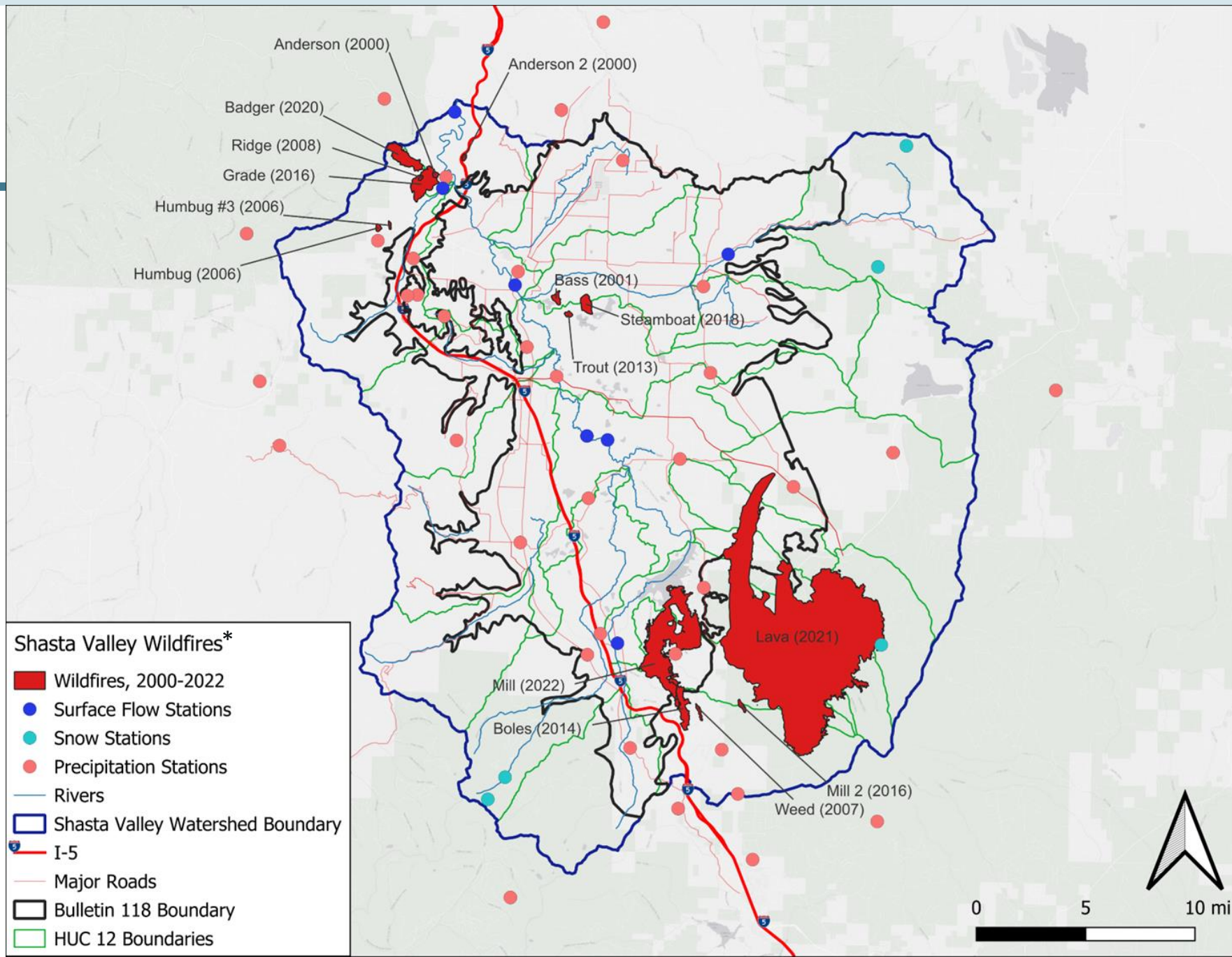
- Projects from multiple sources (CAL FIRE, USFA Forest Service, North Coast Resource Partnership)



Wildfires

Historic fire perimeters, CAL FIRE, Fire and Resource Assessment Program (FRAP)

*Only includes wildfires upstream of stream gauges with measurement during the fire

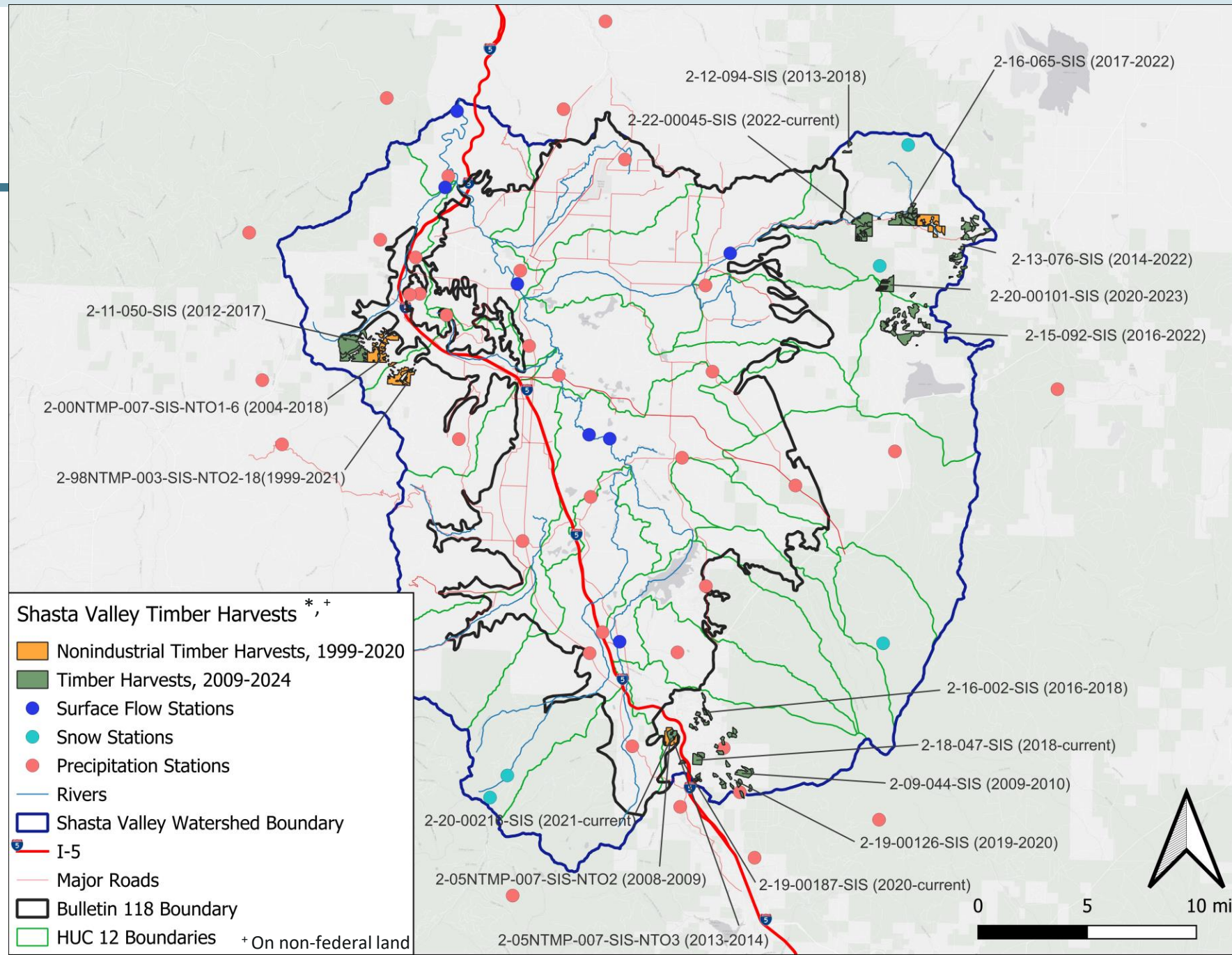


Timber Harvests

Nonindustrial Timber Management Plans (NTMPs), approved by CAL FIRE for primarily non-commercial purposes on nonindustrial owner's land

Timber Harvesting Plans (THPs), approved by CAL FIRE for commercial purposes on non-federal land

*Only includes timber harvests upstream of stream gauges with measurement during the harvest



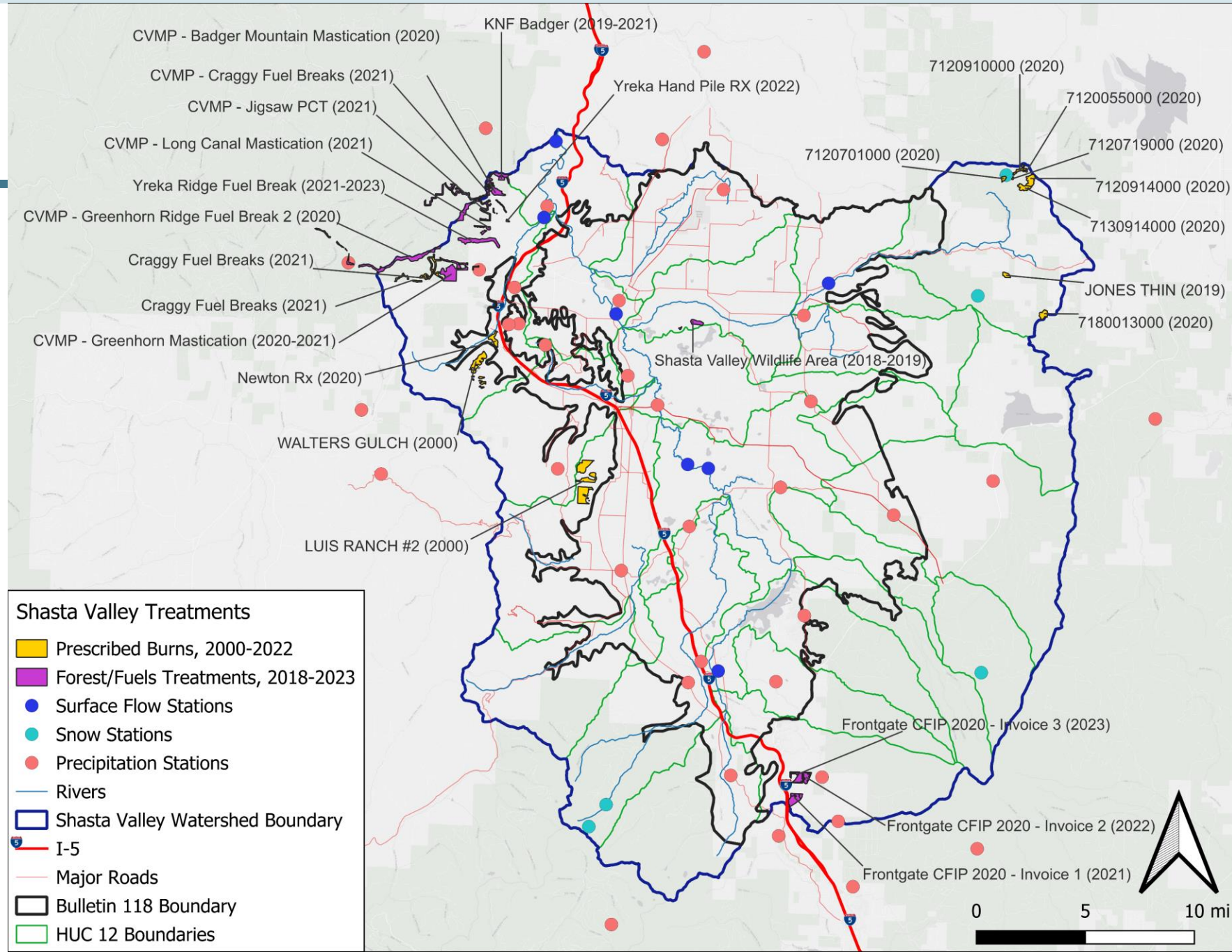
Prescribed Burns and Treatments

Prescribed burn fire perimeters from multiple agencies (compiled by CAL FIRE)

Forest and fuel treatments include information from CAL FIRE Wildland Fuel Reduction Programs

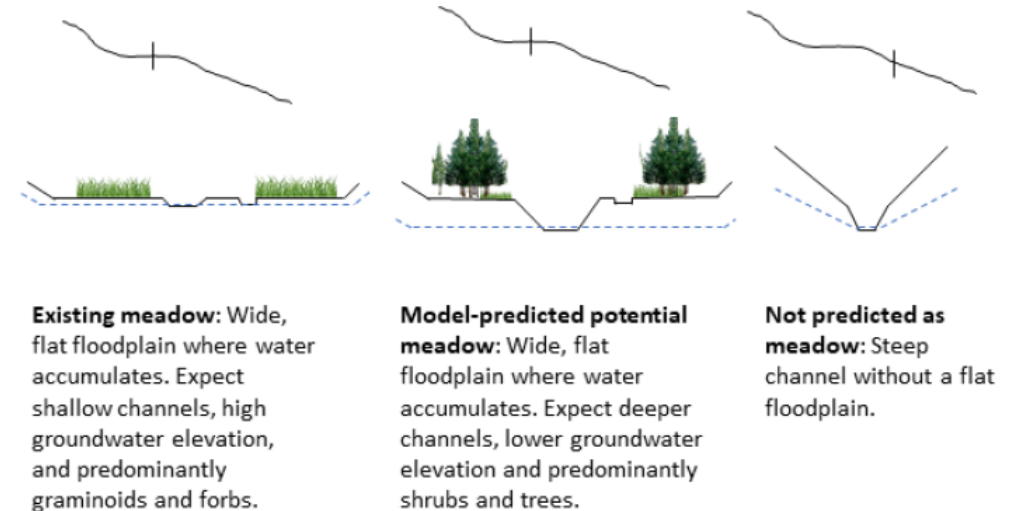
- Variety of treatments, including Broadcast Burn, Fuel Reduction, Fuel Break, Right of Way Clearance, etc.

*Only includes treatments located upstream of stream gage with measurement during the treatment



Upland Management - Model Integration

- Couple the Precipitation Runoff Modeling System (PRMS) and USDA Lost Meadow Model
 - Identify promising meadow restoration projects from the USDA Lost Meadow Model, then use the PRMS model to simulate the potential impact to streamflow, ET, interflow, and baseflow.
 - Simulate restoration of meadow vegetation, (i.e., removal of juniper) and changes to water accumulation from restored floodplains and shallow channels.
 - Ongoing coordination with USDA



6. Upland Management

- Discussion
 - What is of interest
 - Additional monitoring potential



Thank You