

# Framing the AEM Pilot Project to Better Understand Butte County Aquifer Systems

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Brown Bag Seminar Series

The Butte County Airborne Electromagnetic Method (AEM) Pilot Project



# Monitoring & Special Studies

Butte County CALIFORNIA  
**Water Inventory and Analysis**  
 June 2016

Department of Water and Resource Conservation

DAVIDS CONSULTING ENGINEERS, INC.

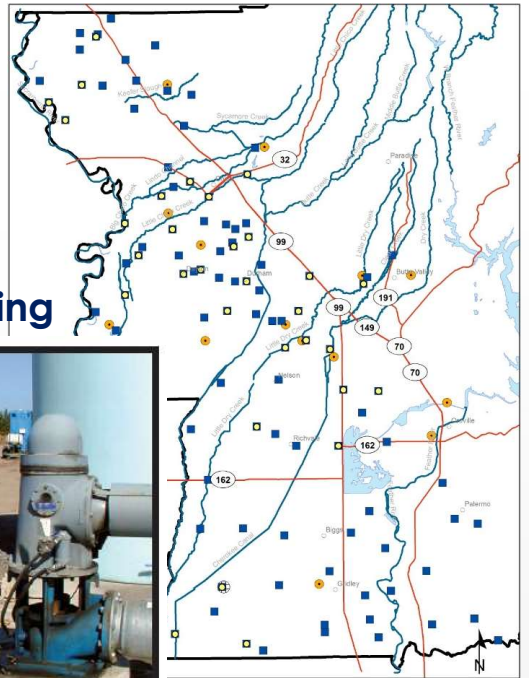
Butte County  
**Evaluation of Restoration and Recharge Within the Butte County Groundwater Basins**  
 January 2018

GEI Consulting Engineers and Scientists

CDM

Butte County Department of Water and Resource Conservation  
**Butte Basin Groundwater Model Update Phase II Report**  
 March 2008

## Monitoring



Prepared for County of Butte  
 September 30, 2017 | FINAL REPORT

Butte County

**Stable Isotope Recharge Study Final Report**

Officers Nationwide | BrownandCaldwell.com

FINAL REPORT

*Tuscan Aquifer* INVESTIGATION  
 May 21, 2013

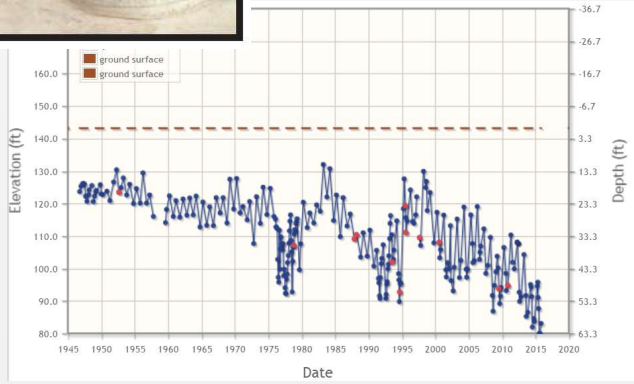
**Lower Tuscan Aquifer Monitoring, Recharge, and Data Management Project**

Brown and Caldwell

Project funded under the California Water Security, Clean Water Drinking Water, Cooper and Shasta Protection Fund of 2010, administered by the State of California, Department of Water Resources.



Butte County Department of Water and Resource Conservation  
**Groundwater Status Report**  
 2018 Water Year



# Motivating Questions

## Enhance Scientific Understanding

### 1. Better Define Basin Geometry and Layering

- ▶ Map out aquifer structure
- ▶ Connectivity between upper and lower portions of the Tehama/Tuscan aquifer systems?
- ▶ How extensive are clay-rich layers?

### 2. Insights on the water table

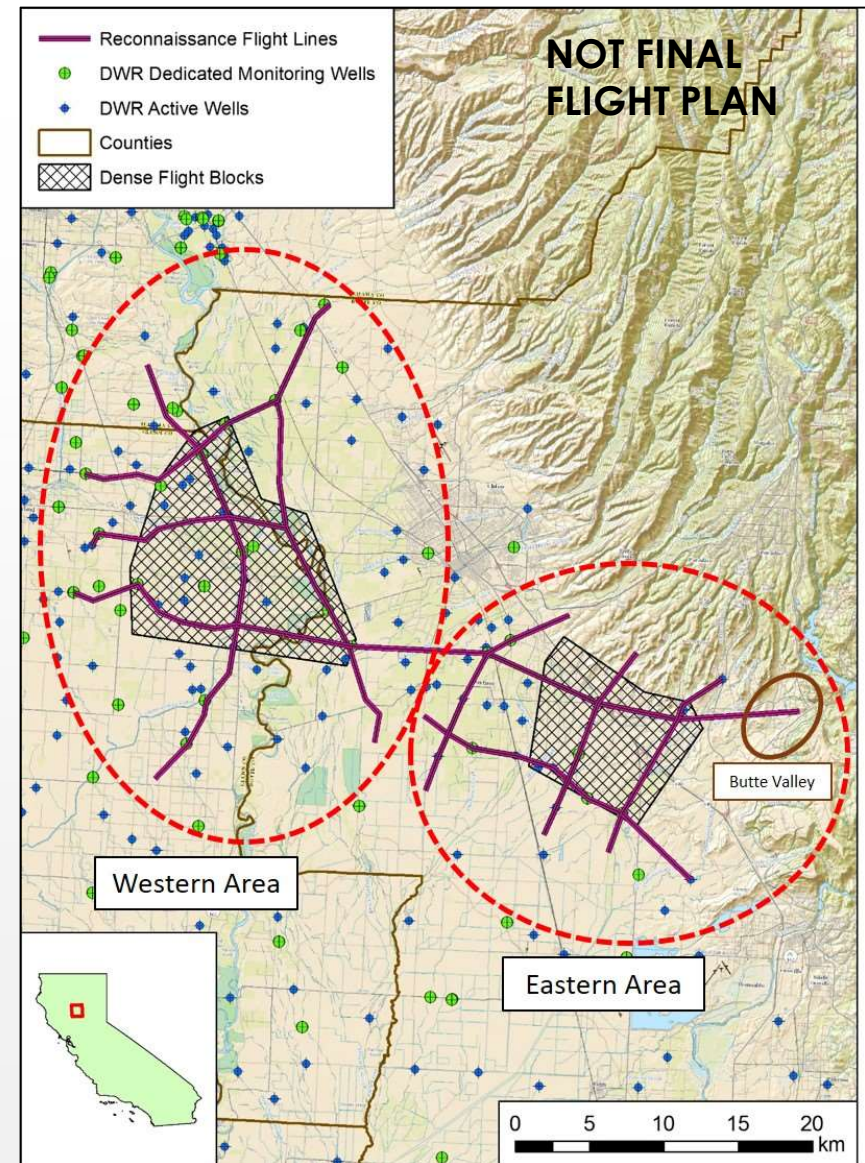
## Inform Groundwater Management

- ▶ Improve our Hydrogeologic Conceptual Model (HCM)
- ▶ Informs representation in groundwater models
- ▶ Support coordination across subbasin boundaries
- ▶ Optimize groundwater management efforts (i.e. New monitoring well placement, understand recharge pathways)



# Survey Design

- Western Area (data rich)
  - Principle aquifer zones?
  - Confined or leaky semi-confined?
  - Nature of confining beds?
- Eastern Area (data poor)
  - Uncertainty of basin structure/geometry
  - Nature of transition from alluvial basin to fractured bedrock?
  - Shallow saline water in places



## Partners and Funding

- ▶ Partners:
  - ▶ Stanford (Dr. Rosemary Knight)
  - ▶ Chico State (Dr. Todd Greene)
  - ▶ Glenn County (Lisa Hunter and Sharla Stockton)
  
- ▶ Local Funding:
  - ▶ Butte County General Fund
  - ▶ Glenn County in-kind support

### Project Website:

<https://www.buttecounty.net/waterresourceconservation/AEM-Project>

Stanford GAP Website: <https://mapwater.stanford.edu/>