



# Regional Water Efficiency Program Advisory Committee



Lilly Allen

5/9/17



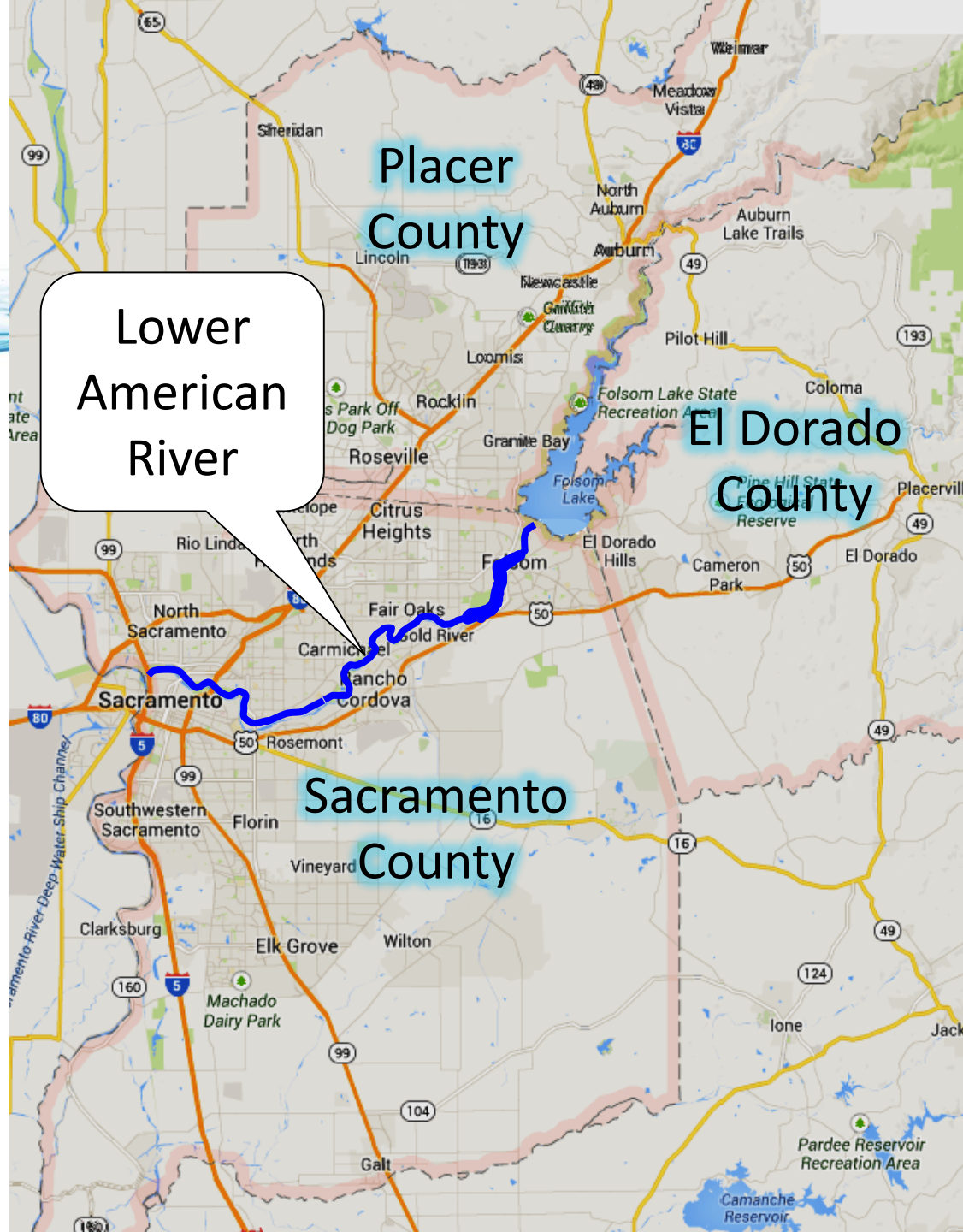
# Sacramento Region

## Cities:

- Sacramento
- Roseville
- Folsom
- Rancho Cordova

## Communities:

- Carmichael
- Granite Bay
- Citrus Heights
- Fair Oaks
- Rio Linda











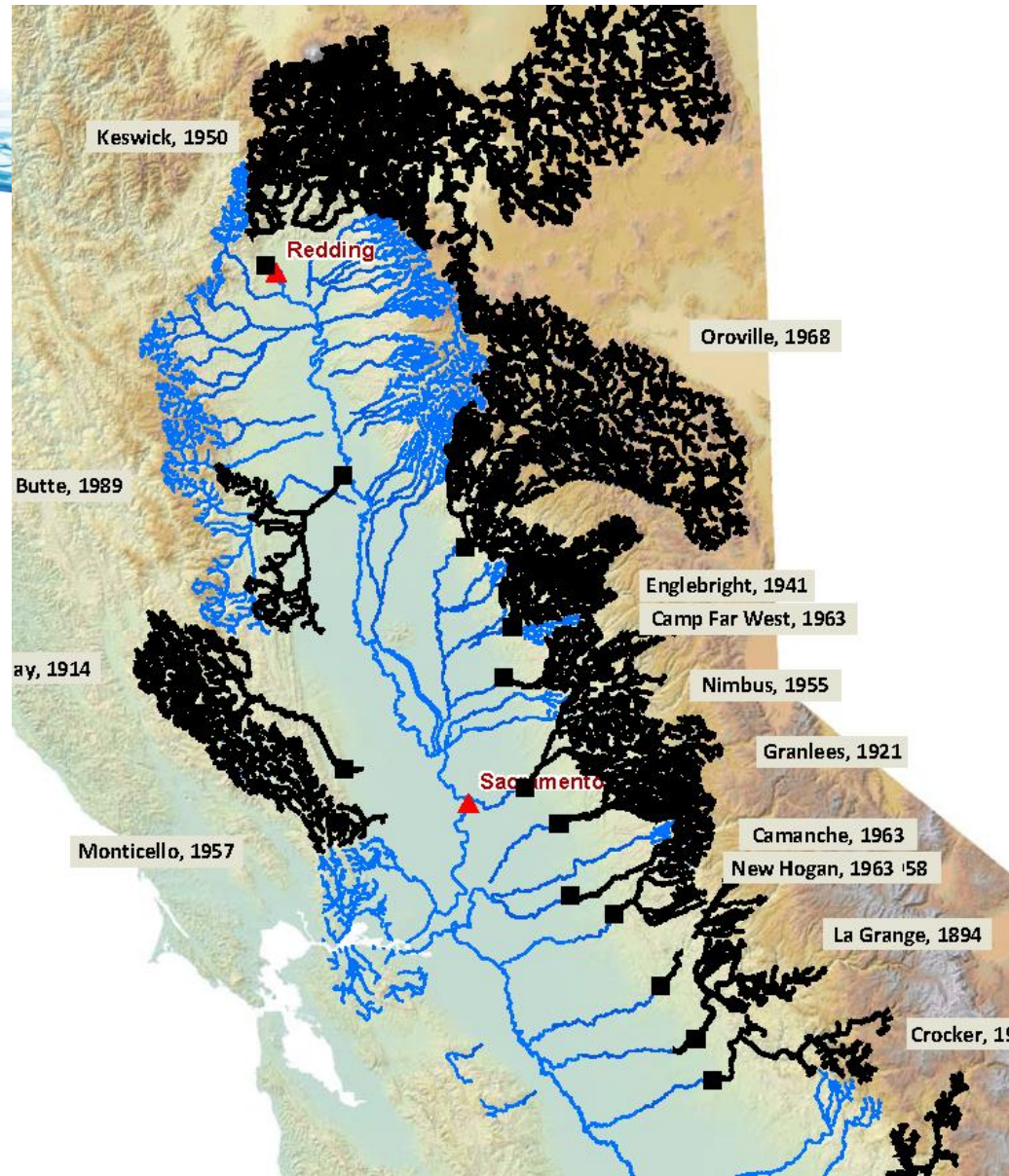






# Declining Fish Habitat

Central Valley dams have drastically reduced habitat.

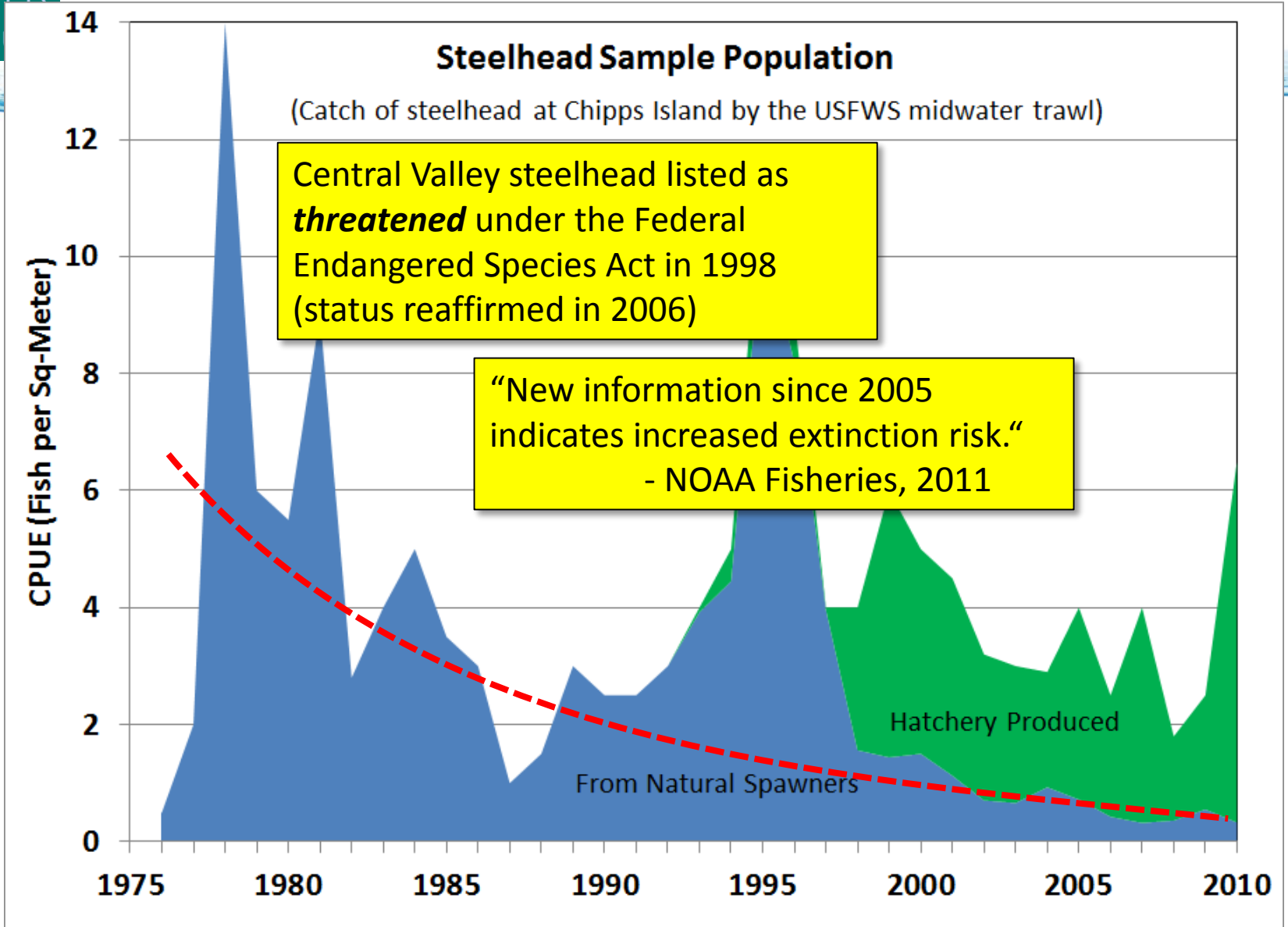


Source:  
Lindley et al.2006:  
Historical  
population  
structure of  
Central Valley  
steelhead and its  
alteration by dams

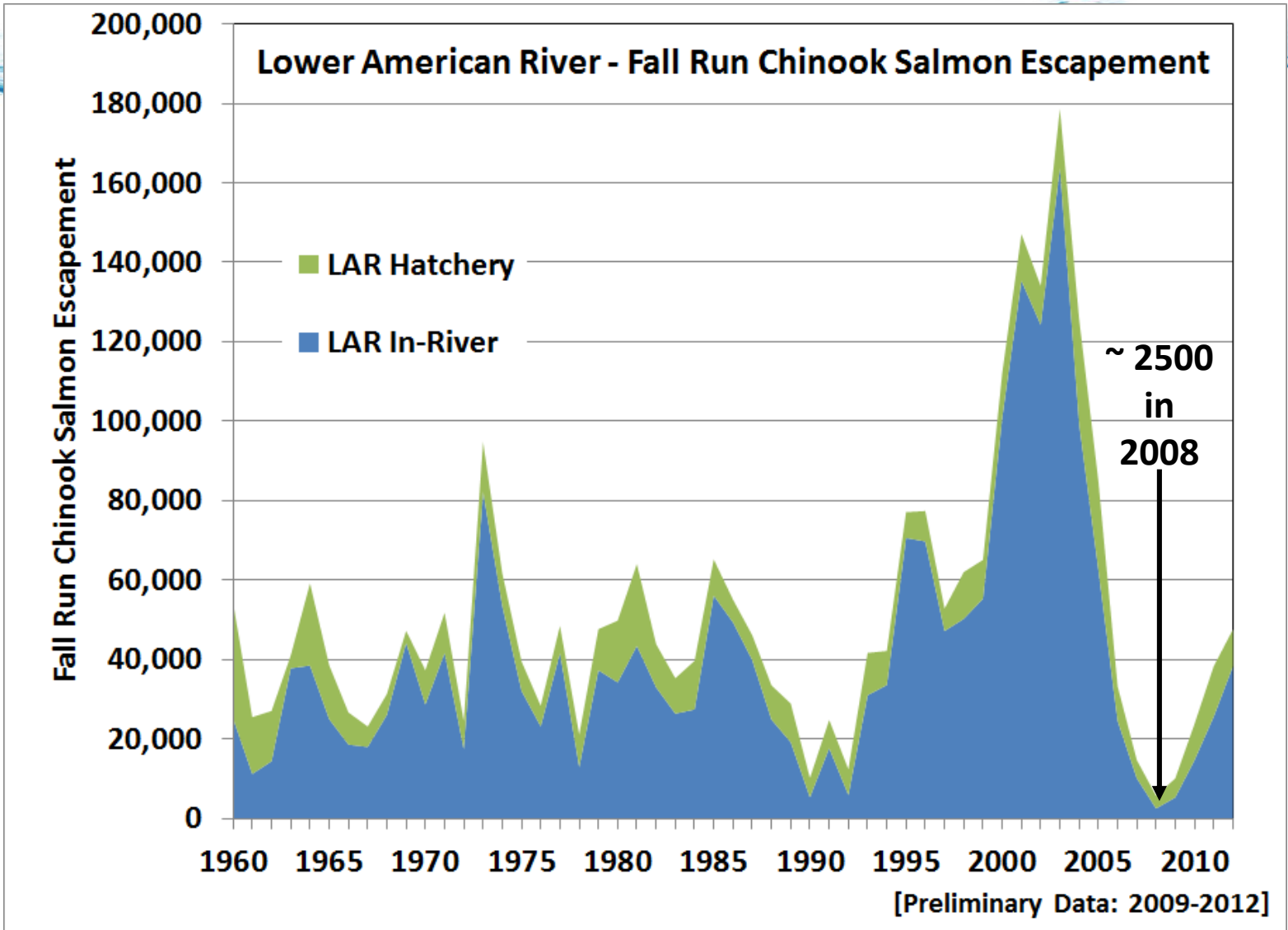
Model of suitable  
historical habitat  
for steelhead



# Steelhead in Danger



# Fall Run Chinook in Danger





# The Water Forum

## 2 Objectives & 7 Elements

**Reliable Water Supply to 2030**

**Protect the lower American River**

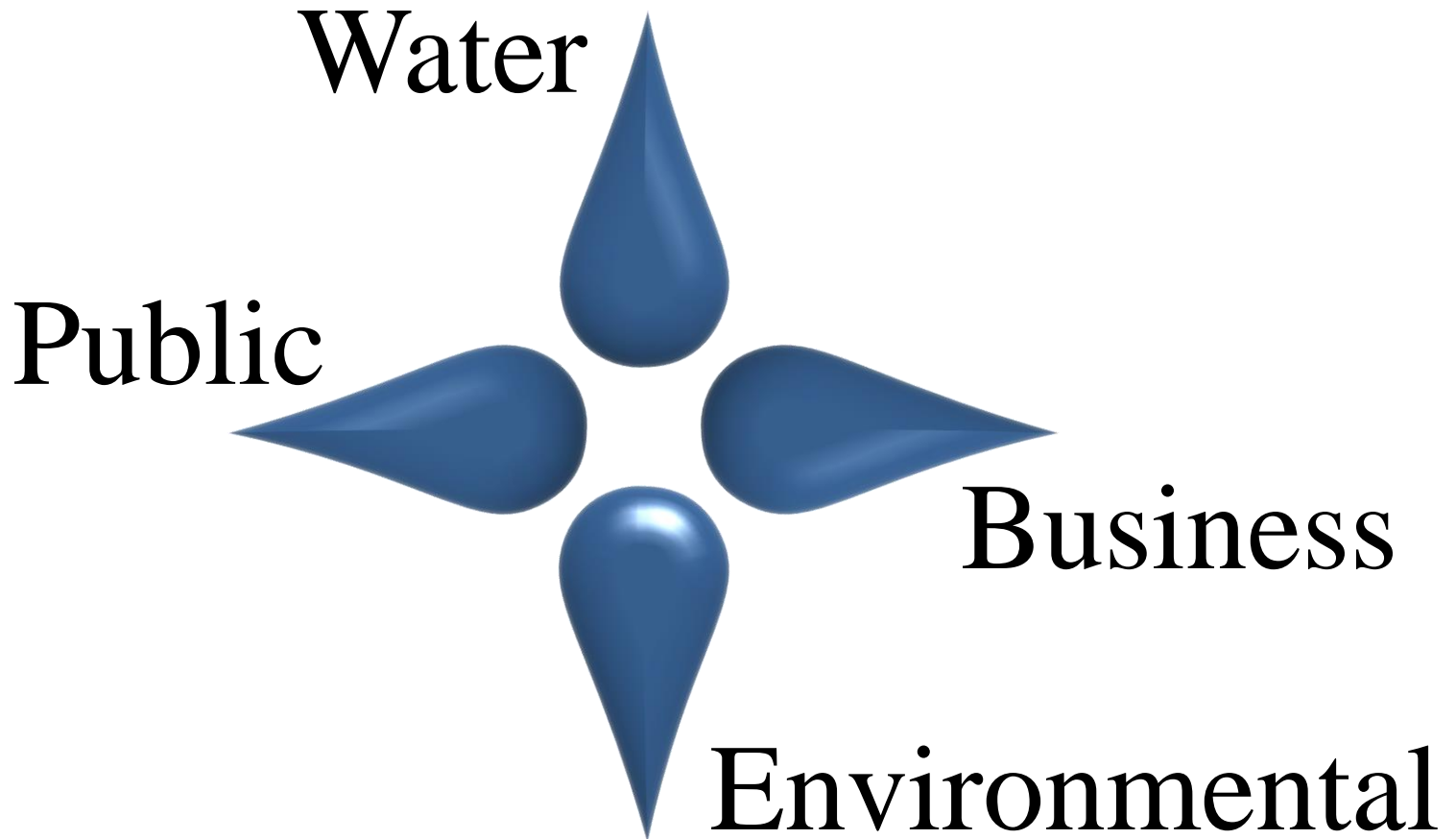
- **Increased Diversions**
- **Dry Year Actions**
- **Groundwater Management**

- **Water Conservation**
- **Habitat Management**
- **Improved Flow Standard**

- **Water Forum Successor Effort**



# The Water Forum Agreement Truce Among 4 Caucuses





# Habitat Management

## THE SACR

### Riverbed Strengthen

By Matt Weiser

More spawning gravel will be restored in a long-running effort to bolster the river.

On Tuesday, crews will begin working to clean and sort gravel removed from the river. The gravel will then be put back in the river, destroyed by that mining.

The work involves taking gravel piles from the river, washing it to remove 100 years of silt in the riverbed. About 12,000 tons of



Ecosystem



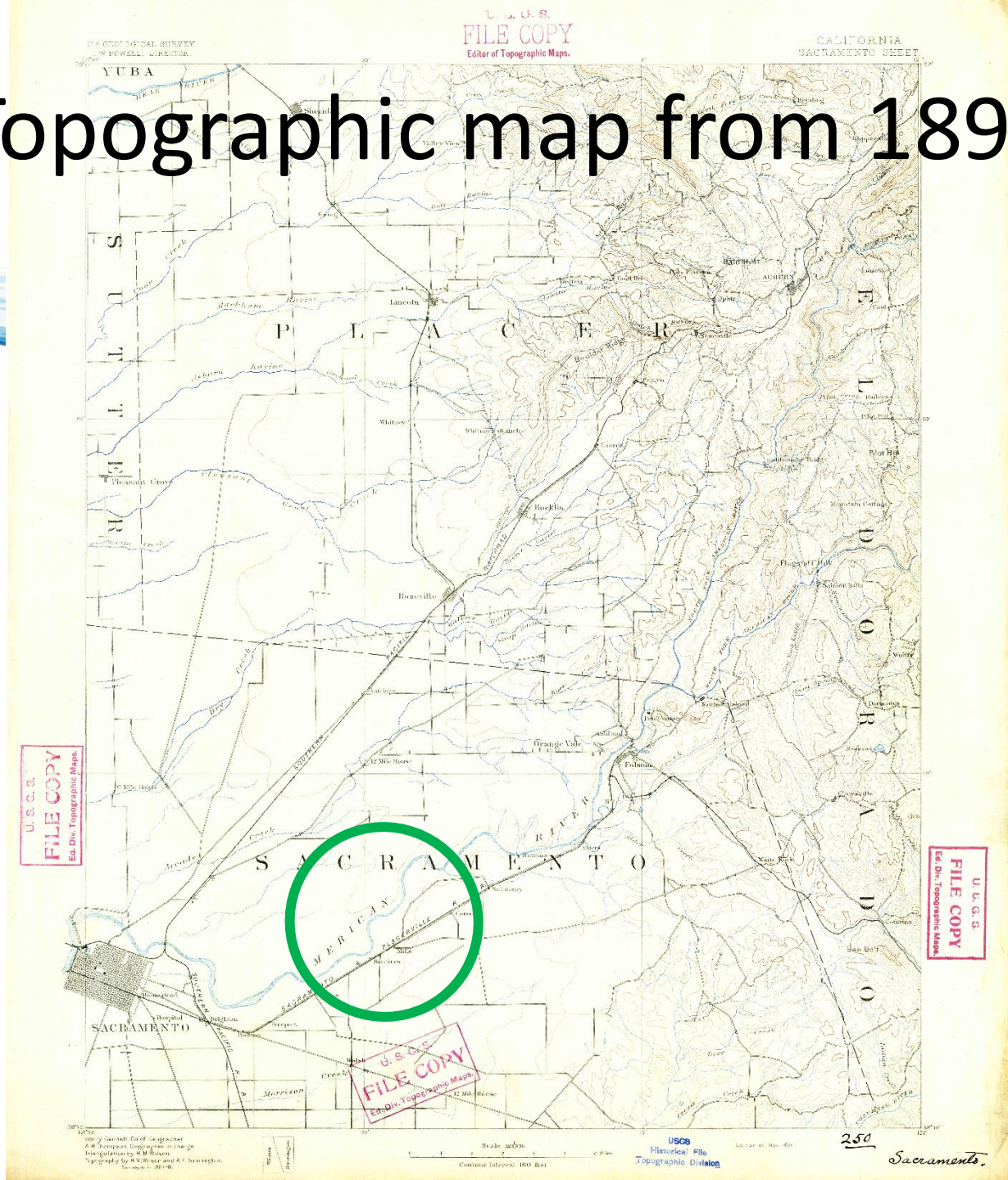
# History of Cordova Creek

A horizontal graphic of a blue water splash with ripples, spanning the width of the slide.

Cordova Creek hasn't always  
been a creek!



# Topographic map from 1891



U.S.G.S.  
FILE COPY  
Ed. Div., Topographic Maps.

U.S.G.S.  
FILE COPY  
Ed. Div., Topographic Maps.

U.S.G.S.  
FILE COPY  
Ed. Div., Topographic Maps.

Surveyed by Garretts David Geographer  
A. H. Thompson Geographer in Charge  
Topography by W. M. Wilson  
Topography by A. R. Wilson and A. J. Huntington  
Copyright 1891

Scale 1:250,000  
Contour Interval 100 Feet

USGS  
Historical File  
Topographic Division

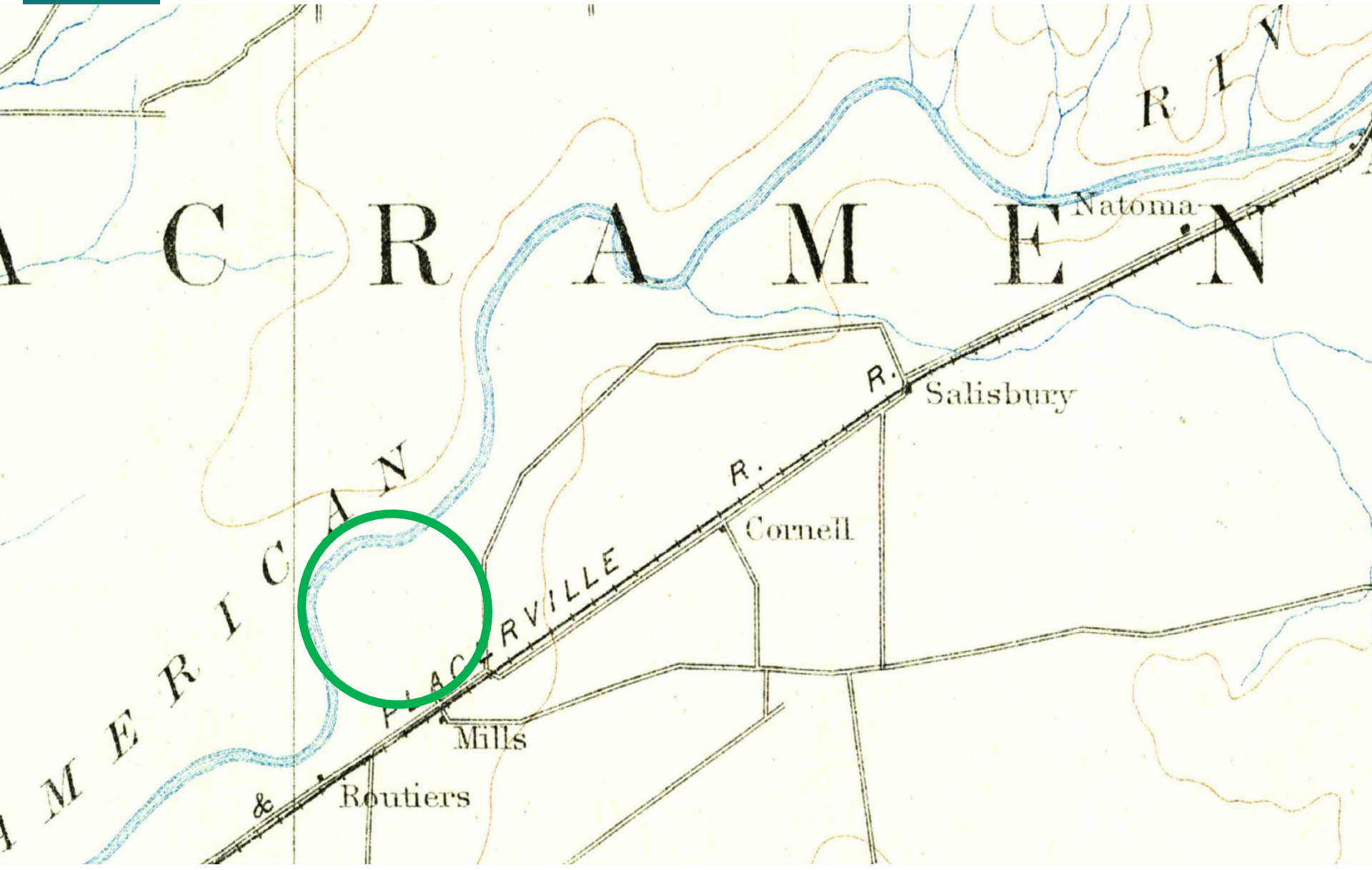
250

Sacramento.





1891



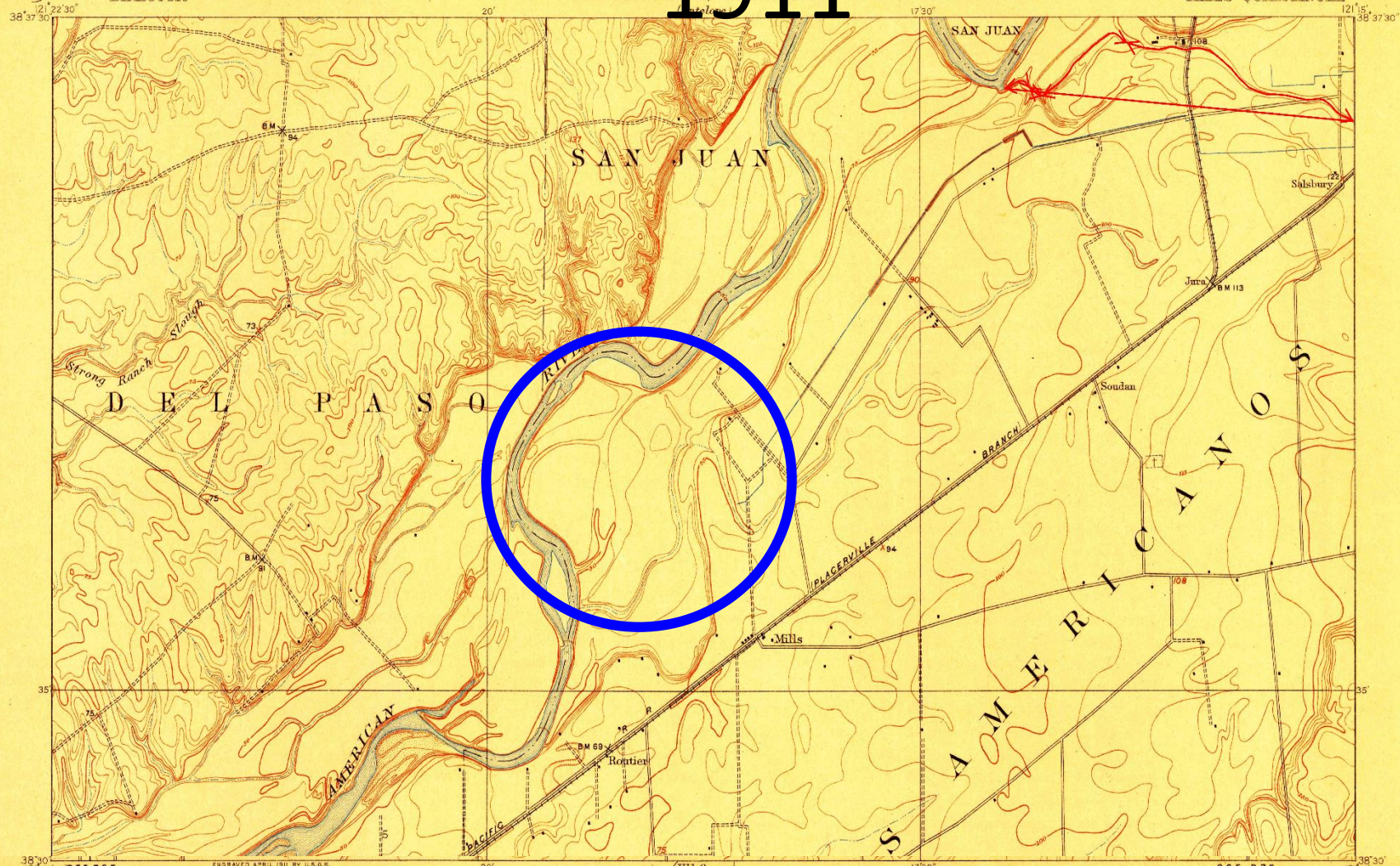
TOPOGRAPHY

1911

U.S. GEOLOGICAL SURVEY  
GEORGE OTIS SMITH  
DIRECTOR

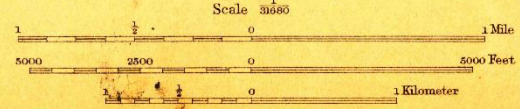
STATE OF CALIFORNIA  
J. N. GILBERT, GOVERNOR  
NATHANIEL ELLIOTT, STATE ENGINEER

CALIFORNIA  
(SACRAMENTO COUNTY)  
MILLS QUADRANGLE



(Flavin)  
R. B. Marshall, Chief Geographer.  
T. C. Gerdine, Geographer in charge.  
Topography by E. R. Bartlett, T. H. Moncre, A. J. Ogle, and E. C. Williams.  
Control by C. F. Urquhart, C. L. Nelson, L. F. Biggs, L. D. Ryus, and B. A. Jenkins.  
Surveyed in 1908-1909.  
SURVEYED IN COOPERATION WITH THE STATE OF CALIFORNIA.

Williams	O	B
Moncre		

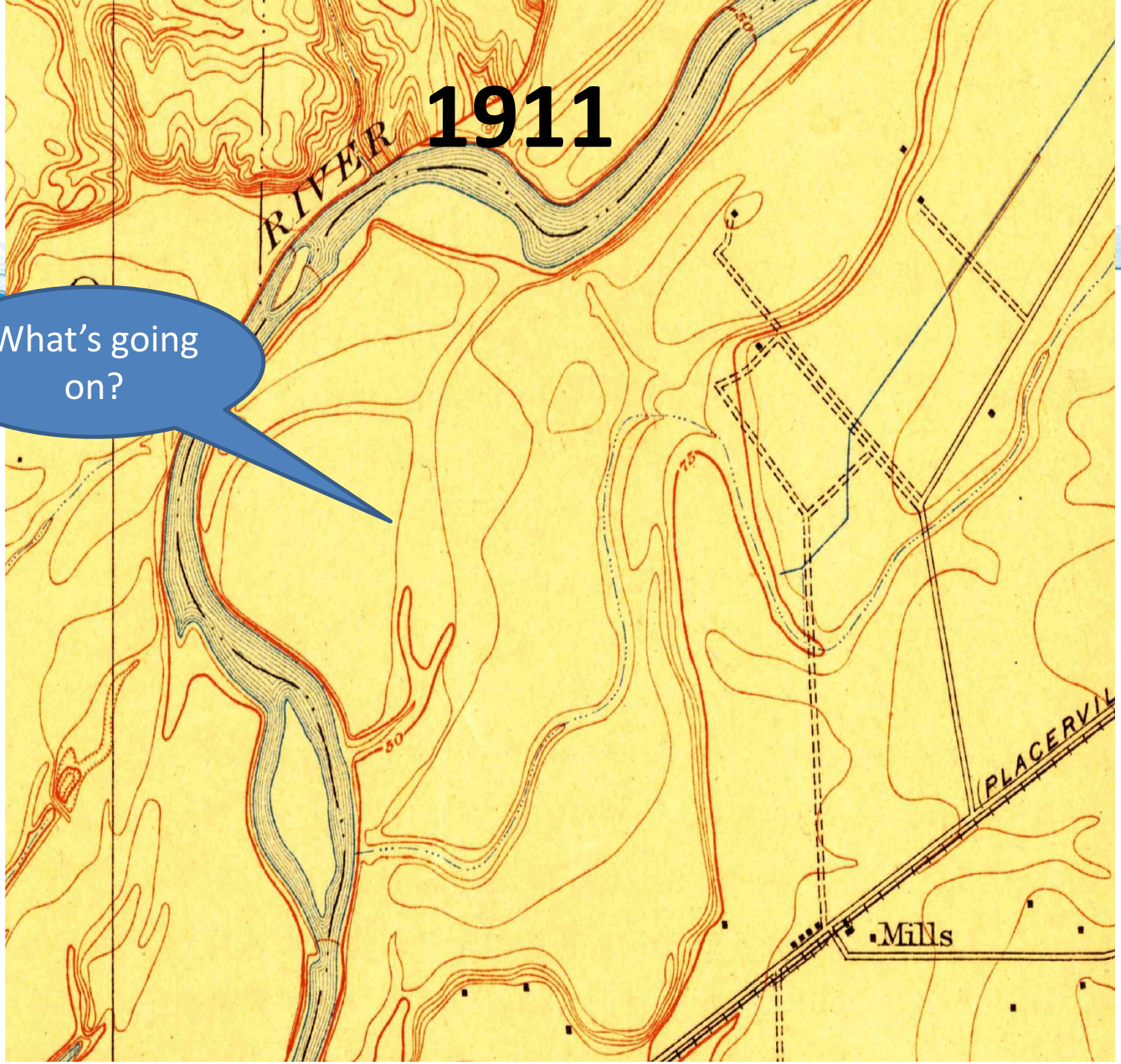


Contour interval 5 feet.  
Datum is mean sea level.

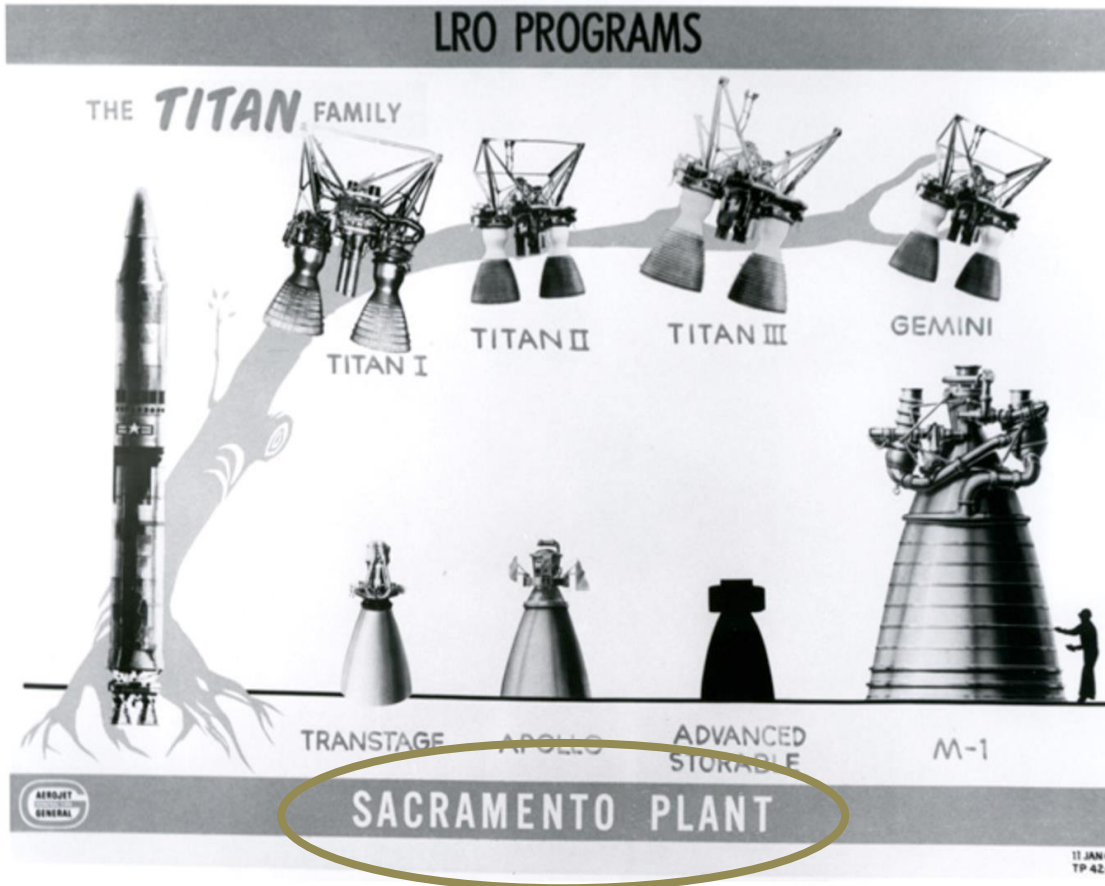
(Cassidy)  
Edition of Aug. 1911.  
USGS CT 37 1911 3624  
Historical File  
Topographic Division  
MILLS  
NAME CHANGED TO CARMICHAEL

1911

What's going on?



# 1950's: Aerojet in the Region



The first U.S. multi-stage intercontinental ballistic missile, Titan I, lights up the skies over Cape Canaveral, Florida with this magnificent launch on February 6, 1959. Throughout the next 10 years, Aerojet supplied the first- and second-stage liquid rocket engines for the entire Titan launcher family: Titan I, Titan II, Titan III and Titan IV. The final Titan I flight occurred on March 5, 1965.

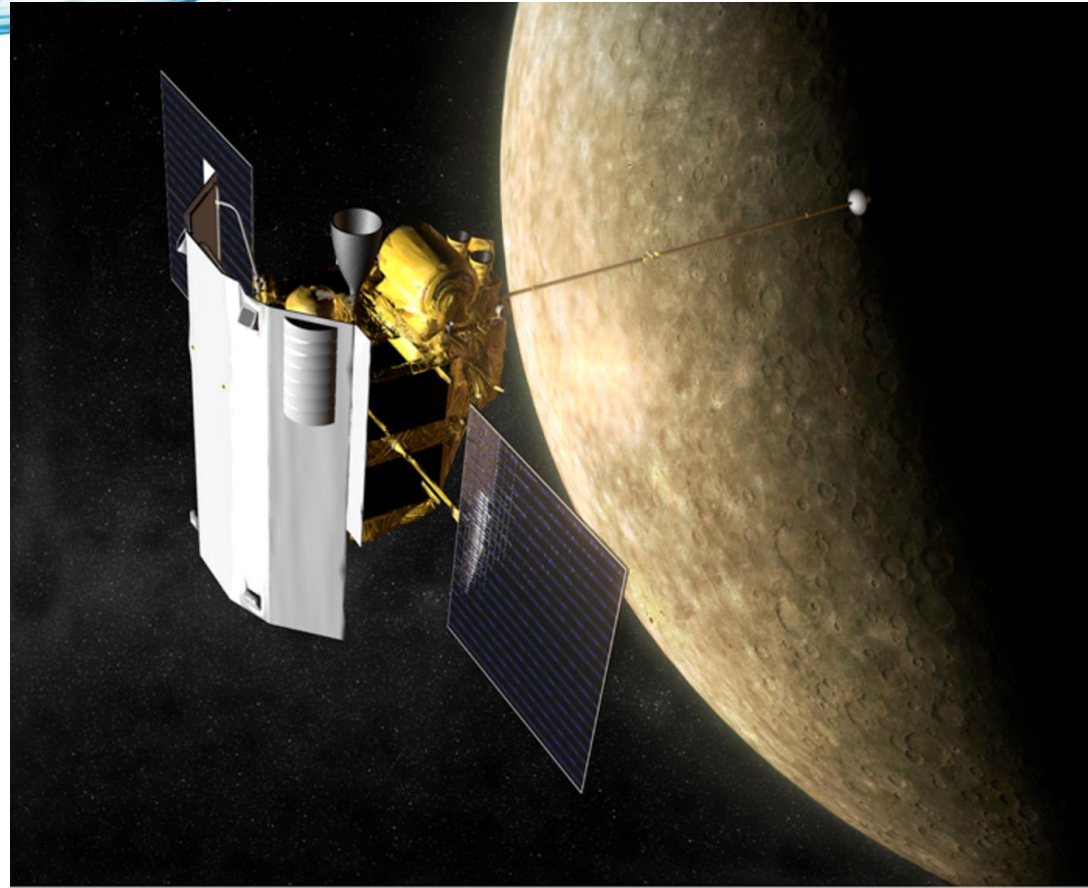
The Titan launch vehicle family was established in October 1955 when the U.S. Air Force awarded a contract to build a heavy-duty space system. The program became known as the Titan I, the nation's first two-stage intercontinental ballistic missile and the first underground silo-based ICBM. The Titan launch vehicle was retired from service in mid-1987.



# When Neil Armstrong Stops by Rancho Cordova

"Aerojet has a history in Sacramento that stretches back to the middle of the last century. Back in the 1960s, the company employed more than **20,000** people in Rancho Cordova and was a workhorse of the local economy. It worked around the clock to supply engines for NASA and America's Cold War defense. Astronauts such as Frank Borman and Neil Armstrong stopped by to give pep talks to workers."

-Sacramento Bee



NASA's MESSENGER (MErcury Surface, Space ENvironment, GEochemistry, and Ranging) spacecraft achieved the first-ever orbit around the planet Mercury in March 2011. The successful Mercury orbit insertion maneuver began a year-long study phase of the closest planet to the Sun. Aerojet's 150 lbf bipropellant engine fired for about 15 minutes, slowing down MESSENGER so the spacecraft could sufficiently be "captured" by Mercury's gravity. Photo credit: NASA



# Groundwater pollution comes along too

**Legend**

**Remediation Well**

- Aerojet
- Boeing
- Mather
- McClellan

□ Subregions

— American River

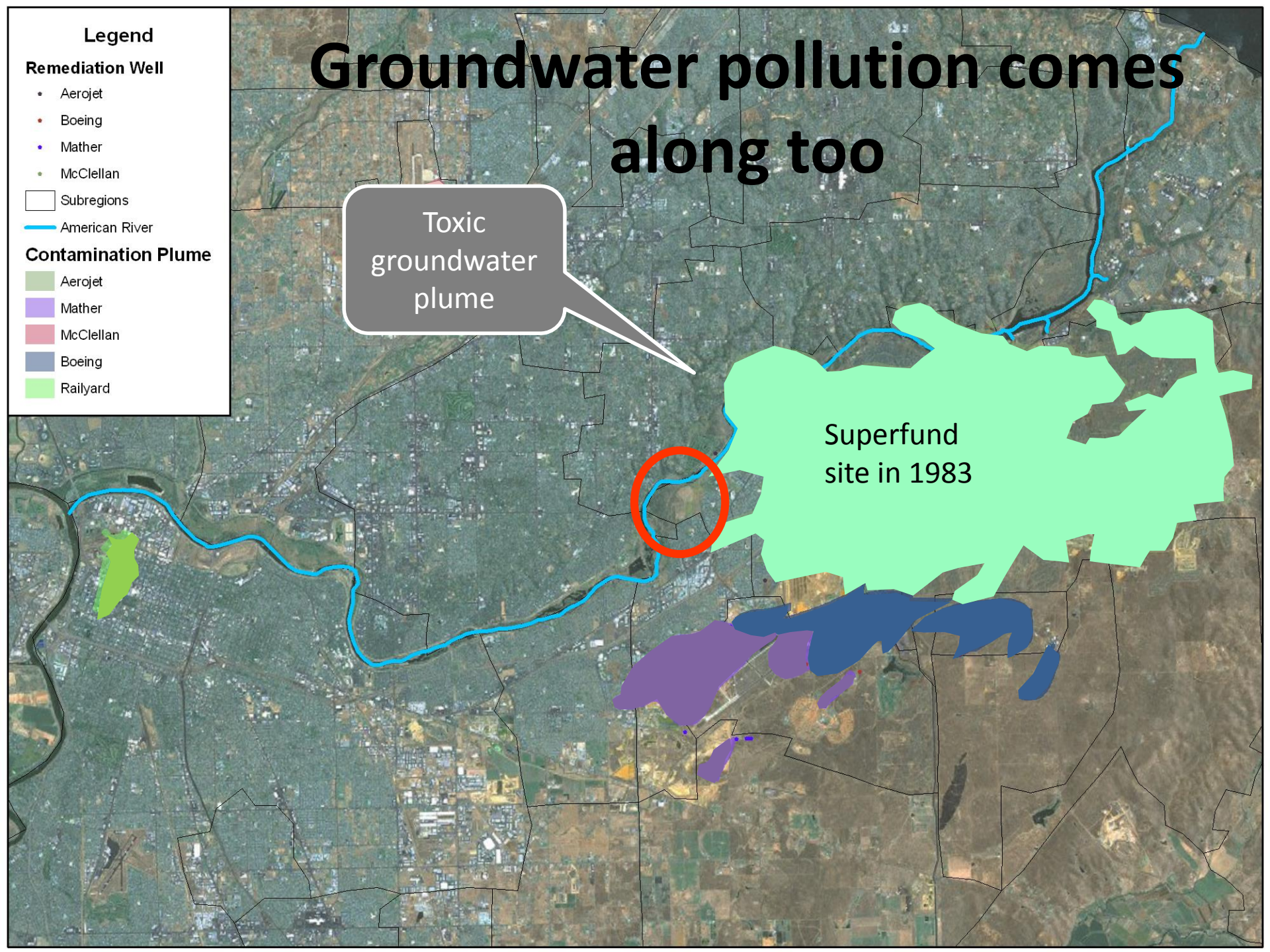
**Contamination Plume**

- Aerojet
- Mather
- McClellan
- Boeing
- Railyard

Toxic groundwater plume



Superfund site in 1983

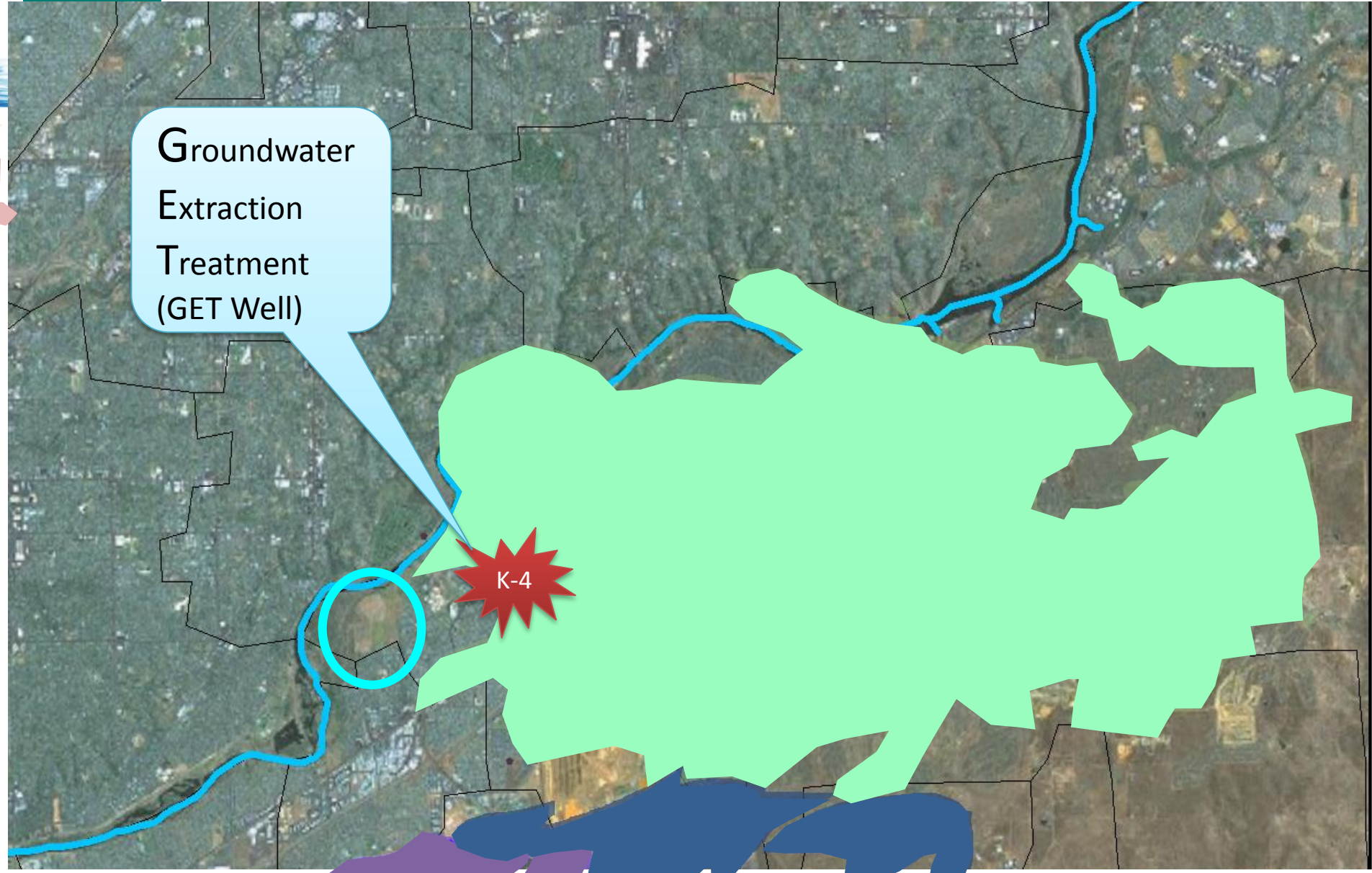


# 1983 Remediation Created the Drain



Groundwater  
Extraction  
Treatment  
(GET Well)

K-4



# 1993





# 2012



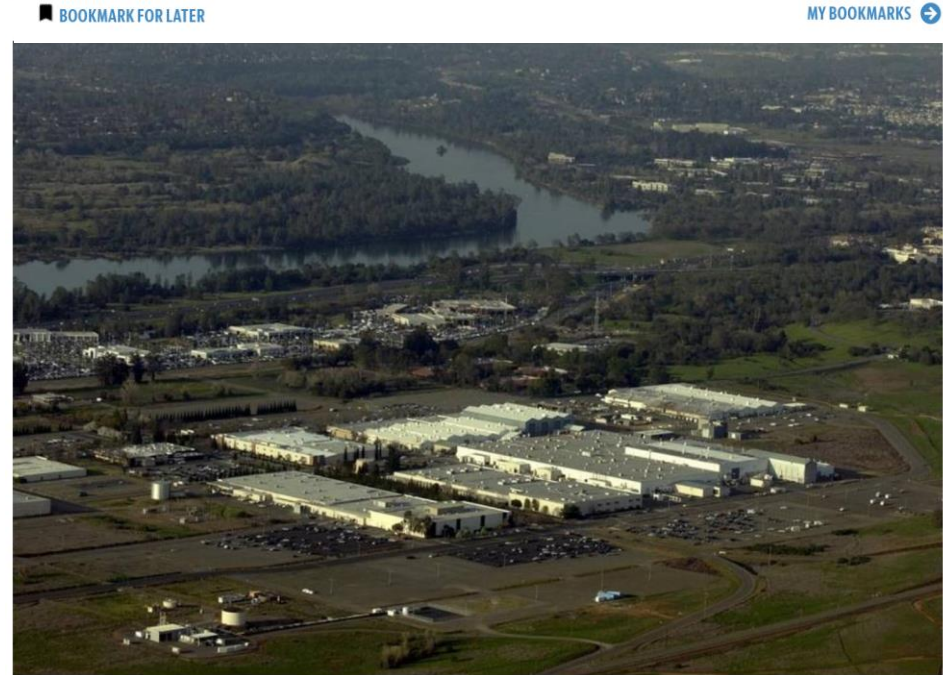
**In 2016 we naturalized the channel**





# 2017 Aerojet Closes

“Employment has fallen precipitously since then. [The latest round of layoffs](#), announced in March 2015, was aimed at trimming 10 percent of the company’s jobs nationwide over four years. At that point, the Rancho Cordova plant employed 1,600 people.”



Aerojet Rocketdyne headquarters in Rancho Cordova. **Jay Mather** - Sacramento Bee file

BUSINESS & REAL ESTATE

MAY 16, 2016 8:50 AM

## Aerojet Rocketdyne to move corporate headquarters to El Segundo

What will happen to the  
creek?





# Making of Cordova Creek





# Construction in progress













WATER  
FORUM

*Cordova Creek - Before*

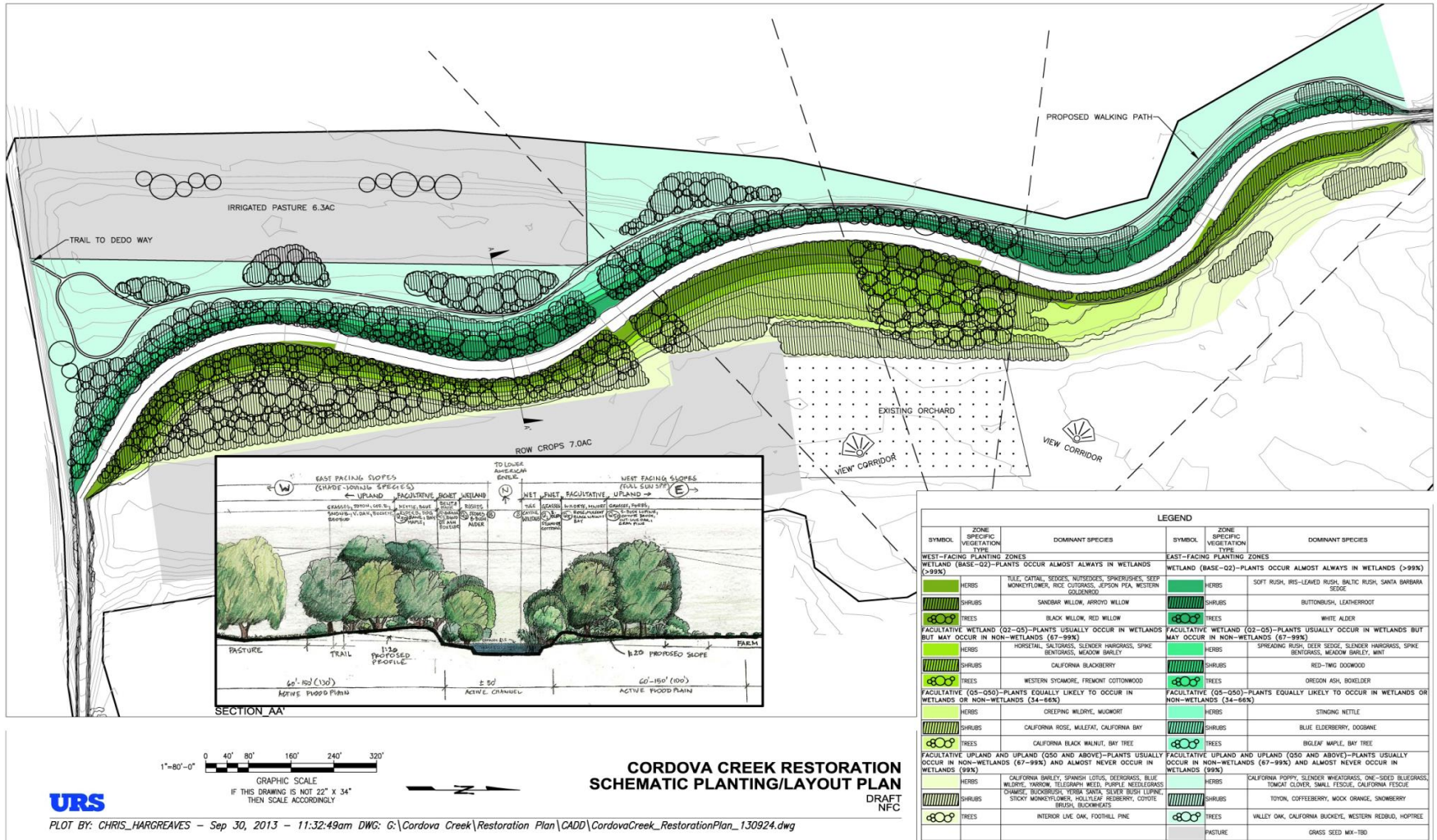


*Cordova Creek - After*





# Native Planting Plan



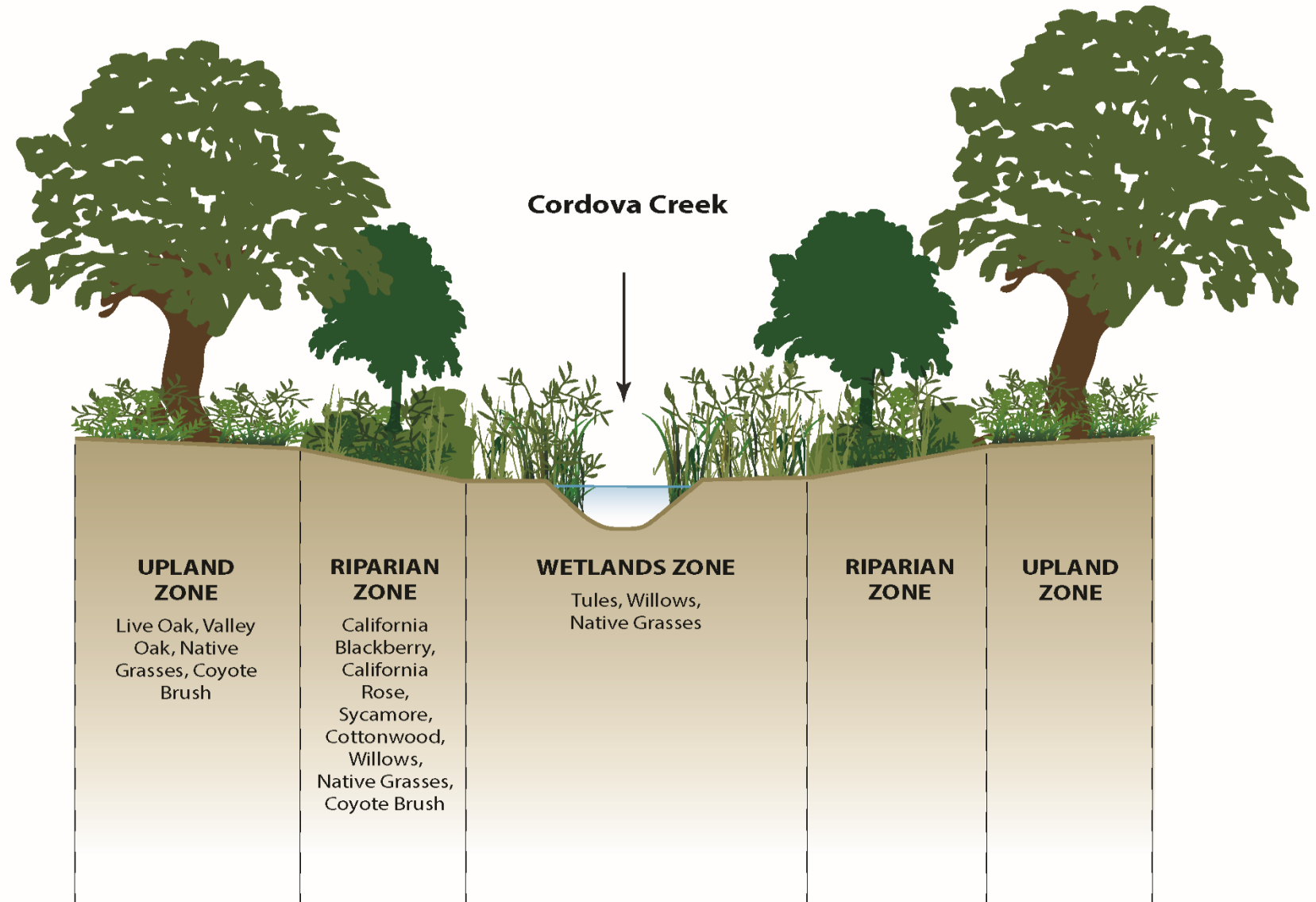
Notes: Courtesy of URS



Cordova Creek Naturalization Project  
**Naturalization Schematic Planting Layout**



# Native Plants Cross-section



# Two Phases

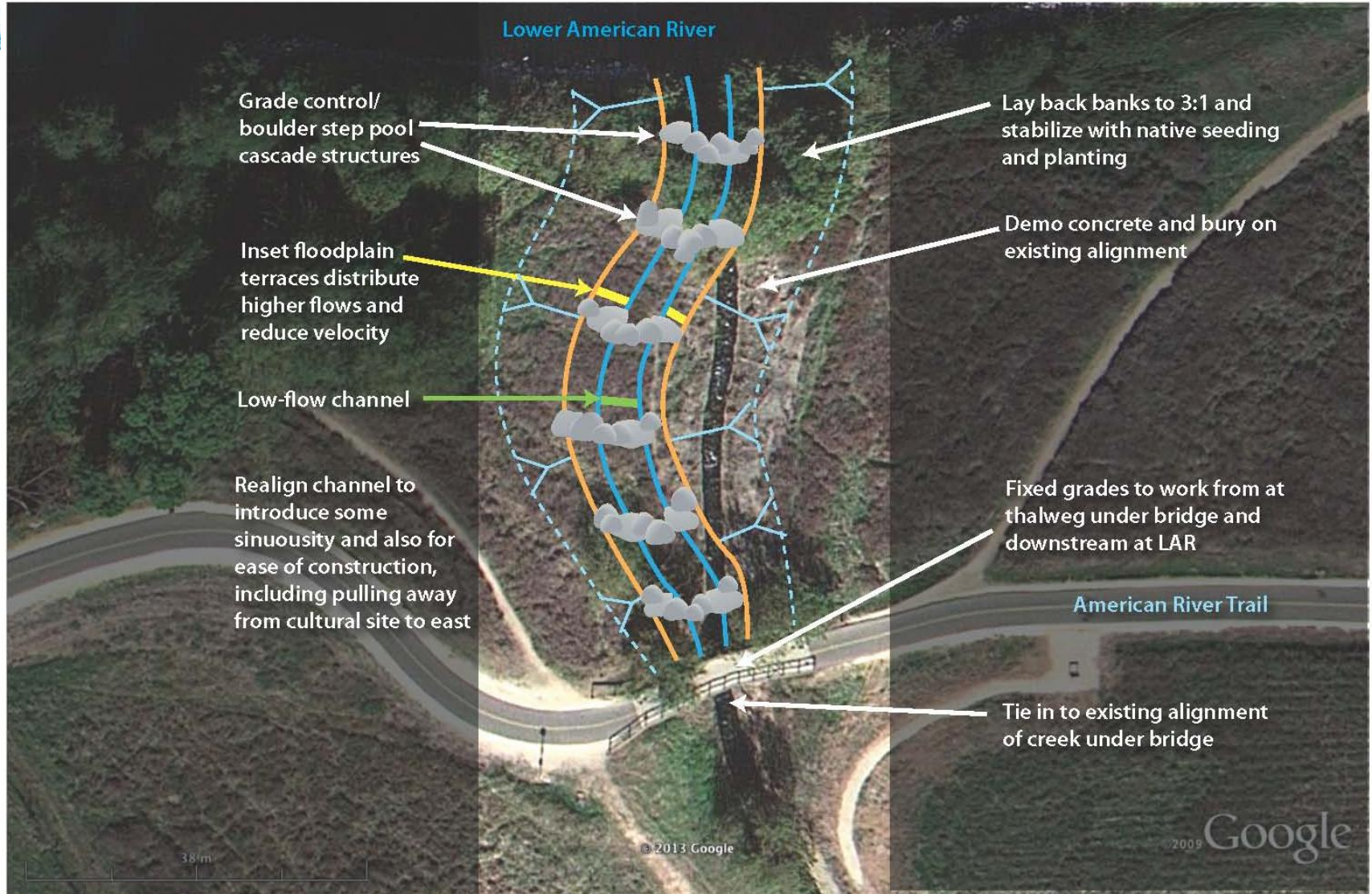
Phase 1



# What's Next?



# What's Next?



## Step-Pool Profile

