

RIVER  
PARTNERS

# Floodplain Expansion for Increasing Groundwater Storage and Reducing Floods

*Julie Rentner*



## Restoration in a Critical Decade

The time is now and the need is clear: restoring our most imperiled, hardworking riverways is a natural solution to the drought, flood danger, and species loss that threaten our ecosystems and communities. To ensure a thriving future for people and wildlife, we are doubling our pace of restoration of river landscapes as the essential arteries of California.

### LEGEND

● Restoration 1998–2022    10-year restoration vision

Since 1998, we have revitalized over 18,000 riverside acres across 21 watersheds statewide, the largest on-the-ground riverway restoration footprint in the western U.S.

Circles indicate high-priority geographies in California, but are not inclusive of all regions we aim to revitalize.



**662**

Acres of protected habitat restored for endangered and threatened species. **18,766** since 1998



**85,654**

Native trees & vegetation planted. **4,068,534** since 1998



**\$13,303,620**

channeled directly to the communities where we work. **\$163,403,620 million** since 1998



**25,439**

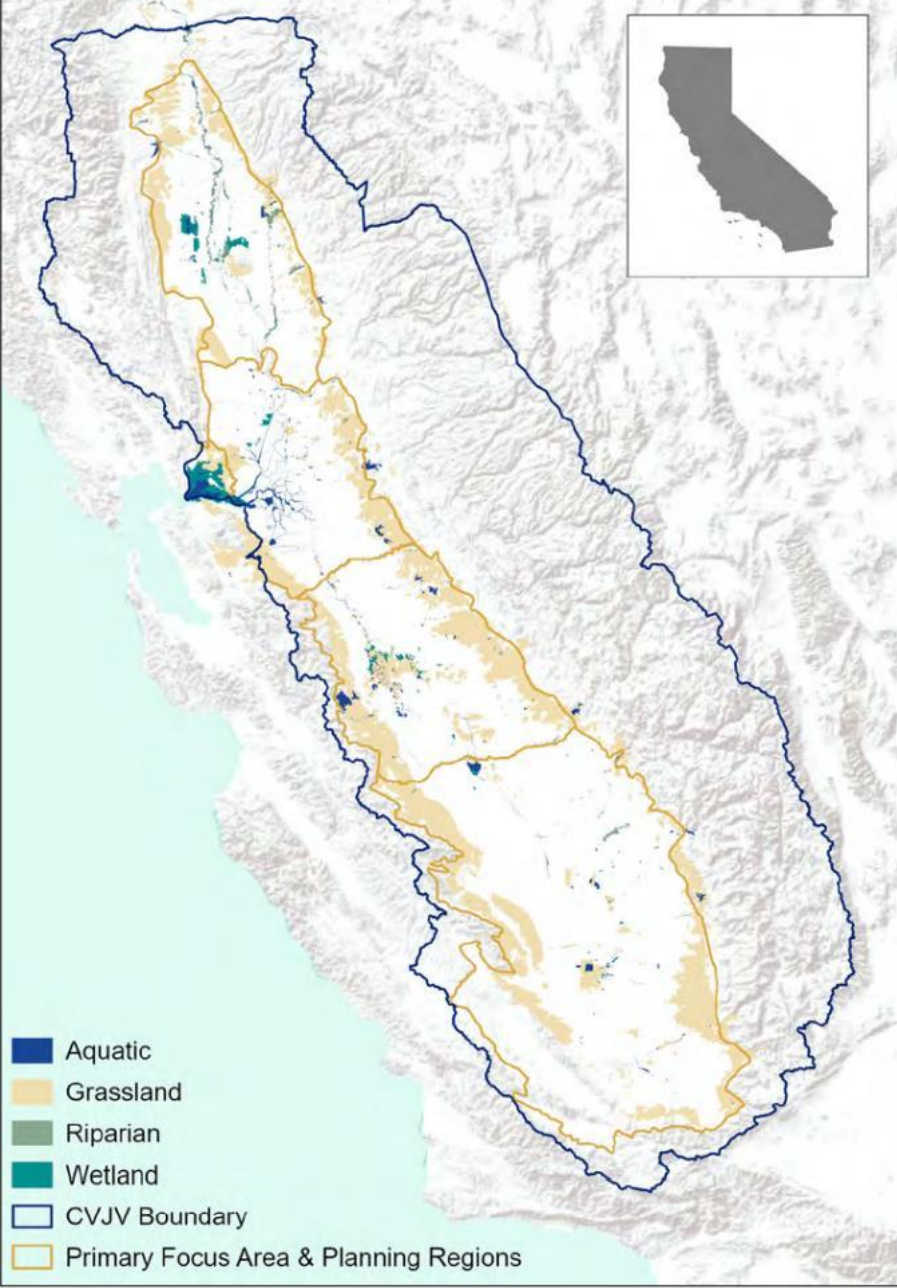
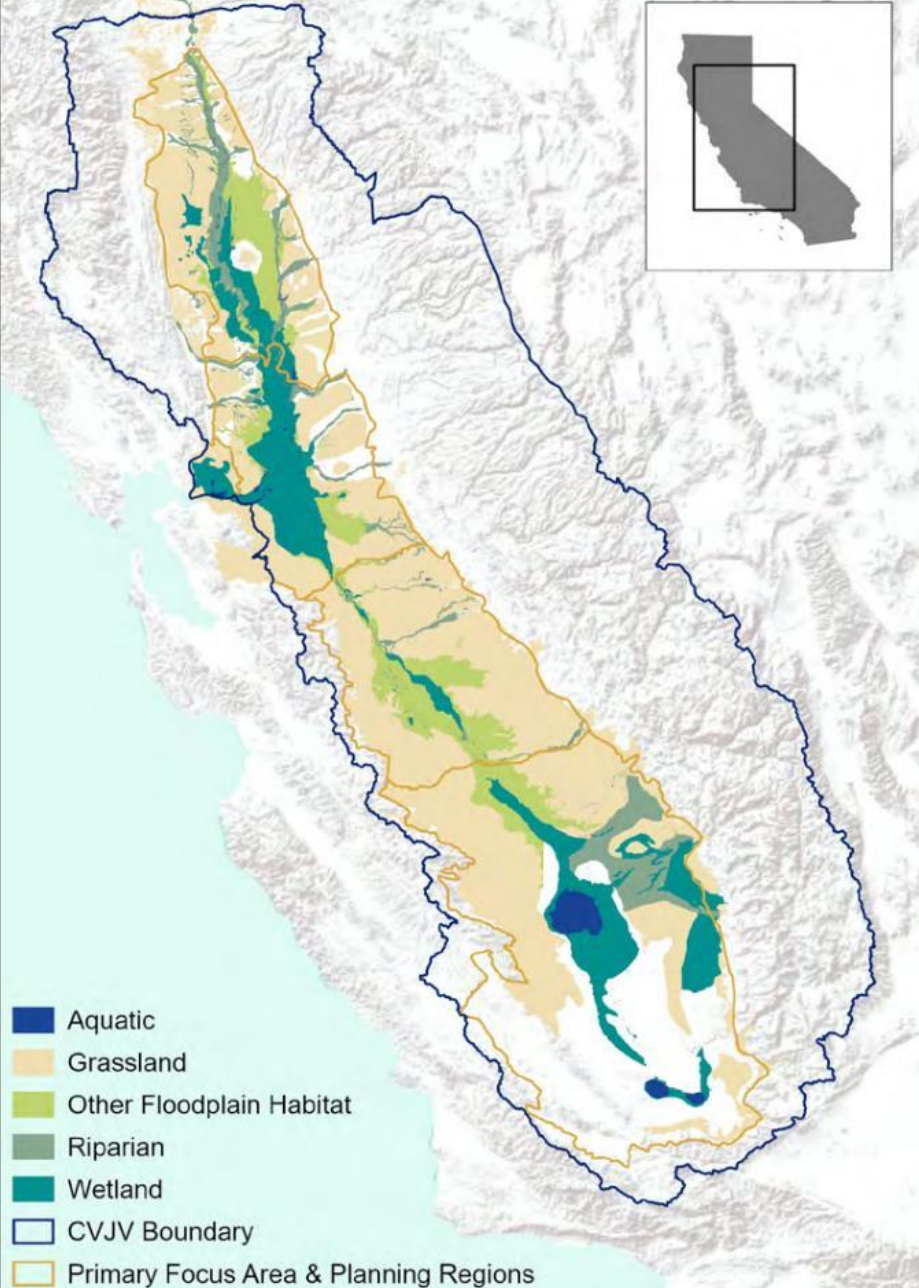
Metric tons of greenhouse gases captured. **1,101,650 tons** since 1998



**237,089,188**

gallons of freshwater conserved. **10,265,818,605 gallons** since 1998

# Central Valley Historical Ecology



# Projected Climate Change Impacts

The analyses for the 2022 CVFPP Update evaluated system performance over a 50-year planning horizon (from 2022 to 2072) to understand how flood risk is expected to change and to assess climate resiliency over the long-term.

Although this information provides an estimation of what may be expected for all possible events, these model results simulate a condition based on the best available information at this time and are not predictive of actual events. The risk analysis for the CVFPP is a watershed-based multidisciplinary analysis primarily focused on supporting the societal values of public health and safety, and a healthy economy. The 2022 CVFPP Update climate change analysis includes a wider range of potential climate change projections than the 2017 CVFPP Update to better understand the range of uncertainty associated with projections in different Central Valley watersheds. These estimates present a range of climate predictions over a 50-year planning horizon and are described as a "low," "medium," and "high" projections for 2072. Watershed responses to climate change and findings of the 2022 CVFPP Update climate change analysis include:

- More warming projected for all future scenarios, resulting in less of the watershed below freezing temperatures and a reduction of snow accumulation.
  - ▶ Freezing elevations in both Sacramento and San Joaquin River basins will increase.
  - ▶ Increasing and warmer rainfall and less snow from major storms will result in decreasing and shifting snowmelt to earlier in the season and most snow melting by early spring.



- The increased frequency and magnitude of wildfires heighten the risk for dangerous flood conditions, and there is additional risk to people and property below burn-scarred hills.
- Future floods are expected to have increased peak water surface elevations and cause more damage in tidally influenced areas of the lower San Joaquin and Sacramento River watersheds because of sea level rise.
- Frequency and magnitude of emergency response actions are expected to increase as a result of sea level rise, even in dry conditions.

Climate change is also exacerbating declines in ecosystems already affected by other stressors. The 2022 CVFPP Conservation Strategy Update considers climate risks and vulnerabilities to ecosystem processes, habitats, and target species. Appendix H of the Conservation Strategy Update provides data and resources to better understand flood and ecosystem management-related consequences and vulnerabilities associated with climate change. It also provides a set of recommendations and measures with a focus on adding resiliency to the flood system through nature-based solutions including multi-benefit projects.

# The New York Times Magazine



THE CALIFORNIA ISSUE

## First Drought, Then Flood. Can the West Learn to Live Between Extremes?

When Californians aren't thirsting for water, they're drowning in it. But experts see a way to navigate climate swings.

CLIMATE

## California is still at risk of flooding. Maybe rivers just need some space

May 28, 2023 · 6:00 AM ET

Heard on Weekend Edition Sunday

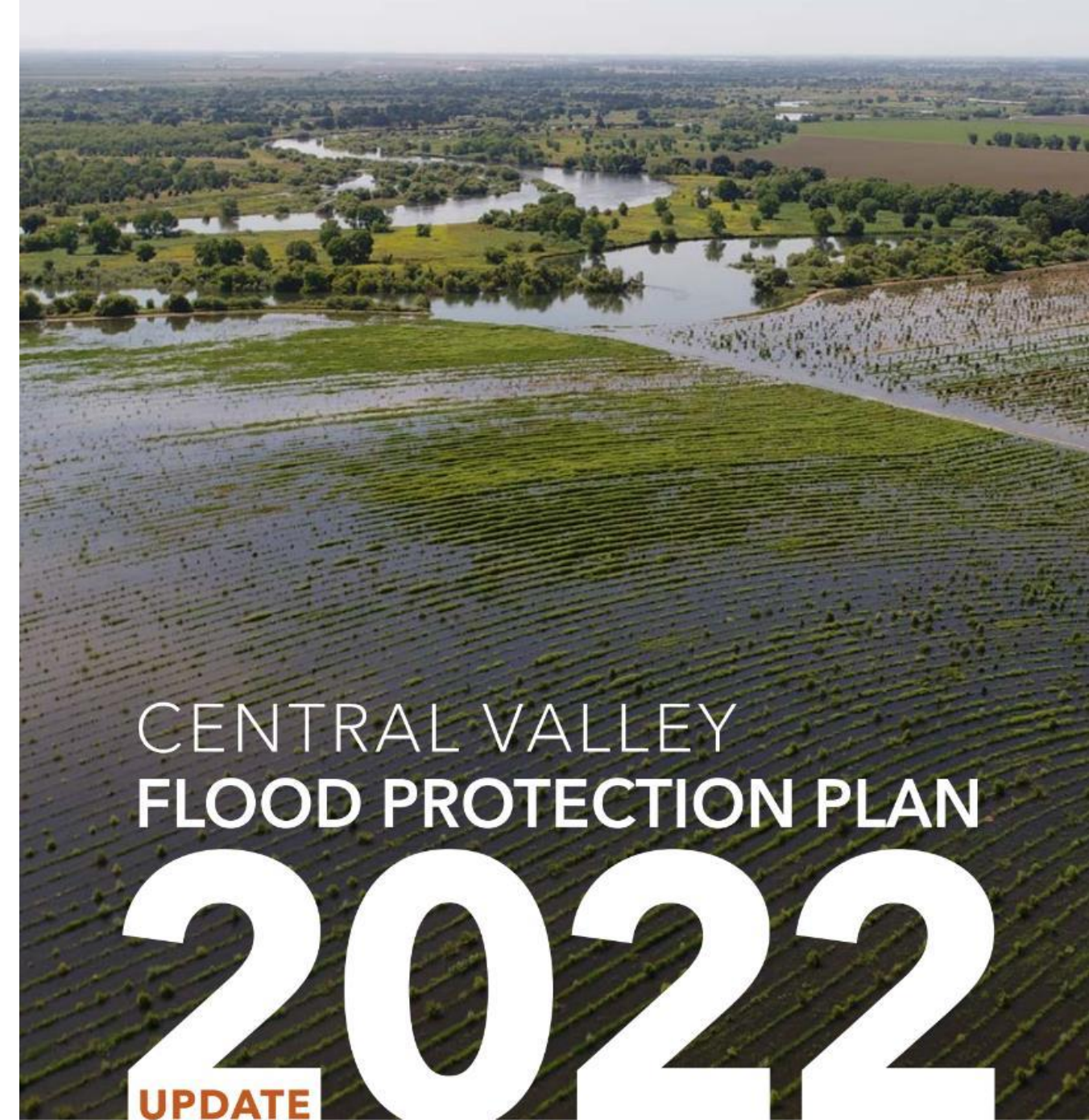
By Lauren Sommer



5-Minute Listen



Credit: River Partners



CENTRAL VALLEY  
FLOOD PROTECTION PLAN

2022

UPDATE

## EXPENDITURES

The following table presents proposed and revised budget year expenditures for each agency area. These totals are comprised of State funds which include General Fund, special funds, and selected bond funds. These totals do not include federal funds, other non-governmental cost funds, or reimbursements.

State Agencies	January Proposed Total State Fund*	May Revision Total State Fund*	Change*	% Change
Health and Human Services	\$102,286,345	\$111,981,876	\$9,695,531	9.48%
K thru 12 Education	\$82,369,270	\$80,164,019	\$-2,205,251	-2.68%
Higher Education	\$23,109,160	\$23,370,627	\$261,467	1.13%
Transportation	\$20,753,068	\$18,900,398	\$-1,852,670	-8.93%
Corrections and Rehabilitation	\$18,573,342	\$18,469,305	\$-104,037	-0.56%
General Government	\$8,544,533	\$15,675,266	\$7,130,733	83.45%
Natural Resources	\$12,799,272	\$11,256,487	\$-1,542,785	-12.05%
Legislative, Judicial, and Executive	\$10,715,160	\$10,329,964	\$-385,196	-3.59%
Environmental Protection	\$5,967,271	\$5,160,871	\$-806,400	-13.51%
Government Operations	\$4,123,648	\$4,661,453	\$537,805	13.04%
Business, Consumer Services, and Housing	\$5,032,620	\$4,607,264	\$-425,356	-8.45%
Labor and Workforce Development	\$2,700,601	\$1,916,824	\$-783,777	-29.02%
<b>TOTALS</b>	<b>\$296,974,290</b>	<b>\$306,494,354</b>	<b>\$9,520,064</b>	<b>3.21%</b>

\* Dollars in thousands

[Download CSV](#)

[Printable Table](#)



**UPDATE**

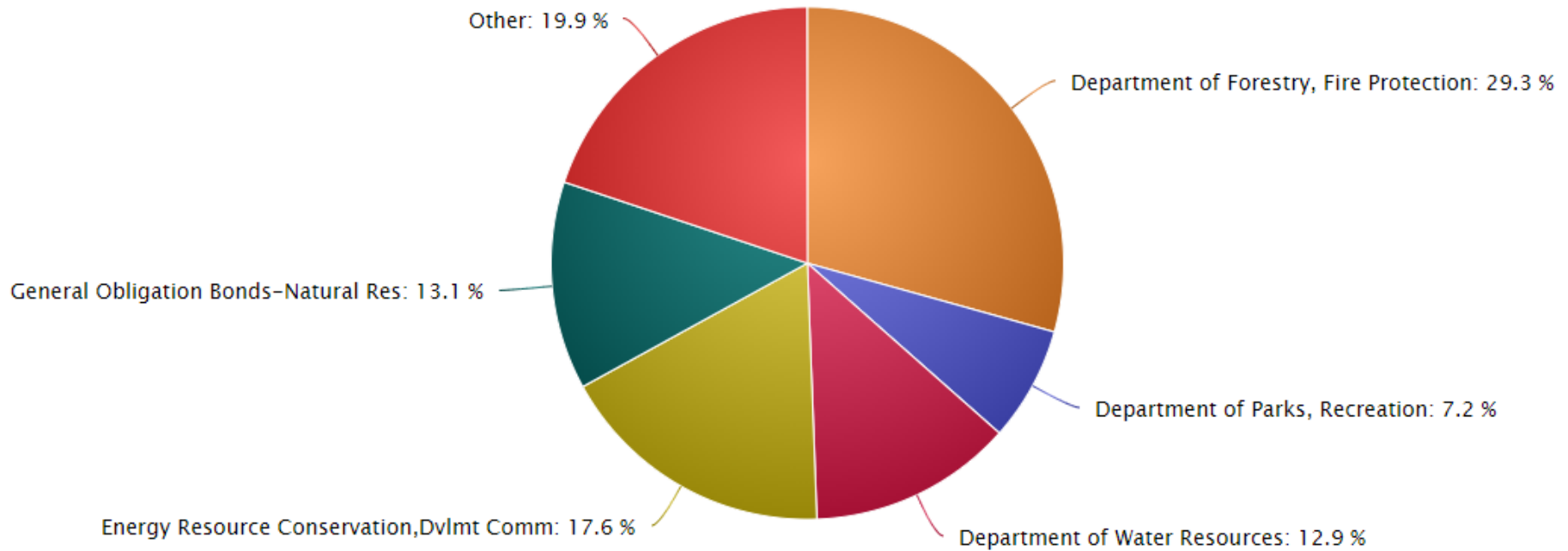
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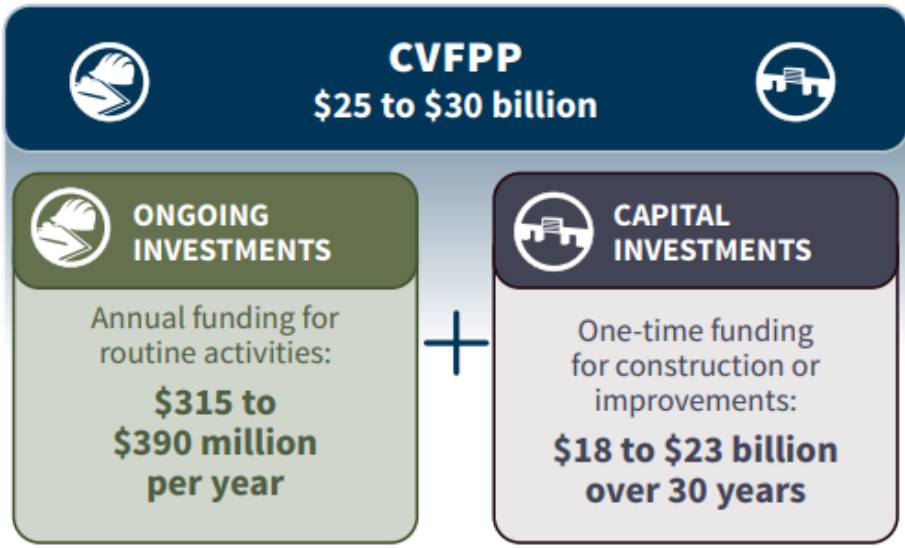
### DEPARTMENTS' PORTION OF THE AGENCY'S BUDGET (State Funds)

This pie chart represents \$11.3 billion of expenditures within this Agency area. These amounts do not include federal funds, certain non-governmental cost funds, or reimbursements.

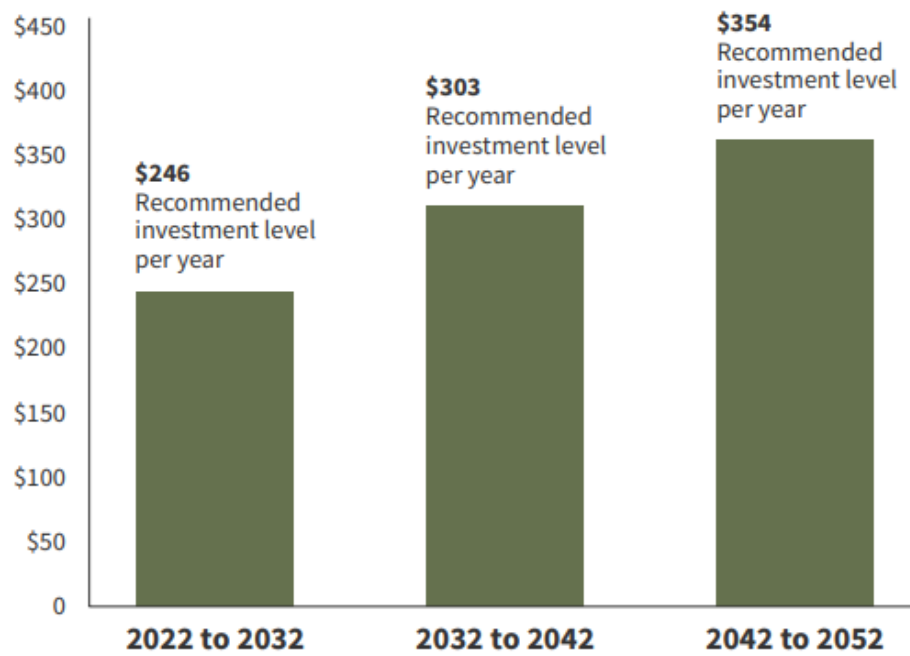


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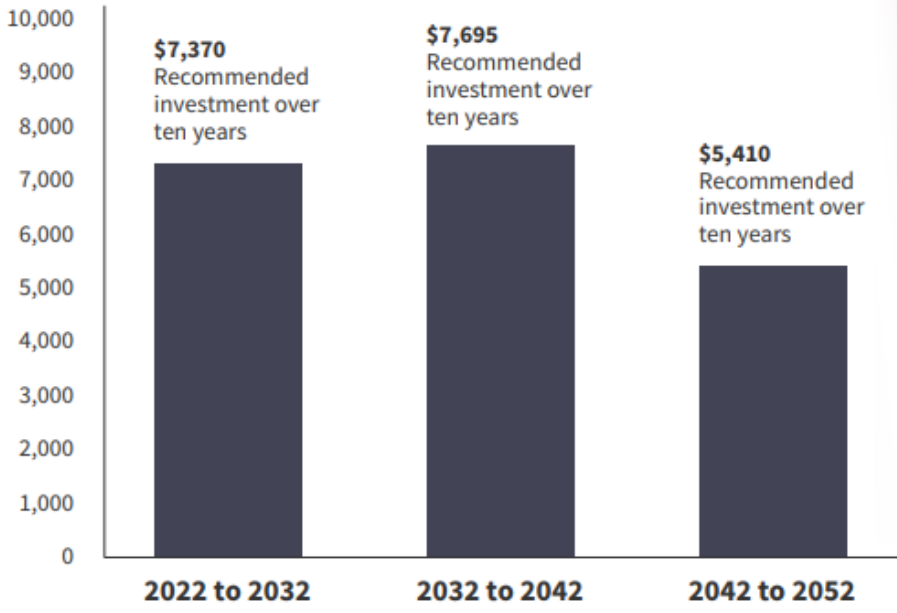




**Trend of recommended ongoing investments for routine activities**  
shown in 2021 millions of dollars



**Trend of recommended capital investments**  
shown in 2021 millions of dollars



- General Fund
- General Obligation Bond
- State River Basin Assessment or Tax\*
- State Flood Insurance Program\*

\*Proposed new funding mechanism

# Prologue: January 2023

The 2022 Central Valley Flood Protection Plan Update was adopted by the Central Valley Flood Protection Board on December 16th, 2022. Just days later, beginning on December 27th, 2022, a series of atmospheric rivers began to impact California. This succession of atmospheric rivers resulted in 34 trillion gallons of water falling across California in 24 days, and 21 forecast points in the Central Valley reaching flood or monitor stage. Governor Gavin Newsom declared a state of emergency on January 4th, 2023; federal emergency and disaster declarations followed soon thereafter. These events underscore the importance of the CVFPP as the State's strategic blueprint for investment in flood risk reduction in the Central Valley, especially in an era of whiplash weather—from drought to flooding—driven by the impacts of climate change.



On the cover: Dos Rios Ranch, June 2019; River Partners @2022.



Top: Members of the California Conservation Corps, overseen by Brooks Weisser, Flood Fight specialist (hard hat), working a levee breach on Deer Creek in Sacramento County. Photo taken January 7, 2023.

Above: Bear Creek at the M Street Bridge in Merced, California. Photo taken January 10, 2023.

Right: Ed Contreras finishing sandbags in Merced's Spaghetti Acres neighborhood in Merced County. Photo taken January 11, 2023.

Left: High flows along the Cosumnes River in Wilton, California. Photo taken January 10, 2023.

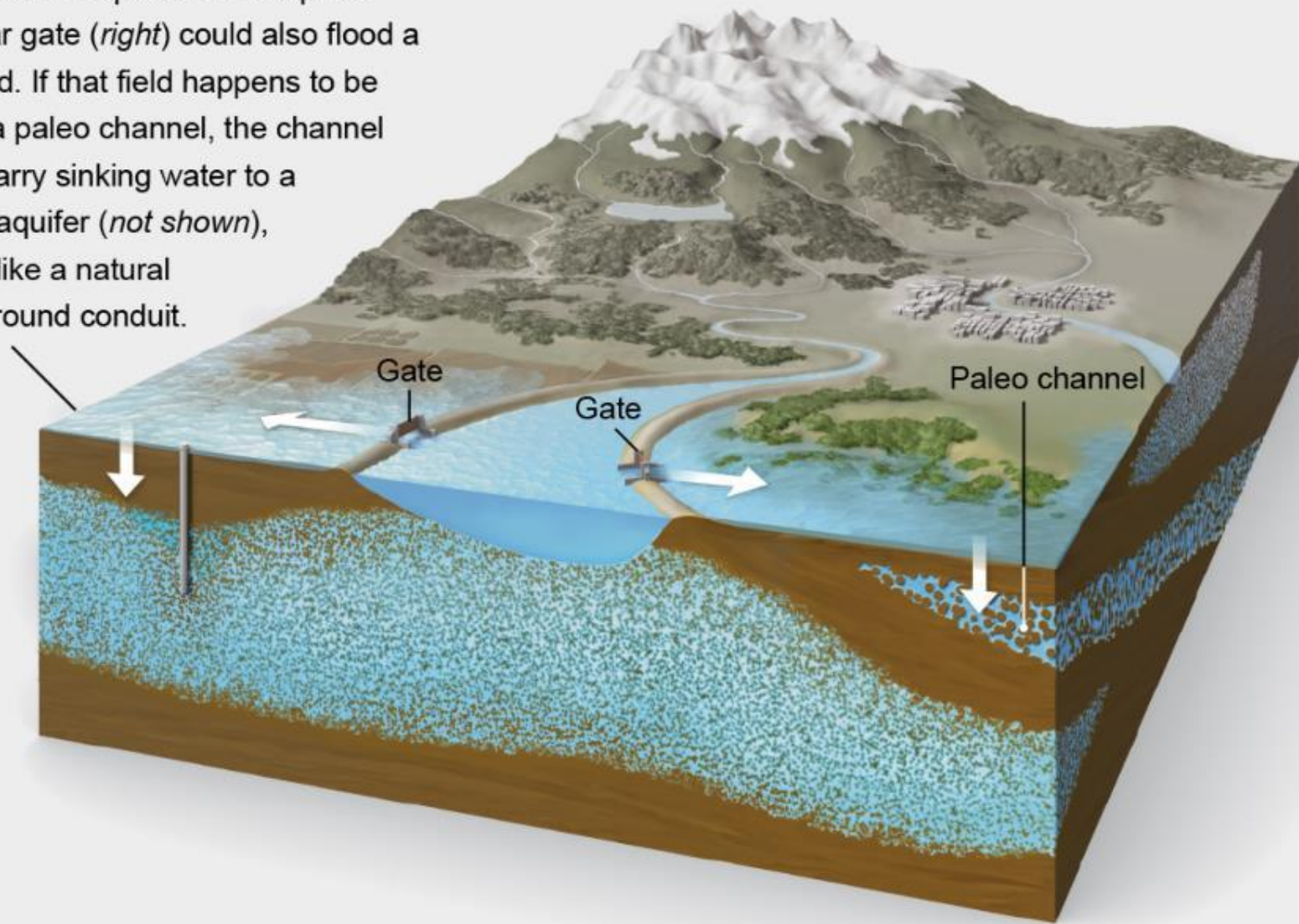


Floodwaters from the Sacramento River overtop the Colusa Weir in Colusa County, California, in this drone photo taken January 12, 2023.



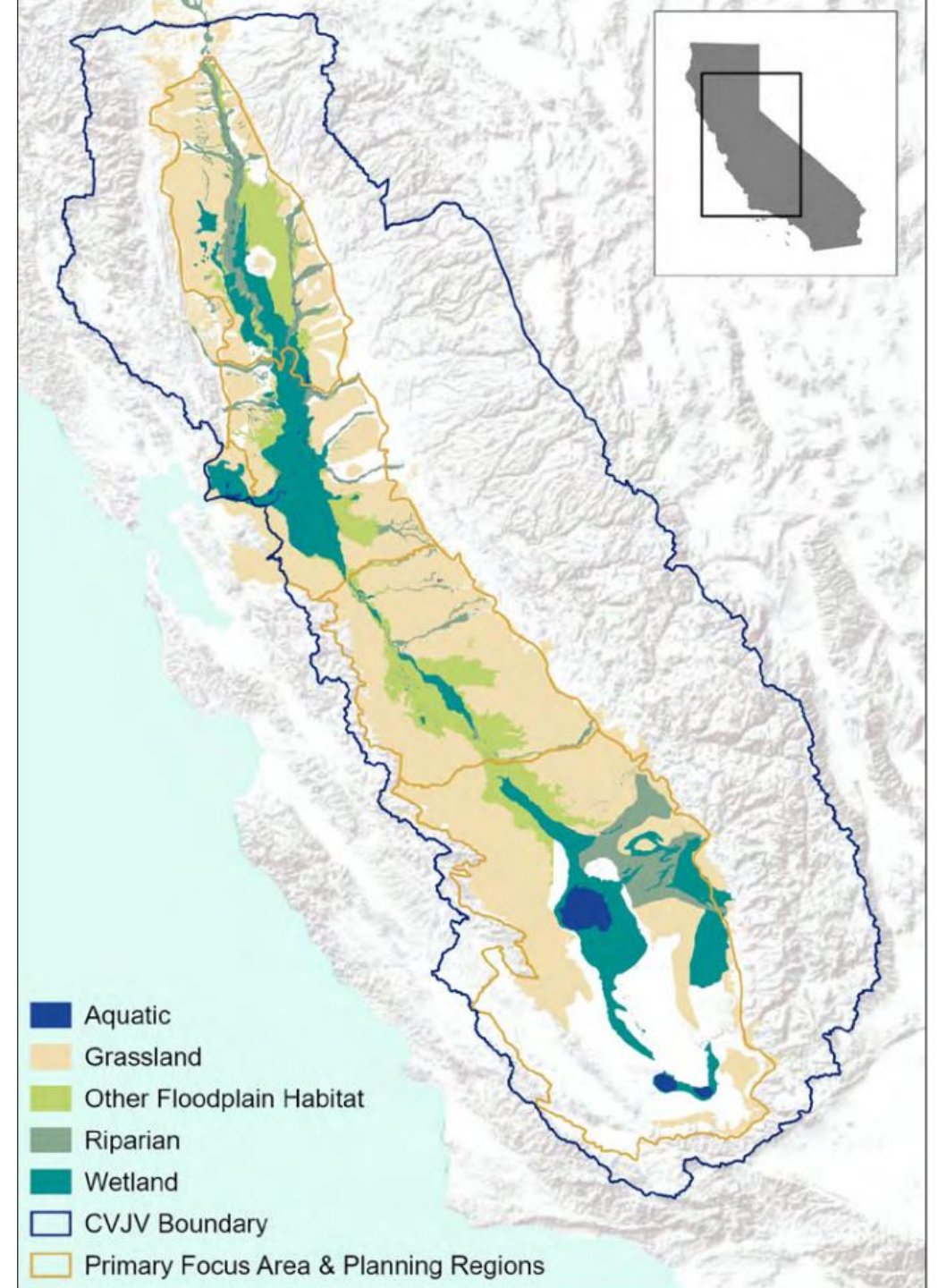
A flooded street in Merced. Photo taken Jan 11, 2023.

A gate in a levee (*left*) can release high river water onto a farm field so it percolates down to replenish the aquifer. A similar gate (*right*) could also flood a wild field. If that field happens to be above a paleo channel, the channel could carry sinking water to a distant aquifer (*not shown*), almost like a natural underground conduit.



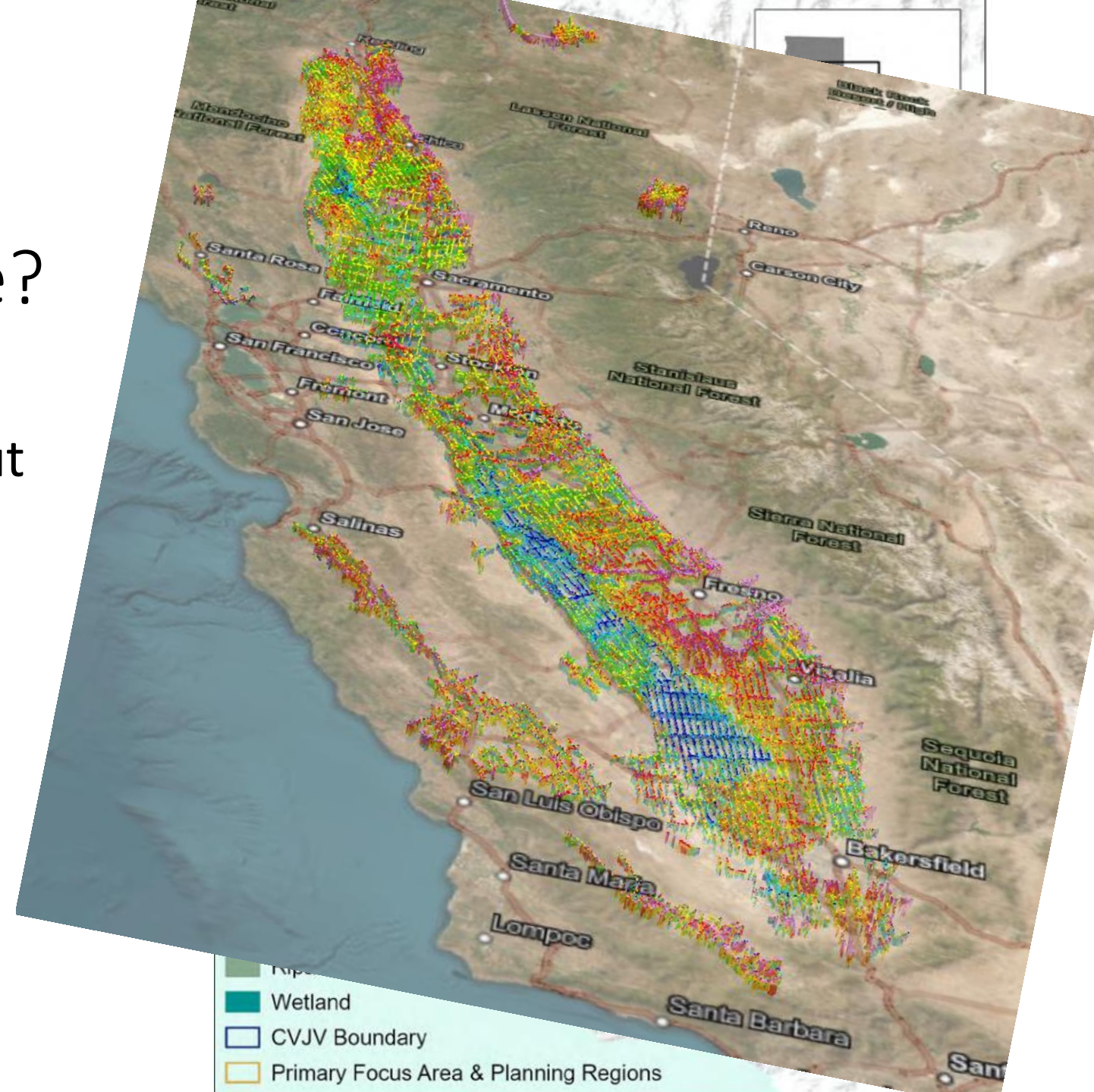
# Restored Ecosystems AND Increased Water Storage?

- Paleo-channels connect surface water to deeper aquifers without costly new infrastructure
- Water rights changes are not needed for floodwater
- Floodplains can be managed WITH reservoirs and FIRO to optimize surface and GW management
- Our time is short!



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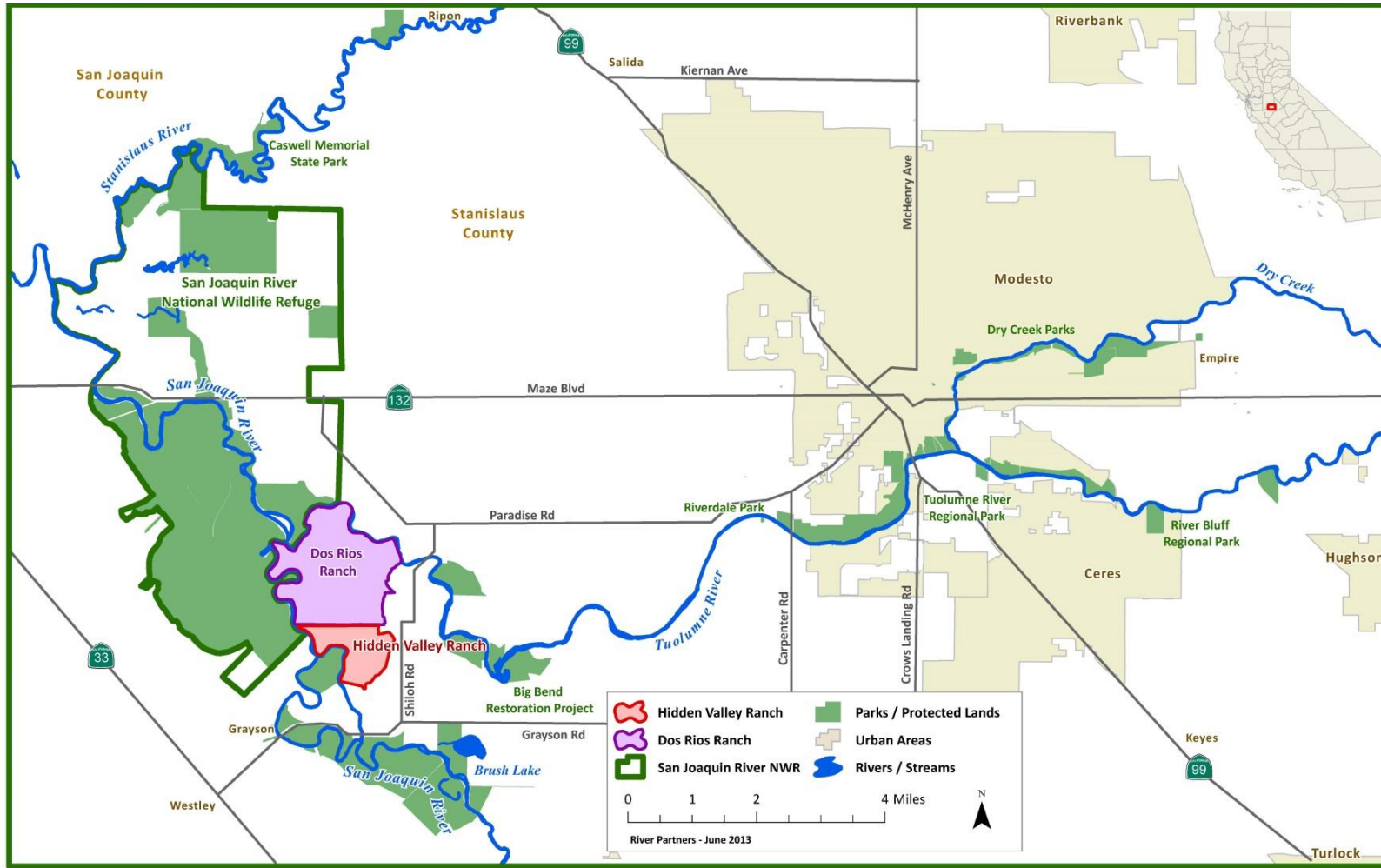


"I believe that it saved our community from some drastic flooding this year,"  
he says.



Grayson residents Lilia Lomeli-Gil and John Mataka stand next to a restored floodplain at the edge of town, providing a new open space for the community.

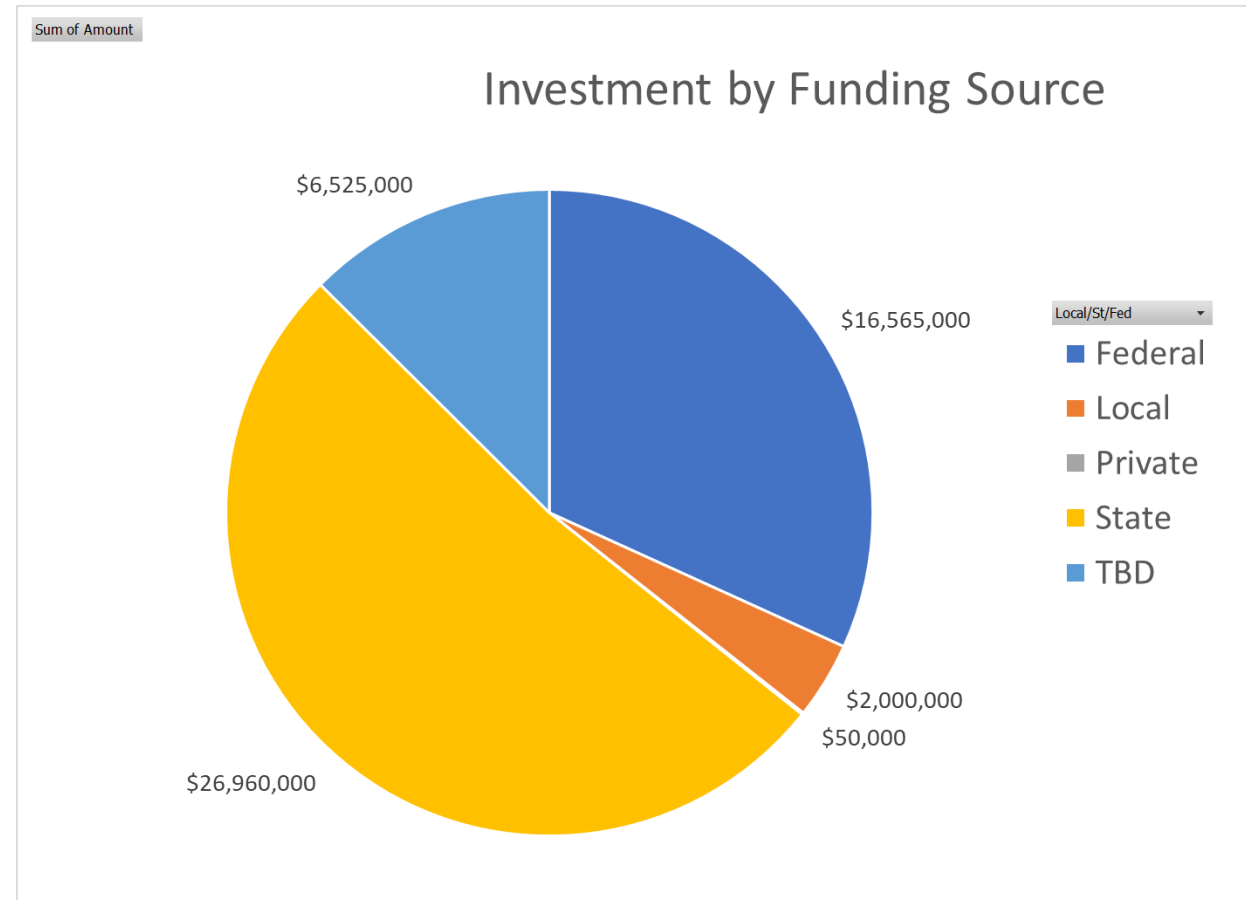
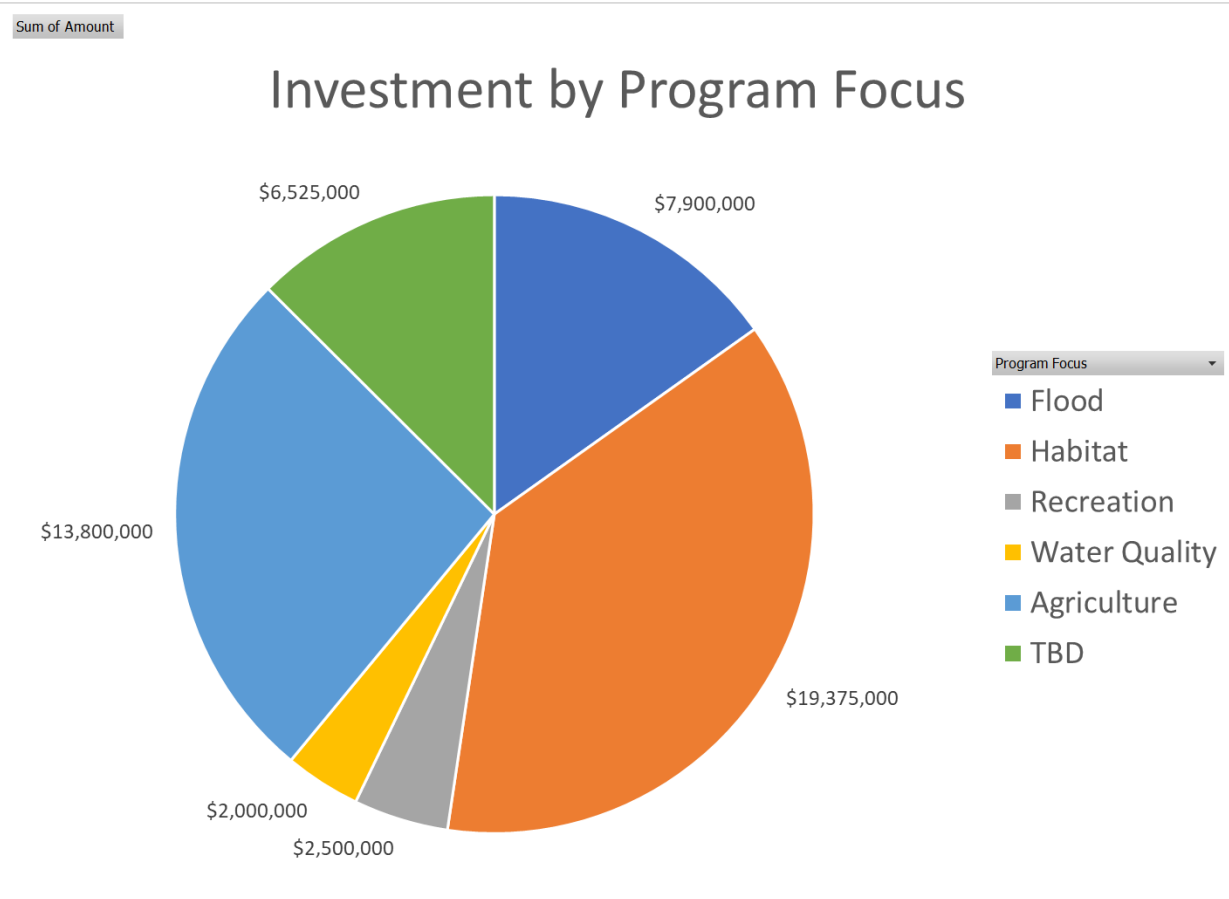
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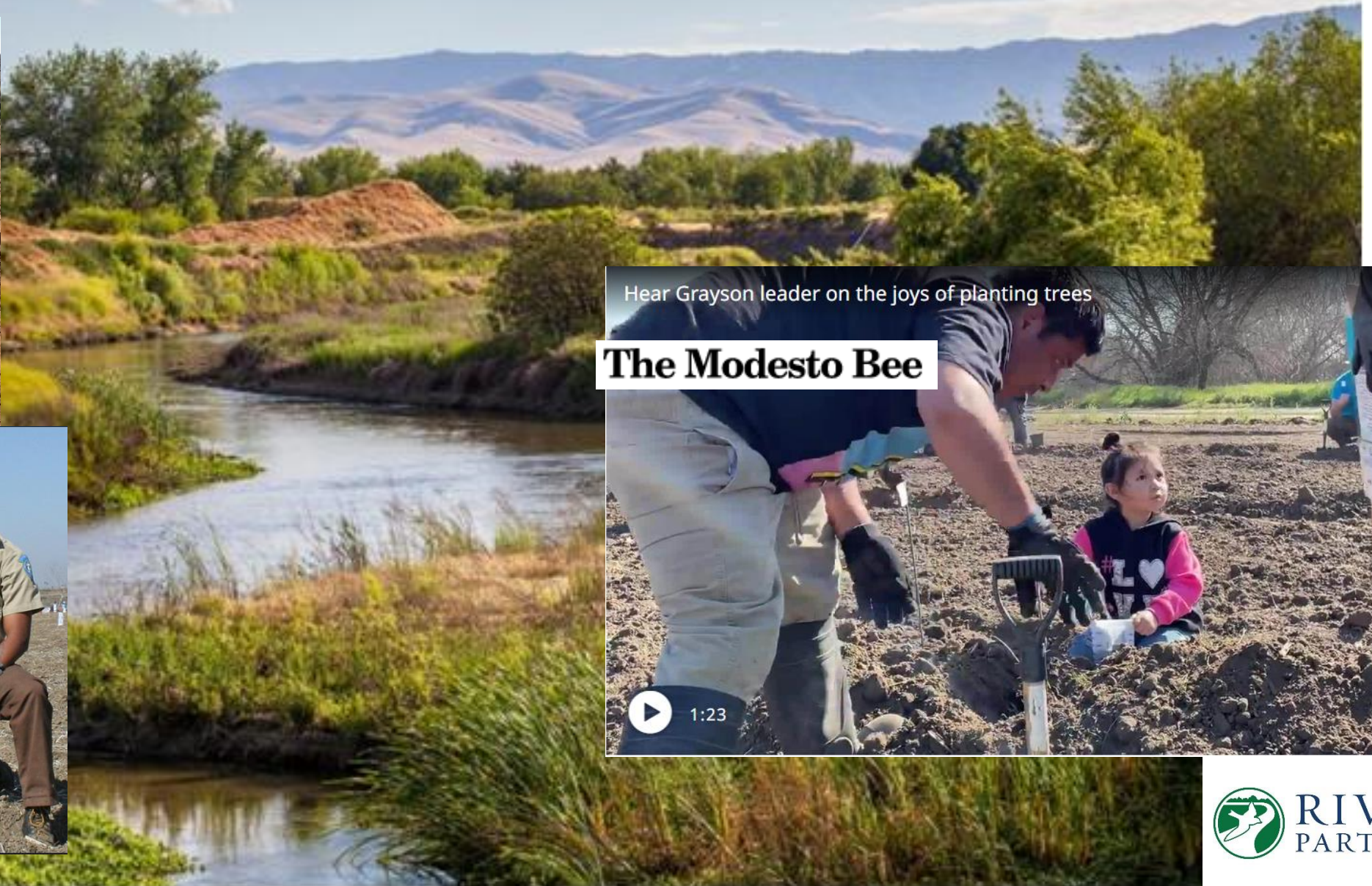
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# Multi-benefit Public Investment at Dos Rios Ranch



# The Mercury News California to open first new state park in 13 years



Hear Grayson leader on the joys of planting trees

**The Modesto Bee**

1:23





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[www.riverpartners.org](http://www.riverpartners.org)

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