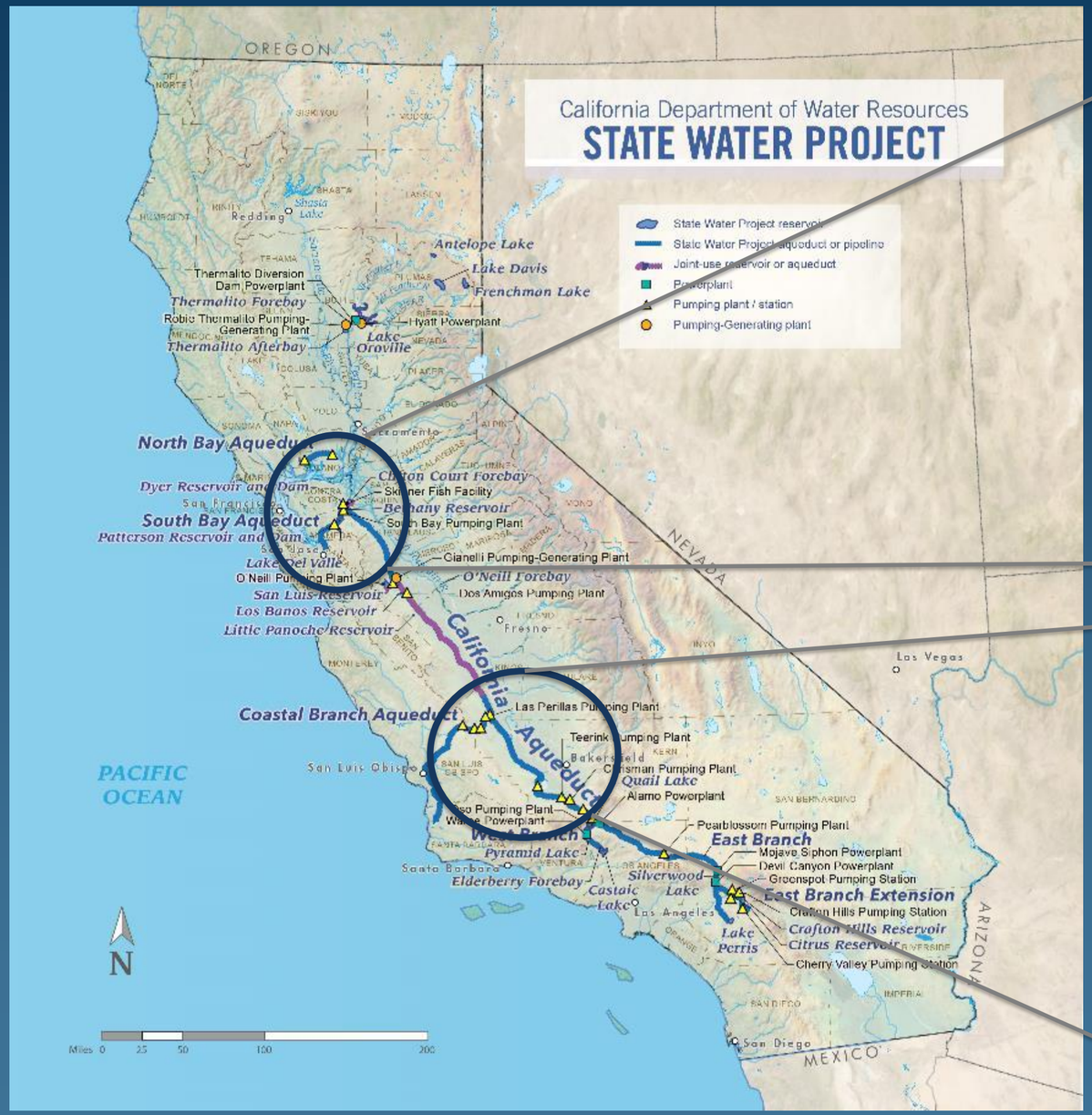
Sorting through the chaos: Environmental permitting strategies in California

Who We Are

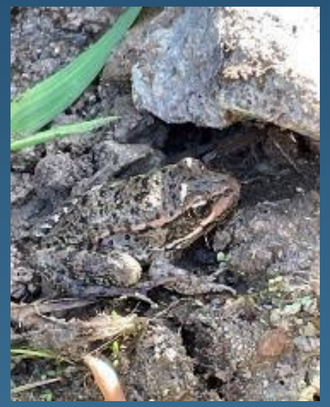
Shelly Amrhein
Division of Operations & Maintenance
Habitat Conservation Planning Section Manager
Phone: (916) 661-1970
Email: Rochelle.Amrhein@water.ca.gov

Laith Bander
Environmental Compliance Manager
DWR In-house staff
Phone: (916) 804-0587
Email: Laith.Bander@water.ca.gov

Background/Setting



Covered Species



DFD Fish Species	Status
Delta smelt	FT/SE
Longfin smelt	FC/ST
winter-run chinook salmon	FE/SE
Spring-run chinook salmon	FT/ST
Green sturgeon	FT/None
White sturgeon	None/SC
CA Central Valley steelhead	FT/None
Central CA coast steelhead	FT/None

DFD Species	Status
Crotch's bumble bee	None/SC
Western bumble bee	In review/SC
Monarch	FC/none
Vernal pool fairy shrimp	FT/None
Vernal pool tadpole shrimp	FE/None
Conservancy fairy shrimp	FE/None
Delta green ground beetle	FT/None
Valley elderberry longhorn beetle	FT/None
California red-legged frog	FT/SSC
Foothill yellow-legged frog	FT/SE
Western spadefoot	PT/SSC
California tiger salamander	FT/ST
Alameda whipsnake	FT/ST
Giant gartersnake	FT/ST
Northwestern pond turtle	FC/SSC
Tricolored blackbird	BCC/ST, SSC
Burrowing owl	BCC/SC, SSC
Swainson's hawk	None/ST
white-tailed kite	None/FP
San Joaquin kit fox	FE/ST
Colusa grass	FT/SE
Solano grass	FE/SE

SJFD Species	Status
Crotch's bumble bee	None/SC
Monarch	FC/none
California red-legged frog	FT/SSC
Western spadefoot	PT/SSC
Temblor legless lizard	None/SC
Blunt-nosed leopard lizard	FE/SE, FP
LeConte's thrasher	None/SC
Tricolored blackbird	None/ST, SSC
Burrowing owl	None/SC, SSC
Swainson's hawk	None/ST
San Joaquin antelope squirrel	None/ST
Giant kangaroo rat	FE/SE
Short-nosed kangaroo rat	None/SSC
Tipton kangaroo rat	FE/SE
Buena Vista Lake ornate shrew	FE/SSC
San Joaquin kit fox	FE/ST
Kern mallow	FE/None
San Joaquin woollythreads	FE/None
Bakersfield cactus	FE/SE

Common Permitting Questions

- How do you determine species presence/conduct surveys in challenging conditions?
- How do you analyze impacts to species under new federal regulations that do not allow traditional means of using habitat as a surrogate?
- What are alternative mitigation strategies when habitat lands are spoken for in a particular region?

Sensitive Species Surveys for Detection

- Many Threatened and Endangered Species are cryptic and challenging to survey
  - Burrowing animals
  - Nocturnal behavior
  - Seasonal presence
- State and Federal Wildlife Agency Survey Protocols
- Surveys to document presence are labor intensive and costly

Sensitive Species in San Joaquin Field Division

San Joaquin antelope squirrel
-diurnal, easily distinguished, standard surveys

giant kangaroo rat
-crepuscular, burrowing, difficult to identify

Focus on kangaroo rats

Tipton kangaroo rat
Endangered
-4 toes

Heerman’s kangaroo rat
Not listed
-5 toes

Focus on shrew and kit fox

Beuna Vista Lake ornate shrew

San Joaquin kit fox with kangaroo rat prey

Alternate survey method – Camera Trapping

- Communication is key!
- Mods to Published Survey Protocols
- Coordination with CSU Stanislaus ESRP
- Early Agency Communication Results in Rapid Concurrence
- Time and Cost Savings

Buena vista lake ornate shrew from DWR Camera Trapping in Fresno County, CA

Alternative survey method – AI Processing

- Wildlife cameras trigger on movement - thousands of photos per deployment
- Data processing is very labor intensive
- AI Tools to Automatically Screen & Identify Wildlife
- Trained Biologists are **NOT** replaceable! Machine learning still makes a lot of mistakes
- Next Steps – Automated Data Calibration for Deeper Level Analysis

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Federal Changes to the ESA

- **2026 ESA Rule Change:** USFWS and NMFS rescinded the regulatory definition of “harm,” effective September 14, 2026.
- Habitat impacts no longer explicitly constitute “take” under agency regulations
- Narrowed ESA implementation compared to the previous framework.

New Analysis Methods

Question: How to implement Federal ESA permit requirements that traditionally use habitat to quantify “take”

- Communication is key
- Be ready to pivot
- Use what you know

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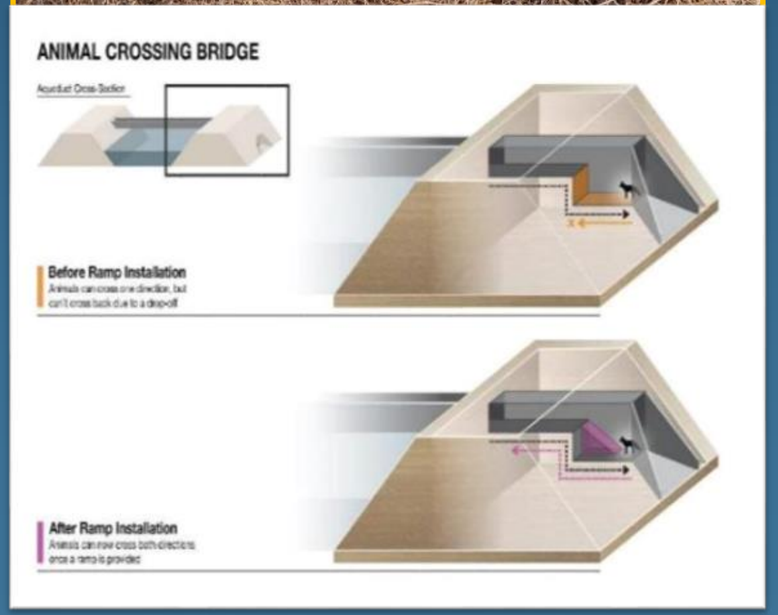
Compensatory Mitigation Alternatives

- Habitat Preserves
- Habitat Acquisition and Preservation
- Mitigation/Conservation Banks and In-Lieu Fee Programs
- Habitat Creation, Restoration, and/or Enhancement
- Contribute to Other Conservation Measures
- Wildlife Movement Functional Enhancement



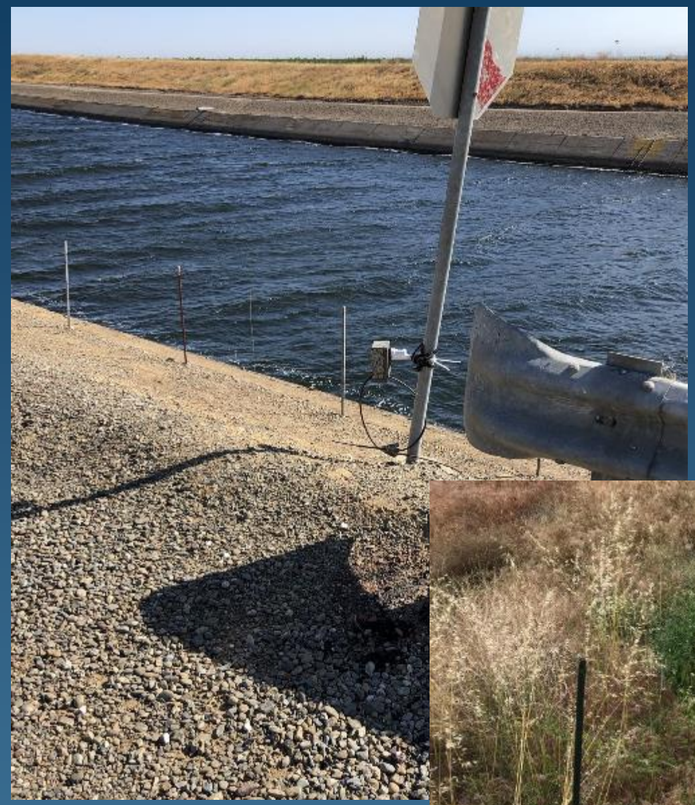
Restoration and Habitat Enhancement

Oristemba Creek Proposed Restoration Site Merced County

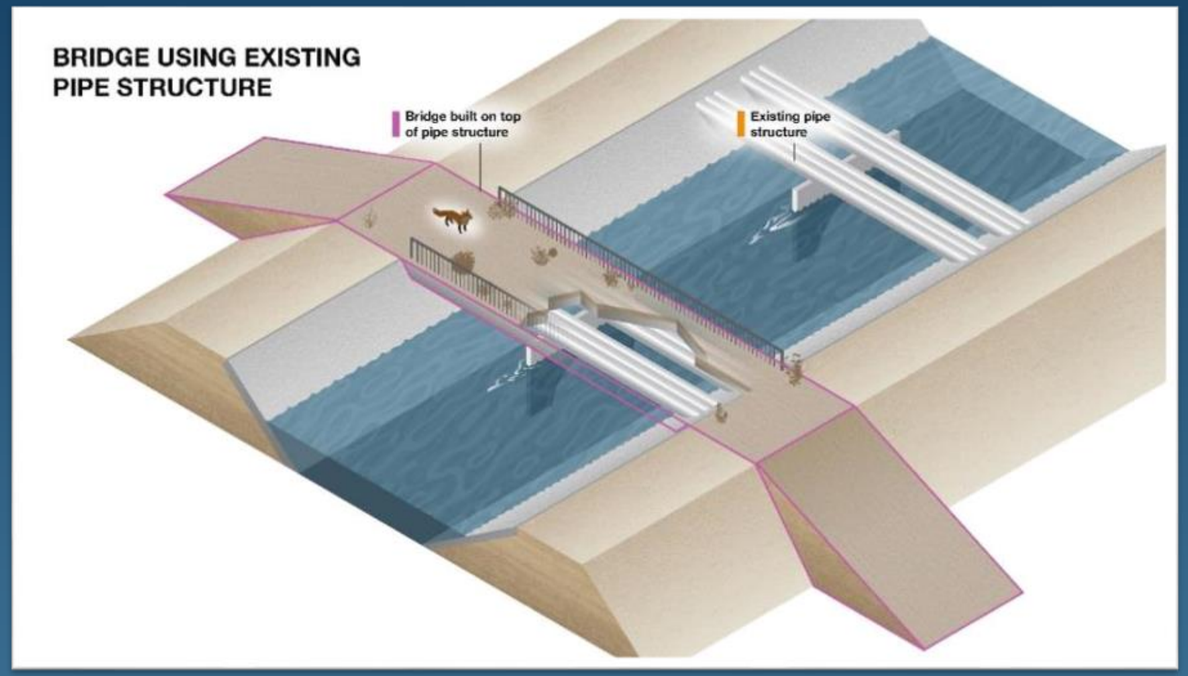
- Improve quality of existing habitat
- Good Bang for your Buck:
  - Waters and Species Credits Together
- Restoration Actions include:
  - Return to historical form/function
  - Revert human disruptions
  - Managed grazing to reduce pressure on target species
  - Targeted planting of native species
  - Management of invasive species

Reducing Stressors & Improving Conditions

- Typical trapping and spotlight surveys add stressors
  - Camera trapping (where appropriate) in-lieu of traditional surveys
- Reduce barriers to movement

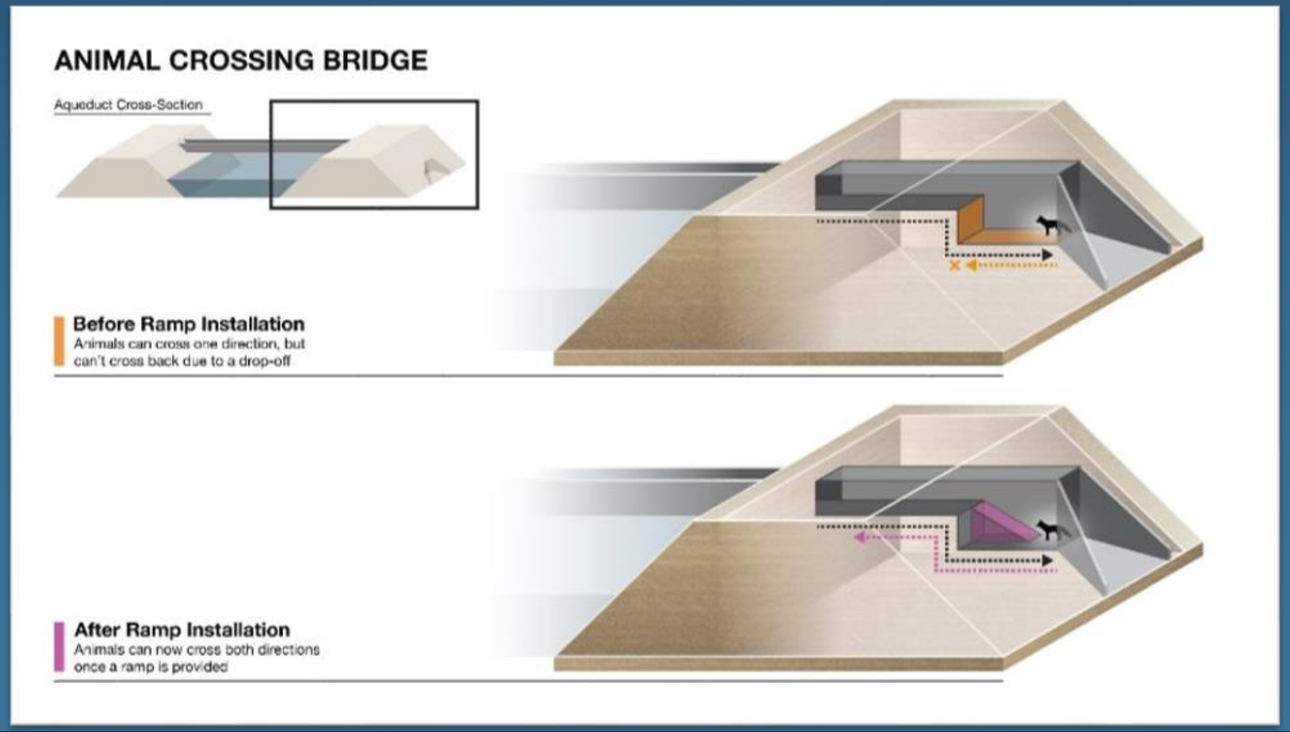


Reducing barriers & improving movement



Concepts for major new structures

Concepts for minor modifications of existing structures



Questions/Discussion

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