

Riparian Restoration and Native Fish Conservation in Southern California

RCRCD



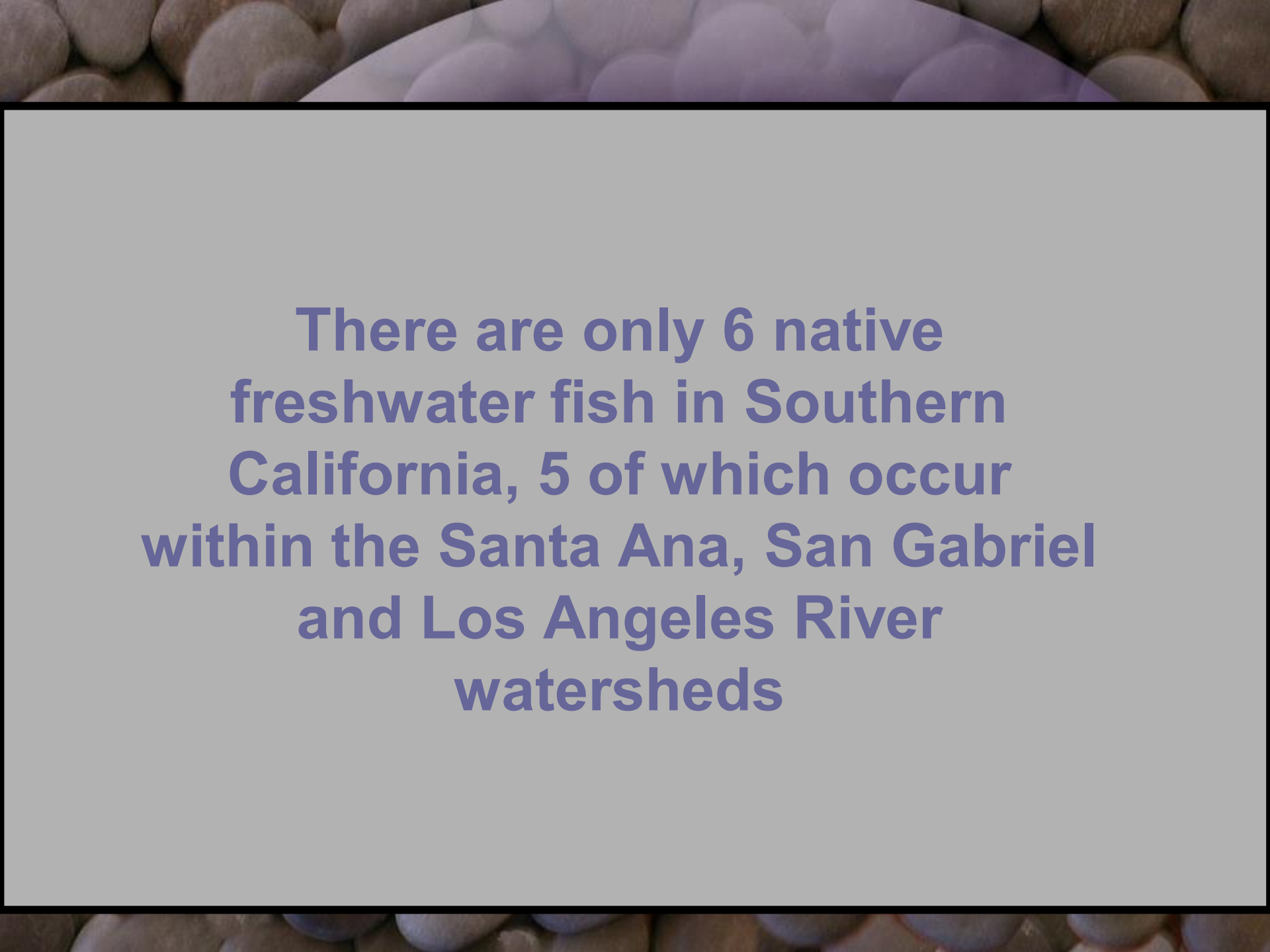
SRMA




**Presented by
Kerwin Russell**

Natural Resources Manager – Field Supervisor

**Riverside-Corona Resource Conservation District
and
Southwest Resource Management Association**



**There are only 6 native
freshwater fish in Southern
California, 5 of which occur
within the Santa Ana, San Gabriel
and Los Angeles River
watersheds**

- 
- Arroyo Chub
 - Speckled Dace
 - Santa Ana Sucker
 - Three-Spine Stickleback
 - Coastal Rainbow Trout (steelhead)
 - Desert Pupfish
- (Pupfish occur in the Whitewater River drainage and in small areas near the Salton Sea)

1. Los Angeles

2. San Gabriel

3. Santa Ana



Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Data LDEO-Columbia, NSF, NOAA
Image Landsat / Copernicus
Data USGS

Google Earth

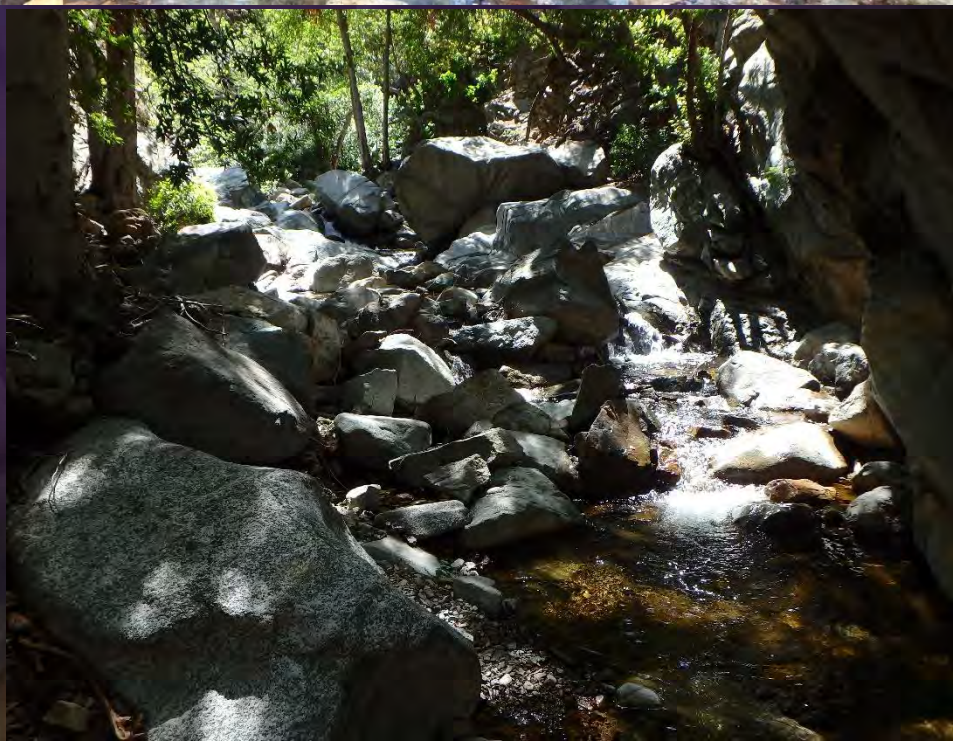
River Hydro-geomorphology

Upper watersheds =

- High gradient, snow-fed, good water quality, good substrates, low human impact.

Lower watersheds =

- Low gradient, urban runoff, flooding, poor water quality, poor substrate, human impacts.









Boulder Basin Creation Site - Before

Spraying mulch and seed for erosion control at the Boulder Basin project.



Photo by Arlee Montalvo



Boulder Basin Habitat Installation



Boulder Basin - After



**The RCRC D Temescal
Creek slope stabilization
and mine reclamation
project helped reduced
sedimentation, erosion
and habitat loss along a
mile section of creek
near the City of Corona.**

During stabilization work....







RCRCD's one acre native plant nursery was established for restoration projects and to insure local genetic diversity for restoration efforts by the RCRCD and others.

Also in development is a seed bank and native seed network program for Southern California.

Arroyo Chub



Gila orcutti

- Coloration: Silver-Brown on ventral surface. Darker with light colored dorsal fin. Some fish show turquoise coloring during spawning.
- Size: Adults are usually less than 100 mm (4-5 in).
- Life History: Sexual maturity is attained during 2nd year. Adult fish usually die at end of 3rd summer.



Speckled Dace



Rhinichthys osculus

- Coloration: blotches of tan & brown on sides. More irregular patches on head. A more pointed head than Chub or Sucker.
- Size: Adults are usually less than 80 mm (3-4 in).
- Life History: Sexual maturity at end of 1st year. Adult living to end of 2nd or 3rd year.



Santa Ana Sucker



Catostomus santaanae

- Coloration: Silver on ventral surface. Darker with irregular blotches or some lateral line marks. Some light phases in Santa Ana River.
- Size: Adults are usually less than 200 mm (7-8 in).
- Life History: Breeding maturity is reached during 2nd summer and most adult fish die by end of 3rd summer. A few live to 4 years. A some to 6 years in captivity.



Santa Ana River

A wide river flowing through a lush, green landscape. The water is dark blue and filled with many small, pinkish-white flowers or debris floating on its surface. The banks are lined with dense vegetation, including tall grasses and shrubs. In the background, mountains are visible under a clear sky.



Big Tujunga Creek



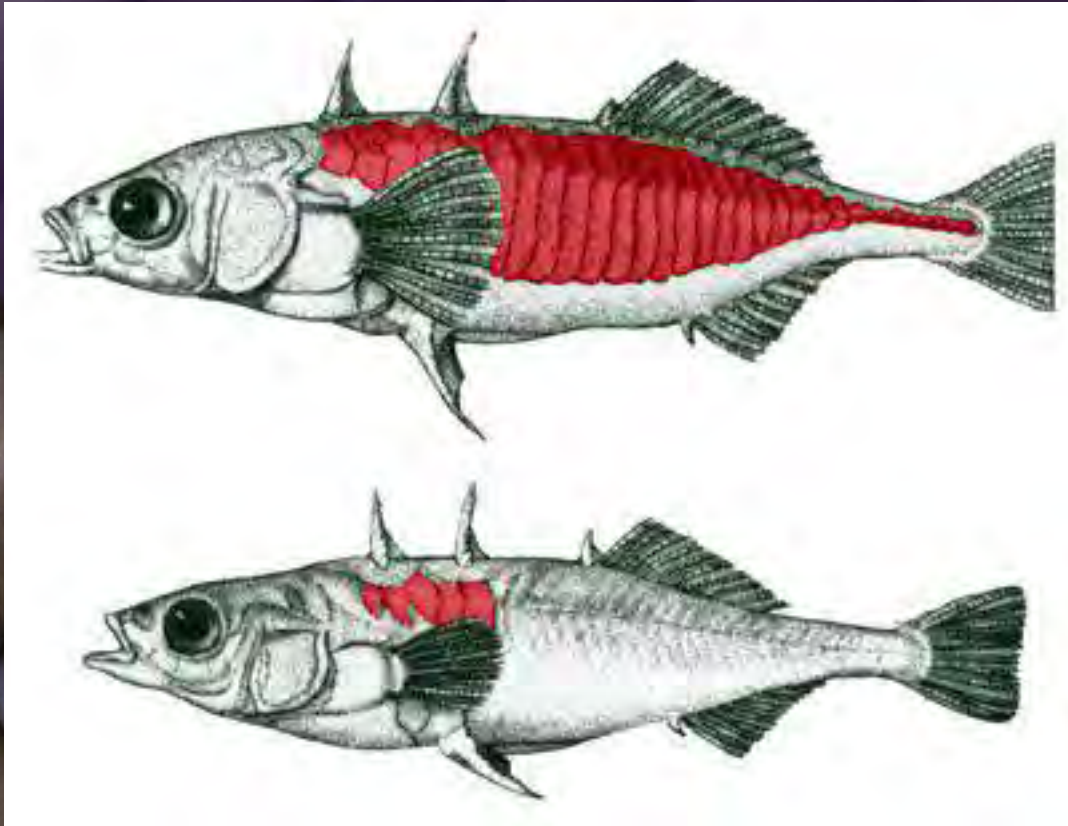
***Gasterosteus aculeatus
williamsonii***
***(Unarmored Three-spine
stickleback)***

- >Coloration: Greenish brown with males having cherry-red face during spawning.
- >Size: Adults less than 80mm (3-4 in.)
- >Life History: Sexual maturity at end of first year with adults living about three years.



Also have subspecies of:

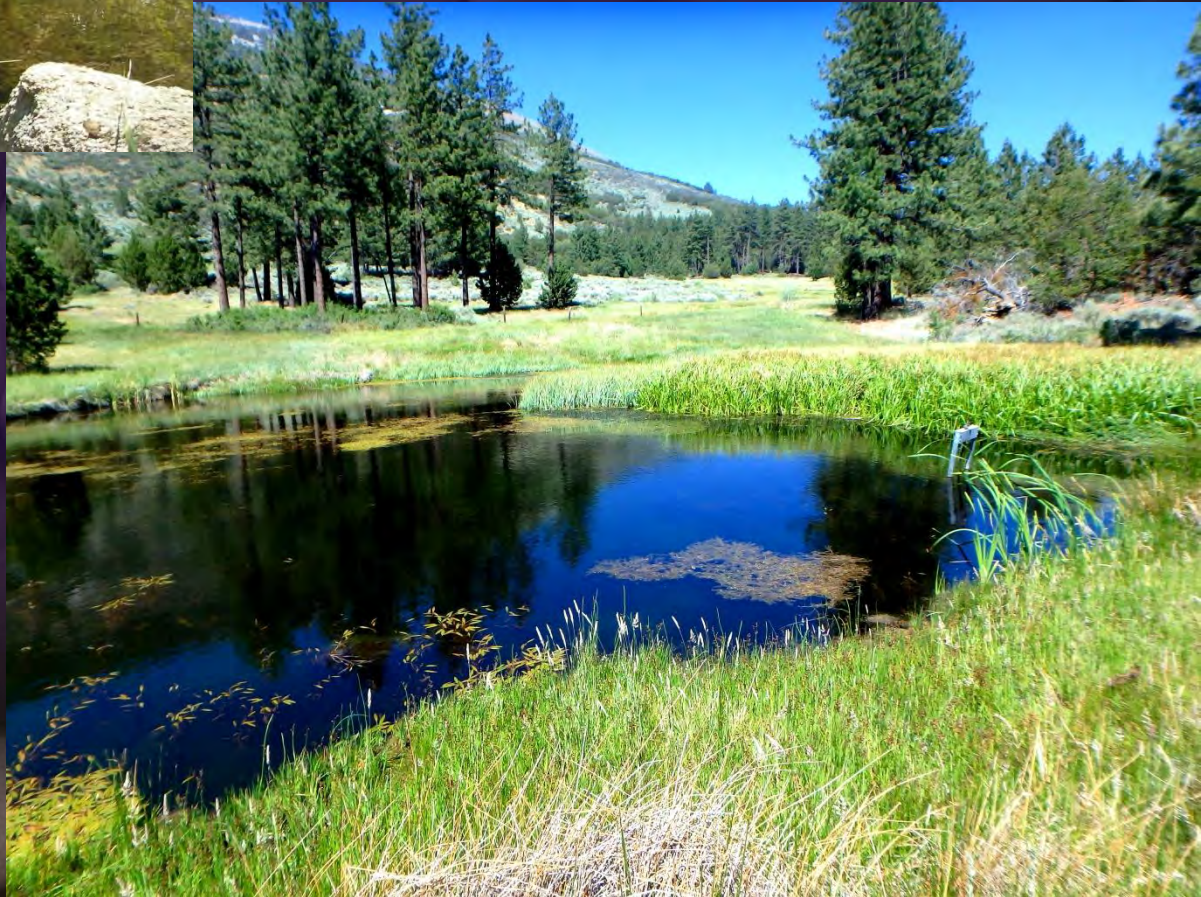
Partially Armored and
Armored Sticklebacks



Lowland Streams: Bouquet and San Francisquito

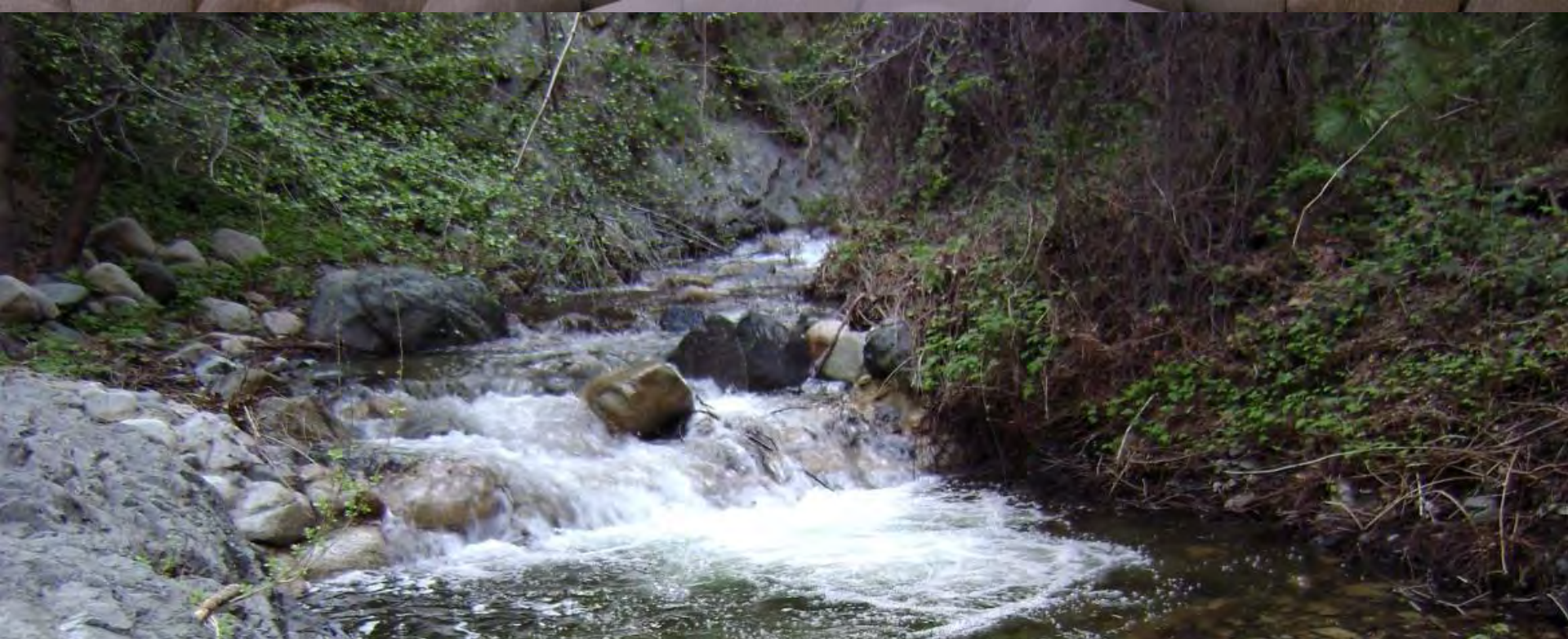


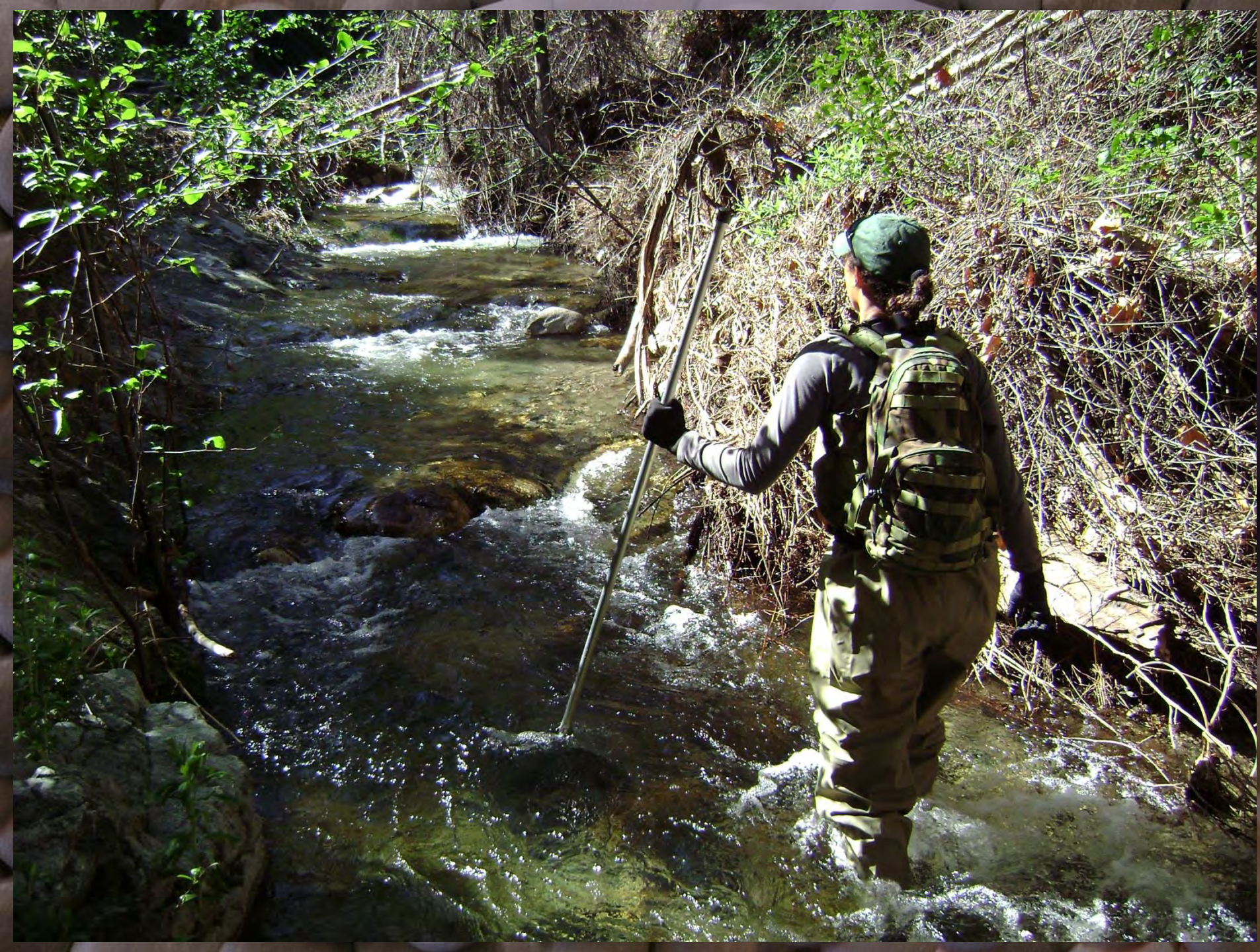
Upland Ponds: Sugarloaf and Shay



Coastal Rainbow Trout (steelhead)











Water Quality/Quantity
Erosion/Sedimentation
Exotics and Predation
Flood Control Features
Drought/Floods
Water Diversions

Functioning Streams Provide:

- **Habitat and Structure**
- **Good Water Quality**
- **Conservation and Refugia**
- **Long-term Sustainable Populations**



The Raceway System

Bio-filters and
aerators

Generators/Chillers

Fish screens

Screened pumps

Automatic fill
valves

Overflow with
detention basin





- Artificial stream structure has cut banks, rack, spawning substrate.
- Riparian Habitat
- Aquatic plants
- Macro invertebrates



Rearing Tanks

- 18 tanks
- 500 Gallons each
- 50 GPM Pumps
- Media Bio-Filters
- Cobble & Gravel Bottoms
- In-ground and canopy ambient temp controls – averages 22C summer, 12C in winter.

NFS Stream Conservation Biology

- Stream sections mimic runs, riffles, glides, etc.
- Pools of various depths
- Canopy Temp Control
- Cascade Aerator
- Constant Flow with adjustments





Assessments

Surveys and Trapping

Breeding

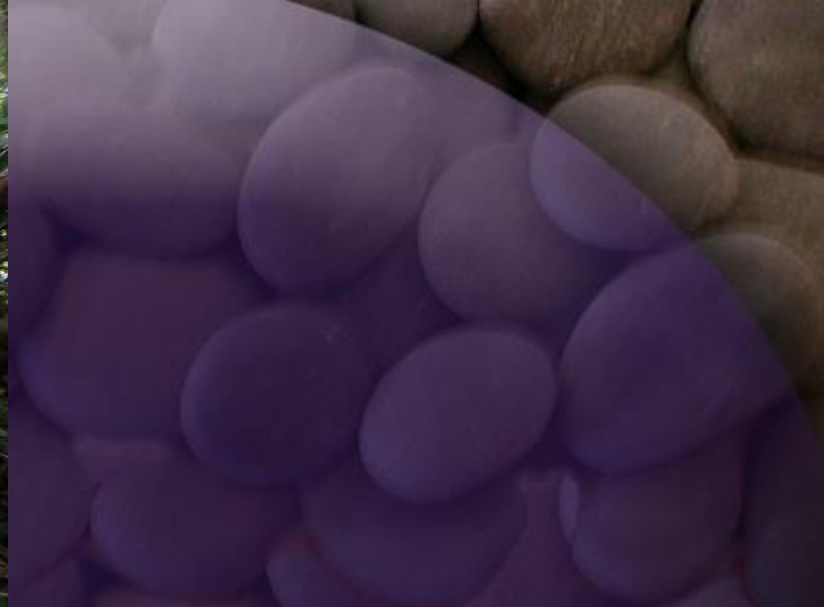
Research





- Genetic Sampling
- Exotic Removal
- Population Assessments



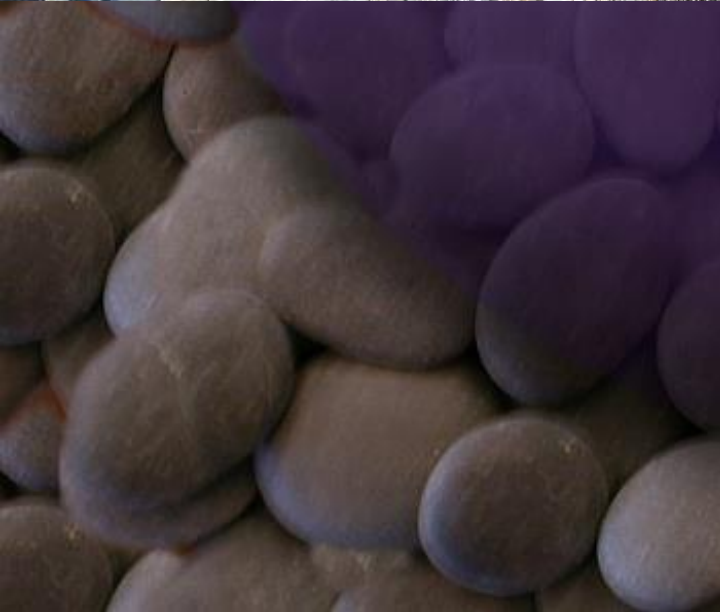




Exotic Species Control

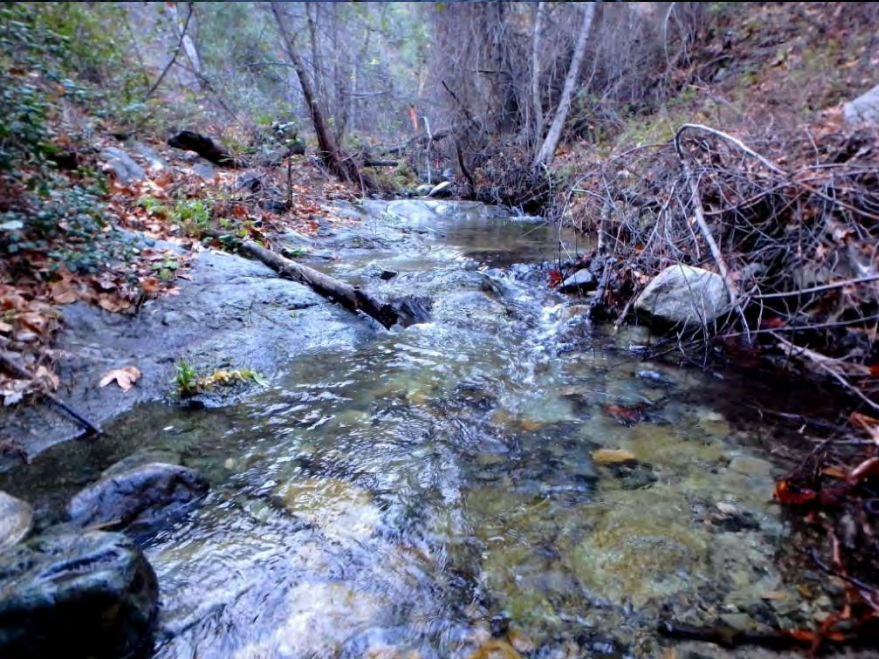


Drought Impacts



Human Impacts





Functioning Watersheds

SRMA and RCRCDD Restoration Aquatics

- Native Fish and Amphibian Restoration Projects
- Aquatic, Riparian and Upland Habitat Conservation Easements and Fee-Title Lands
- Alluvial Scrub Habitat Restoration and Conservation
- Species Monitoring and Management
- Special Rescues and Relocations



**Southwest
Resource
Management
Association**