

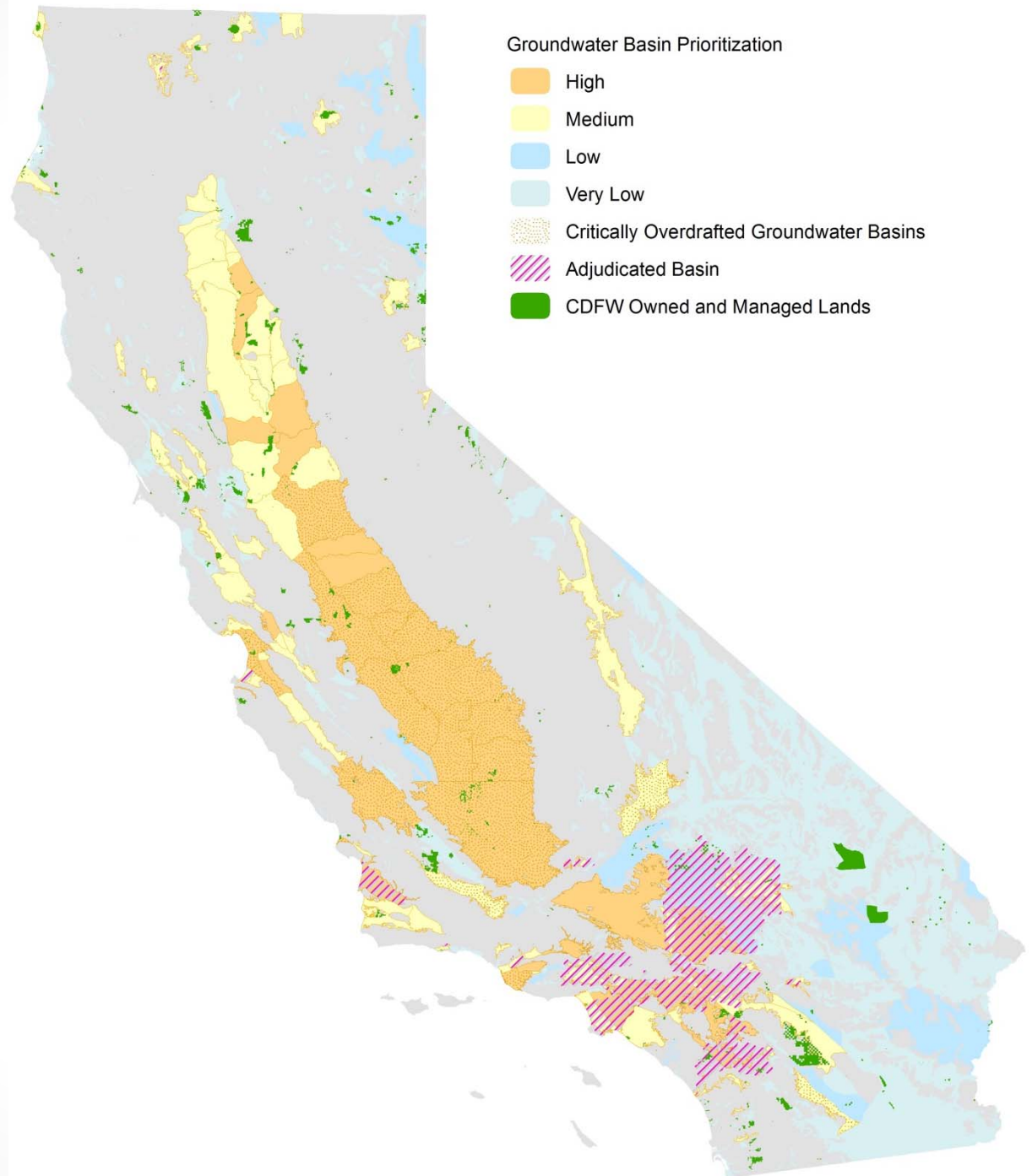
Tools for Assessing Impacts on Beneficial Uses

25th Groundwater Resources Association Annual Meeting
September 29, 2016

Kristal Davis Fadtko, Senior Environmental Scientist
California Department of Fish and Wildlife



- Own and manage over 600,000 acres overlying groundwater basins
- User of groundwater for wildlife areas, ecological reserves, and fish hatcheries
- Public trust agency



Beneficial Uses

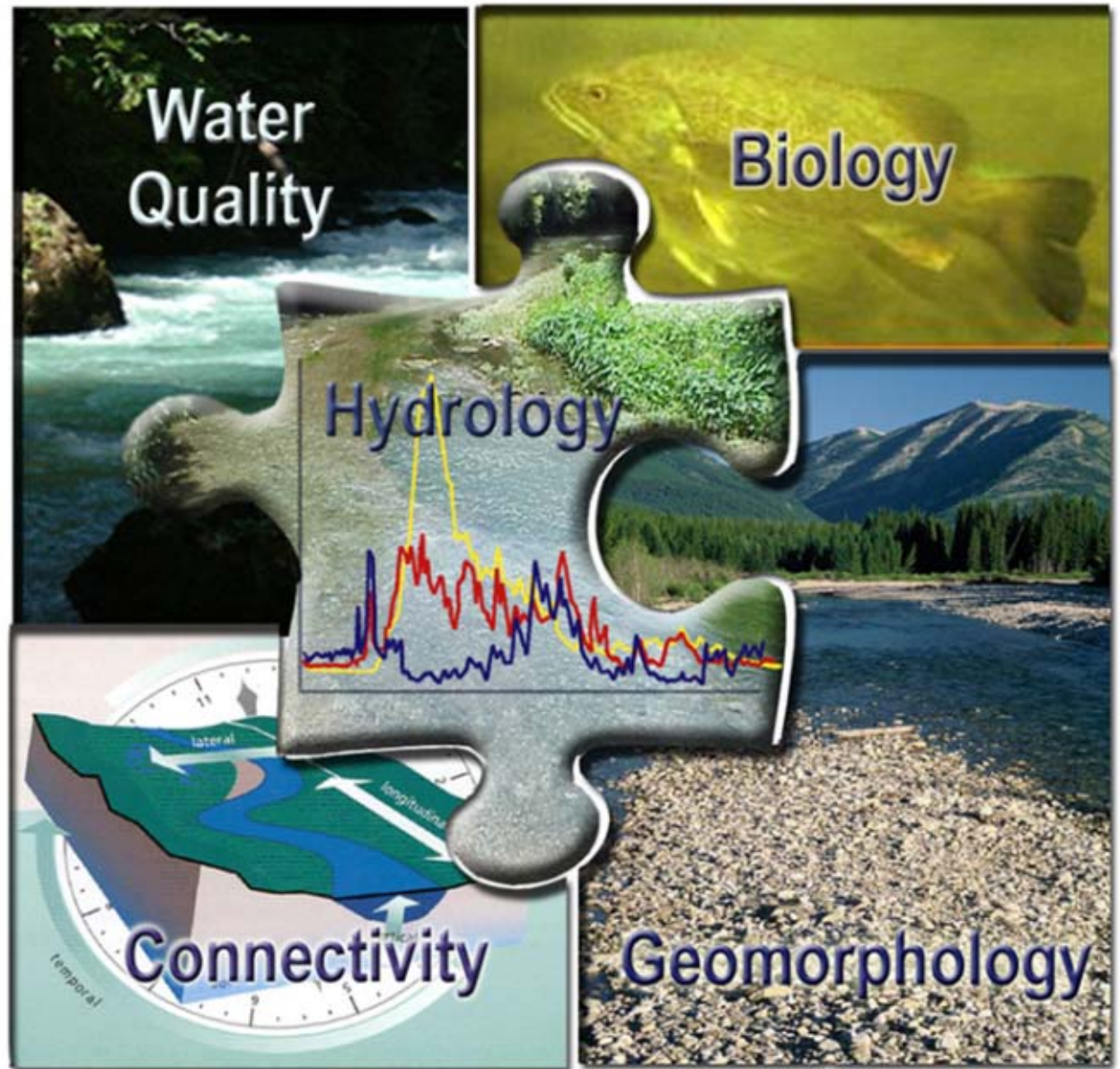
- Aquaculture
- Areas of Special Biological Significance
- Cold Freshwater Habitat
- Estuarine Habitat
- Inland Saline Water Habitat
- Marine Habitat
- Migration of Aquatic Organisms
- Preservation of Biological Habitats of Special Significance
- Rare, Threatened, or Endangered Species
- Spawning, Reproduction, and/or Early Development
- Warm Freshwater Habitat
- Wetland Habitat
- Wildlife Habitat

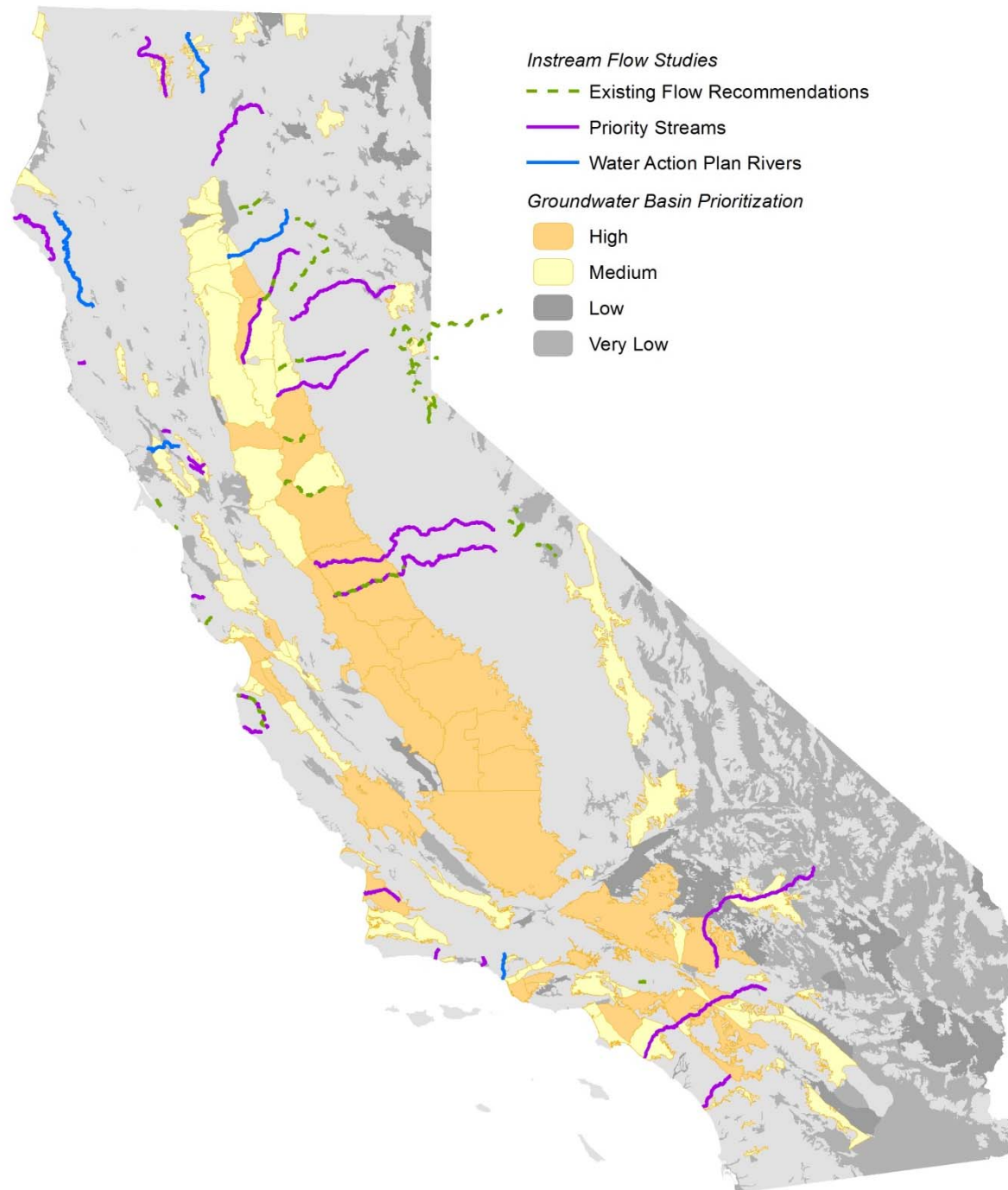


Instream Flow Program

Instream flow criteria:

A regime of varying water flow and levels to protect fish and wildlife and the habitats that support them







Instream Flow Program



Sound science is vital to the management of natural resources, especially when managing water. The CDFW Instream Flow Program (IFP) develops instream flows required to maintain healthy conditions for aquatic and riparian species. Instream flows are determined by investigating the relationships between flow and available stream habitat for waterways throughout California as required by the [California Water Action Plan](#), [Public Resources Code \(§10000-10005\)](#) and [FGC §5937](#) mandates. Instream flow criteria, which must be scientifically defensible and comparable among studies, are transmitted to the State Water Resources Control Board (SWRCB) for consideration in water allocation and appropriation actions.

To ensure high quality science that is robust, credible, transparent, and relevant, IFP conducts flow studies, collects field data, develops guidelines for quality assurance, conducts outreach, and coordinates with other agencies and interested parties on program related activities. The IFP coordinates study design, field data collection, and study implementation with CDFW Regional staff, SWRCB, U.S. Fish and Wildlife Service, and non-governmental organizations.

Instream flow studies should broadly consider the structure and function of the river system. Following the Instream Flow Incremental Methodology (IFIM), five riverine components (biology, hydrology, geomorphology, water quality and connectivity) are reviewed when developing instream flow criteria. The development of instream flow criteria provides information on important factors in streams, such as:

- Relationships of flow to aquatic habitat
- Aquatic habitat suitability
- Stream temperature
- Channel geomorphology

Instream Flow Program

[Instream Flow Studies](#)

- [Big Sur River](#)
- [Butte Creek](#)
- [Deer Creek](#)
- [Mill Creek](#)
- [Scott River and Shasta Rivers](#)
- [South Fork Eel River](#)

[Instream Flow Program Documents](#)

[SOPs and QA/QC Documents](#)

[Instream Flow Recommendations Map](#)

[Outreach](#)

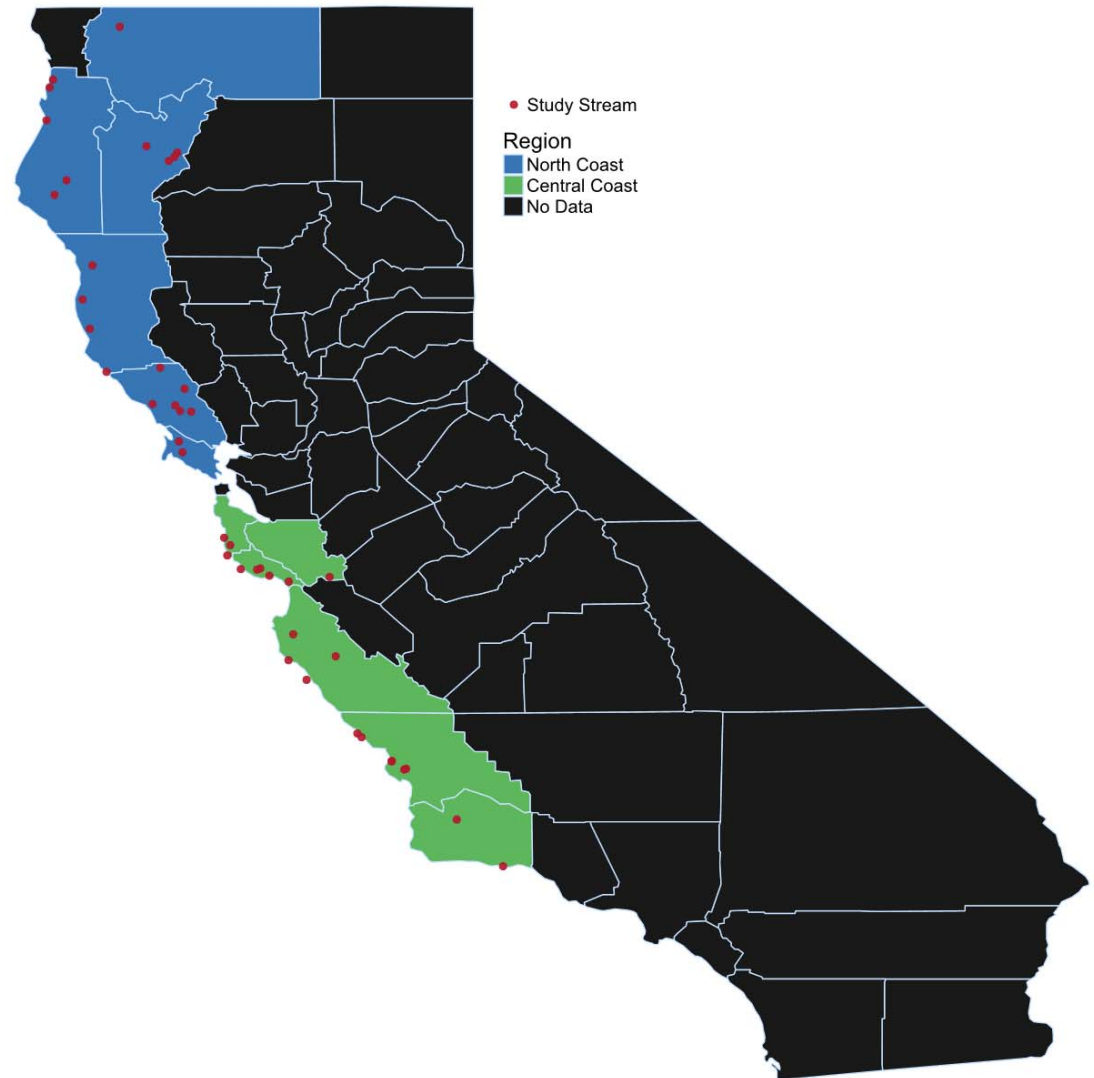
[Links and Resources](#)



Habitat survey transects in the Big Sur River

Regional Pilot Flow Study

- Collaboration with the Central Coast Regional Water Quality Control Board
- Integrate flow criteria into a regional watershed health report card
- Based on steelhead biology



CNDDDB

- The California Natural Diversity Database (CNDDDB) is an inventory of the status and locations of rare plants and animals in California
- It is a positive detection database, does not predict where species might occur
- 75,000 element occurrences as of September 2013
- 400-600 added each month



Query Results Occurrence Details Reports BIOS Export/Import Help

Clear Query Criteria Run Query

Query Summary:

Federal Listing Status **IS** (Endangered **OR** Threatened **OR** Proposed Endangered **OR** Proposed Threatened **OR** Candidate) **AND** State Listing Status **IS** (Endangered **OR** Threatened **OR** Rare **OR** Candidate Endangered **OR** Candidate Threatened)

± Species Name or Code

± Taxonomic Group

= STATUS

= Federal/State Listing Status

Federal Listing Status (Select 0 or more)

☒ Endangered ☒ Threatened ☒ Proposed Endangered ☒ Proposed Threatened
☒ Candidate ☐ None ☐ Delisted

☒ AND

☐ OR

State Listing Status (Select 0 or more)

☒ Endangered ☒ Threatened ☒ Rare ☐ None
☐ Delisted ☒ Candidate Endangered ☒ Candidate Threatened

± California Rare Plant Rank

± Global Rank

± State Rank

± Other Status

± DATES

= LOCATIONAL FEATURES

± County

± Quad

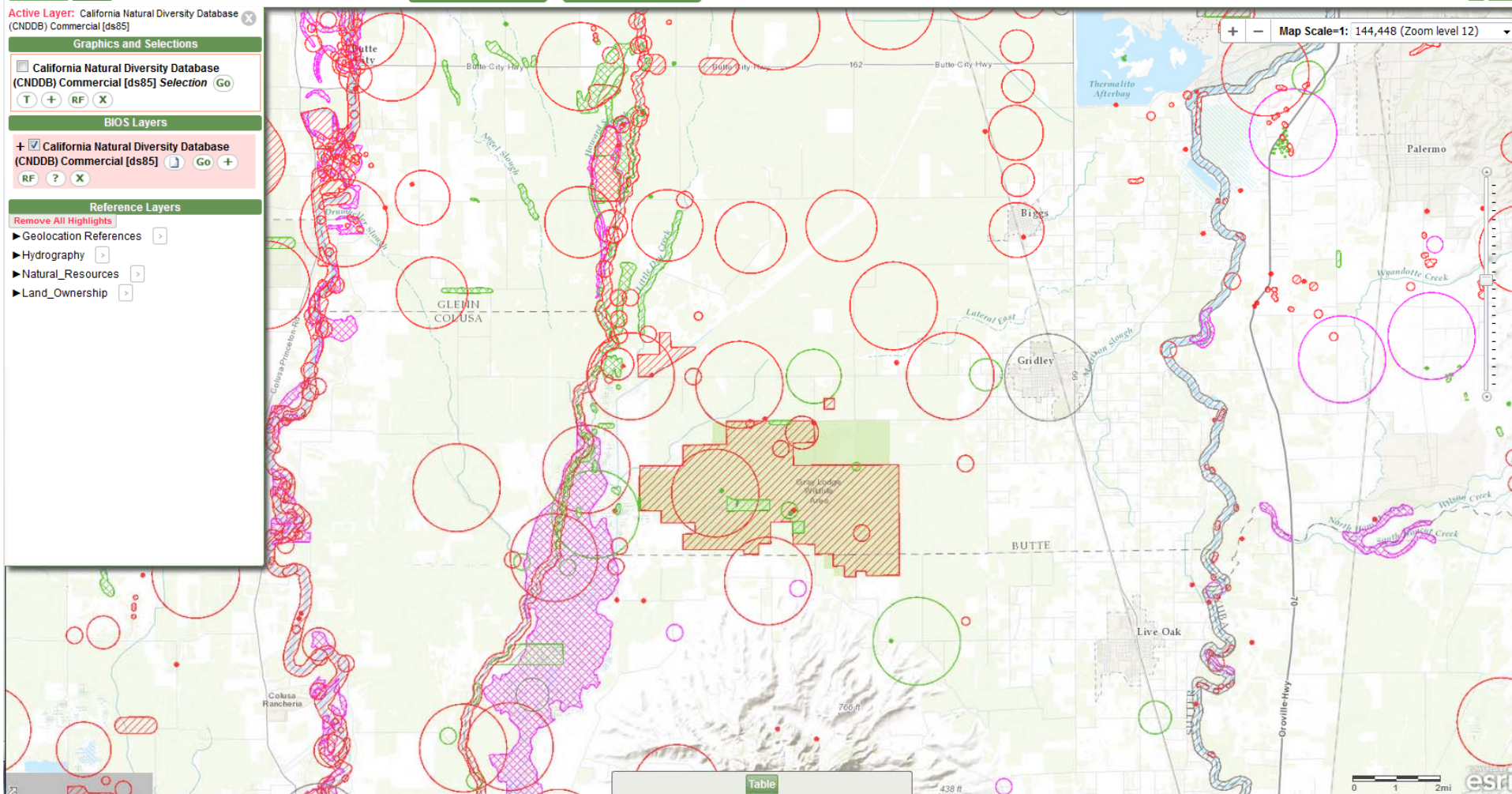
Query	Results	Occurrence Details	Reports	BIOS	Export/Import	Help
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Element Details < Record: 8 of 12 >								
Image Search	Scientific Name	Common Name	Element Code	Global Rank	State Rank	Federal Status	State Status	CA Rare Plant Rank
g+ / Ca	Rana sierrae	Sierra Nevada yellow-legged frog	AAABH01340	G1	S1	Endangered	Threatened	

General Habitat	Micro Habitat	Habitats	Other Status
Always encountered within a few feet of water. Tadpoles may require 2 - 4 yrs to complete their aquatic development.		Aquatic	CDFW_WL-Watch List IUCN_EN-Endangered USFS_S-Sensitive

Occurrence Details Record: 1 of 6 > >> ?									
Occurrence Number	EOn dx	Mapn dx	Occurrence Rank	Date Element Last Seen	Date Site Last Seen	Presence	Trend	Occurrence Type	Last Updated
134	45971	45971	U-Unknown	1997-06-20	1997-06-20	Presumed Extant	Unknown	Natural/Native occurrence	2014-09-17

Latitude, Longitude (NAD83)	39.59929, -121.12933	Location	ALONG PINKARD CREEK NEAR USFS ROAD 22N24, NORTH OF LOST CREEK RESERVOIR, PLUMAS NATIONAL FOREST.	
Town, Range, Sec, Qtr (Mer)	T20N, R08E, Sec. 07, SW (M)		Detailed Location	FOUND IN MEADOW SURROUNDING PINKARD CREEK.
UTM Coordinates (NAD83)	10 S 660613 E 4384956 N			Ecological Comments
Elevation (feet)	3500		General Comments	
Owner/Manager	USFS-PLUMAS NF	Threat Comments		Threats
Counties	Butte			
Quads (Key Quad)				
Clipper Mills (3912152)				
Strawberry Valley (3912151)				



Active Layer: California Freshwater Species Database (Aquarius) - 2015 [ds1197]

Graphics and Selections

BIOS Layers

Remove All BIOS Layers

☒ California Freshwater Species Database (Aquarius) - 2015 [ds1197] Go X

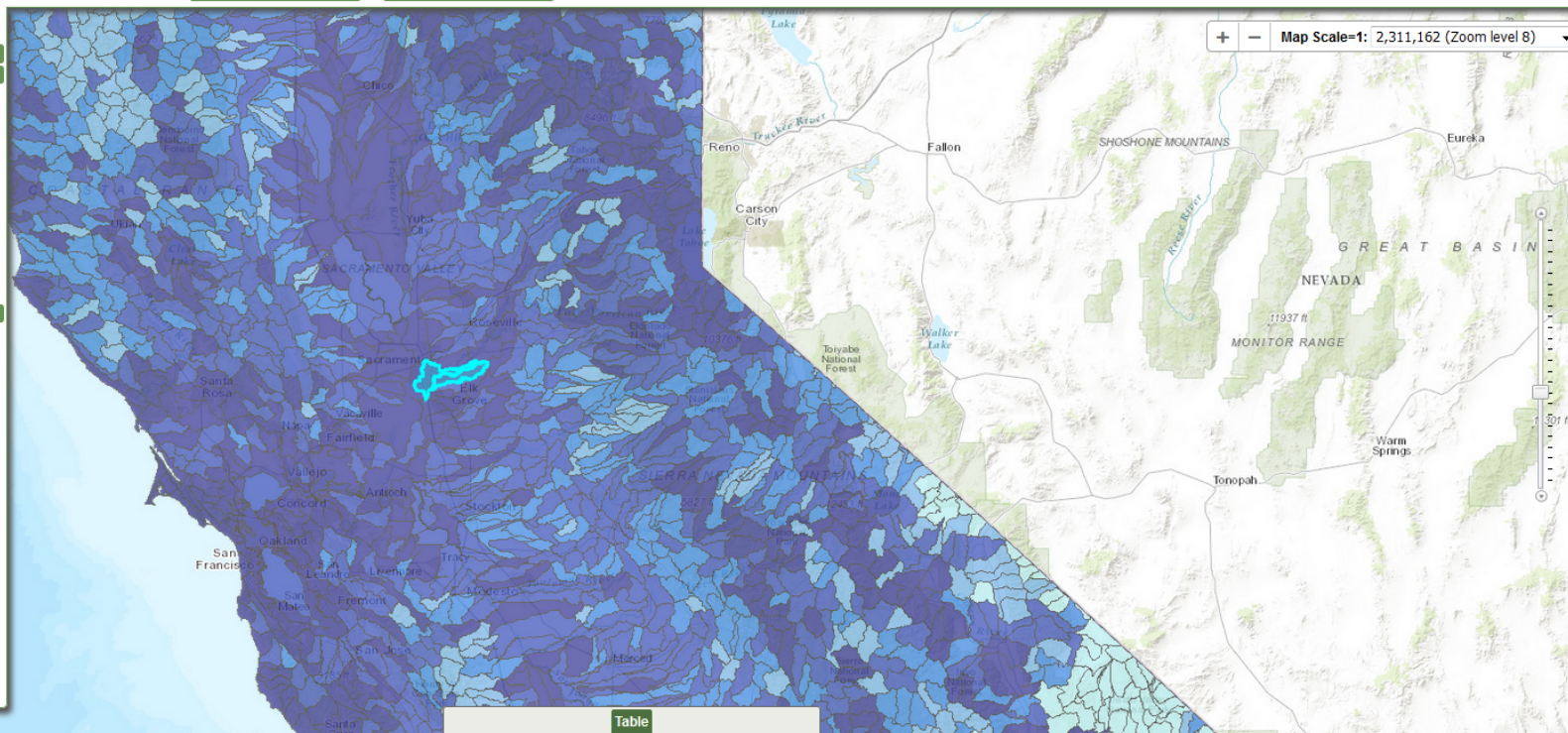
Freshwater_Species_Count

- ☐ 1 - 10
- ☐ 11 - 25
- ☐ 26 - 50
- ☐ 51 - 100
- ☐ 101 - 500

Reference Layers

Remove All Highlights

- Geolocation References
- Hydrography
- Natural_Resources
- Land_Ownership



Table

California Freshwater Species Database (Aquarius) - 2015 [ds1197] Identified features: 2 Related records: 932

Print Preview Export

Zoom	Watershed Name	Watershed ID	Freshwater Species Count	Vulnerable Species Count	Listed Species Count	XID	Scientific Name	Common Name	Group	Listed	Vulnerable	Endemic	Apparently Secure	Not Evaluated	Observation Type	Origin	Source Citation	Elim ID	
1	Go	Upper Morrison Creek	180201630402	157	52	10	6,400	Actinemys marmorata marmorata	Western Pond Turtle	Herps	0	1	0	0	0	Unknown	Inside native range	California Department of Fish and Wildlife. 2014. California Natural Diversity Database, May 2014 Version. Sacramento, California. Accessed at http://www.dfg.ca.gov/biogeodata/cnddb/ in May, 2014.	50,761
2	Go	Upper Morrison Creek	180201630402	157	52	10	10,565	Downingia bicornuta	NA	Plants	0	1	0	0	0	Unknown	Inside native range	Calflora. 2008. The Calflora Database. Berkeley, CA. Accessed at	54,314



Questions?

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<https://www.wildlife.ca.gov/Conservation>

