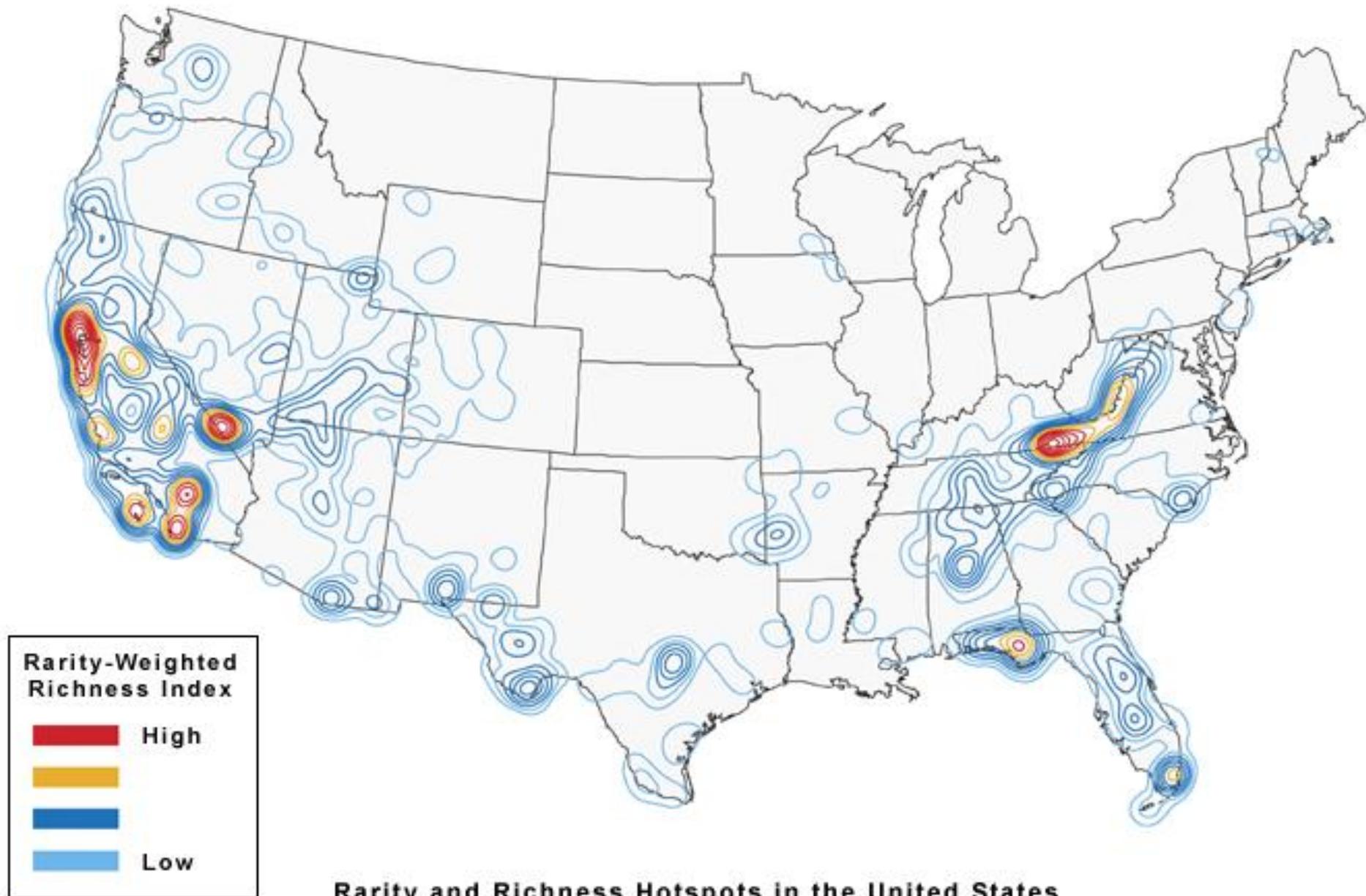


Tom Lupo, Chief
Biogeographic Data Branch

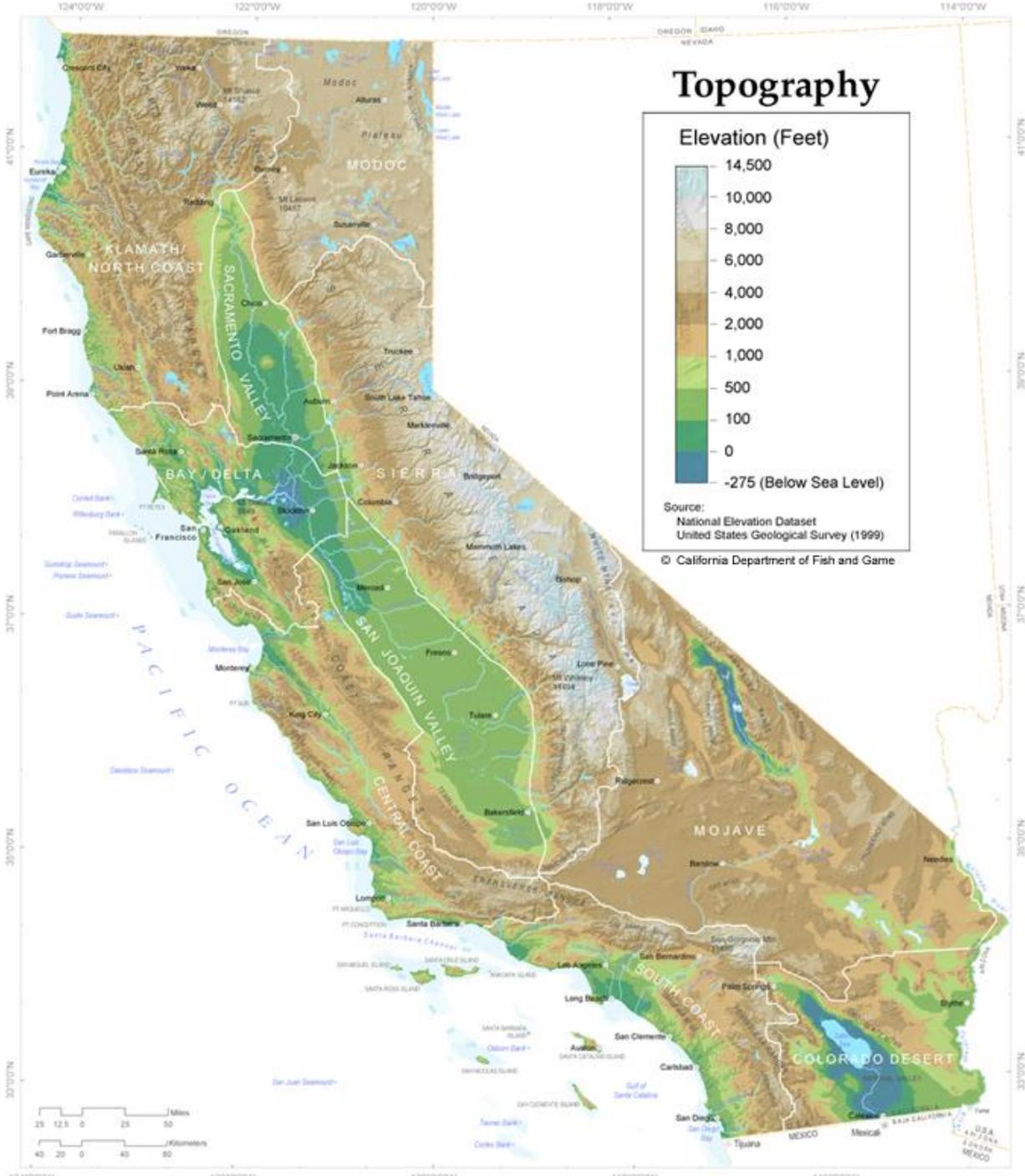
tlupo@dfg.ca.gov

916-324-6906



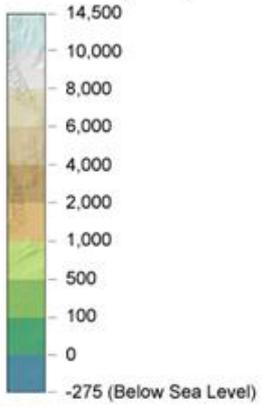
Rarity and Richness Hotspots in the United States

Source: Precious Heritage, Stein et al. 2000. Used by permission.



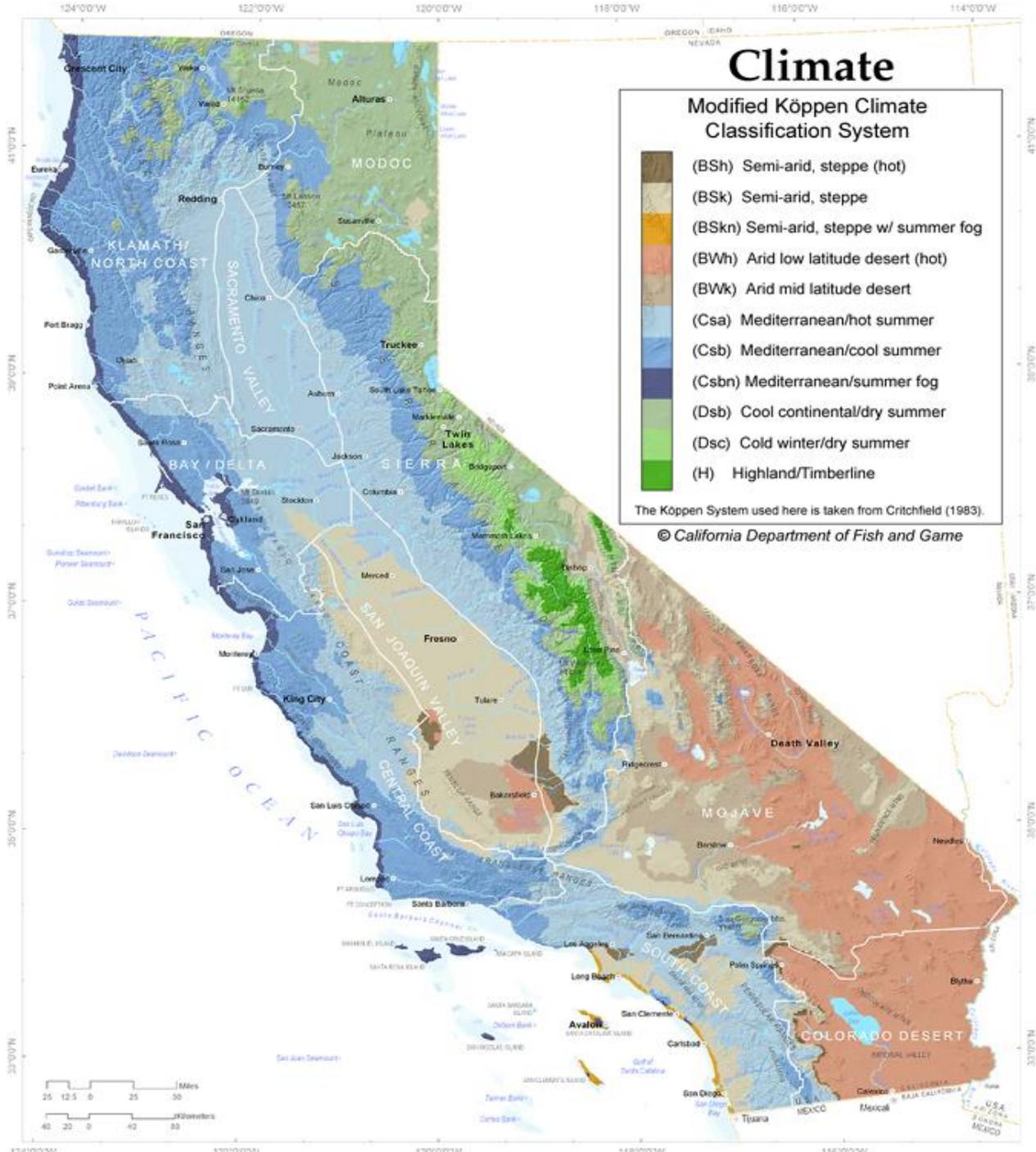
Topography

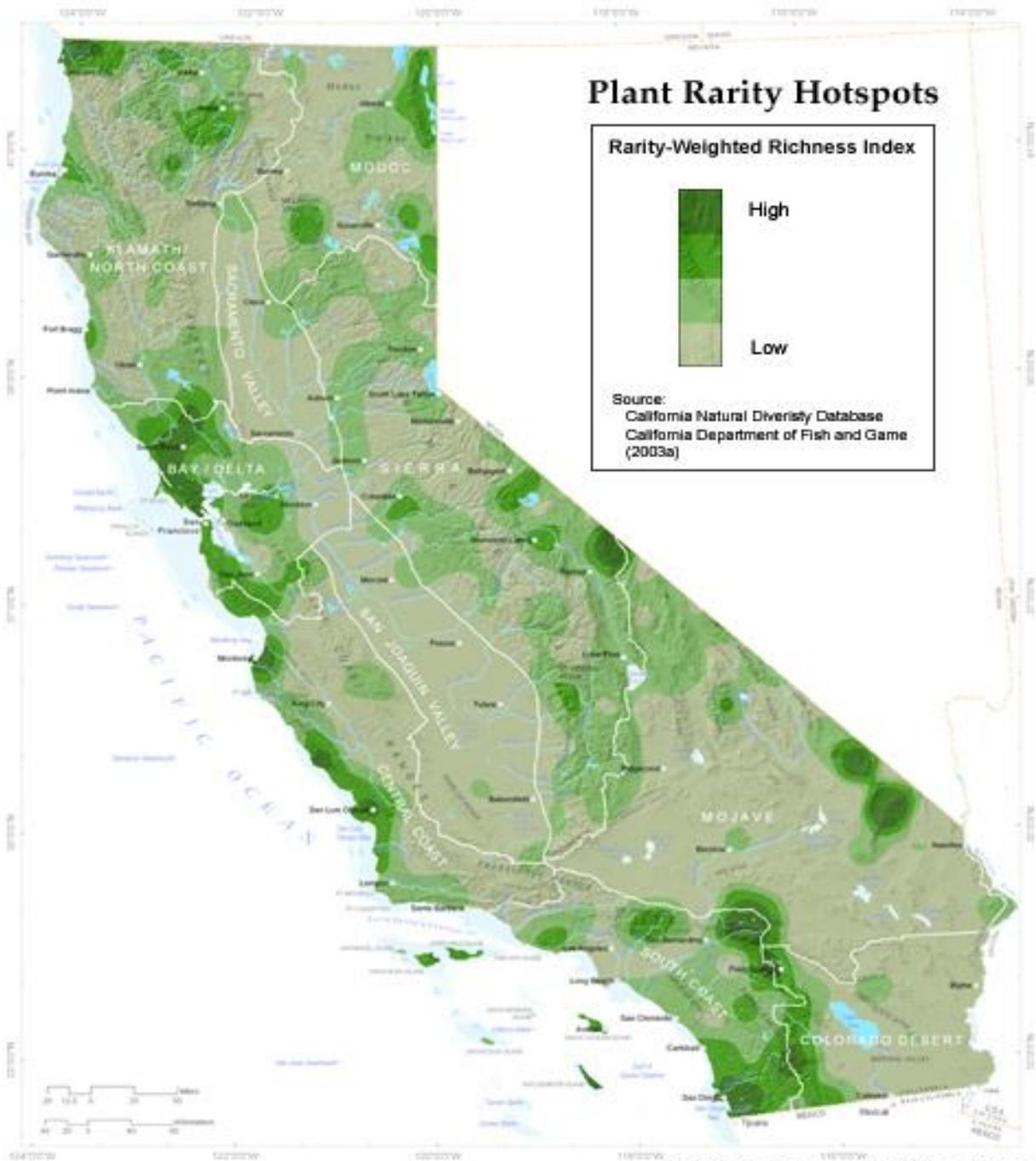
Elevation (Feet)



Source:
National Elevation Dataset
United States Geological Survey (1999)

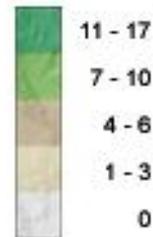
© California Department of Fish and Game





Amphibian Richness

Number of Native Amphibian Species



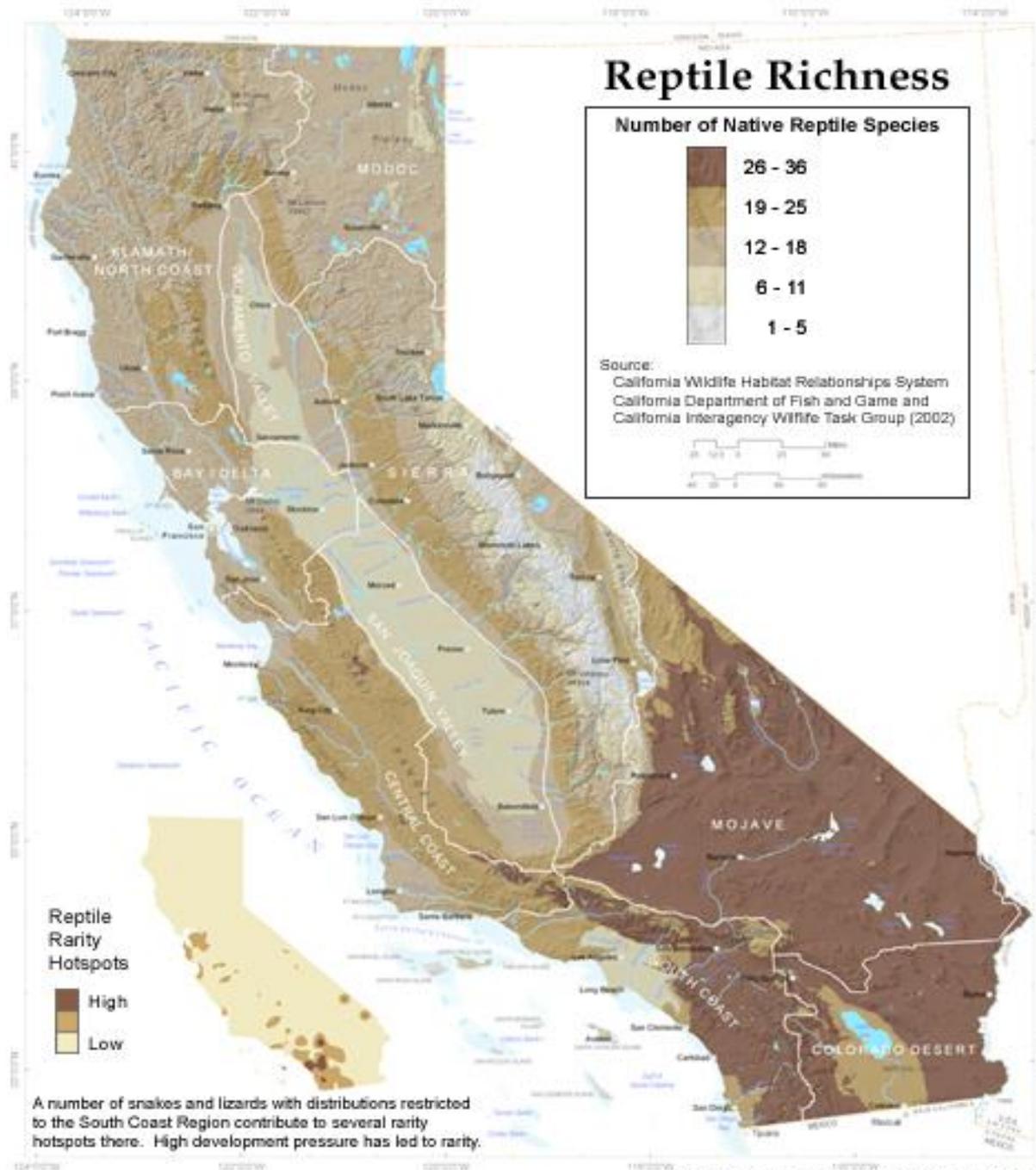
Source:
California Wildlife Habitat Relationships System
California Department of Fish and Game and
California Interagency Wildlife Task Group (2002)

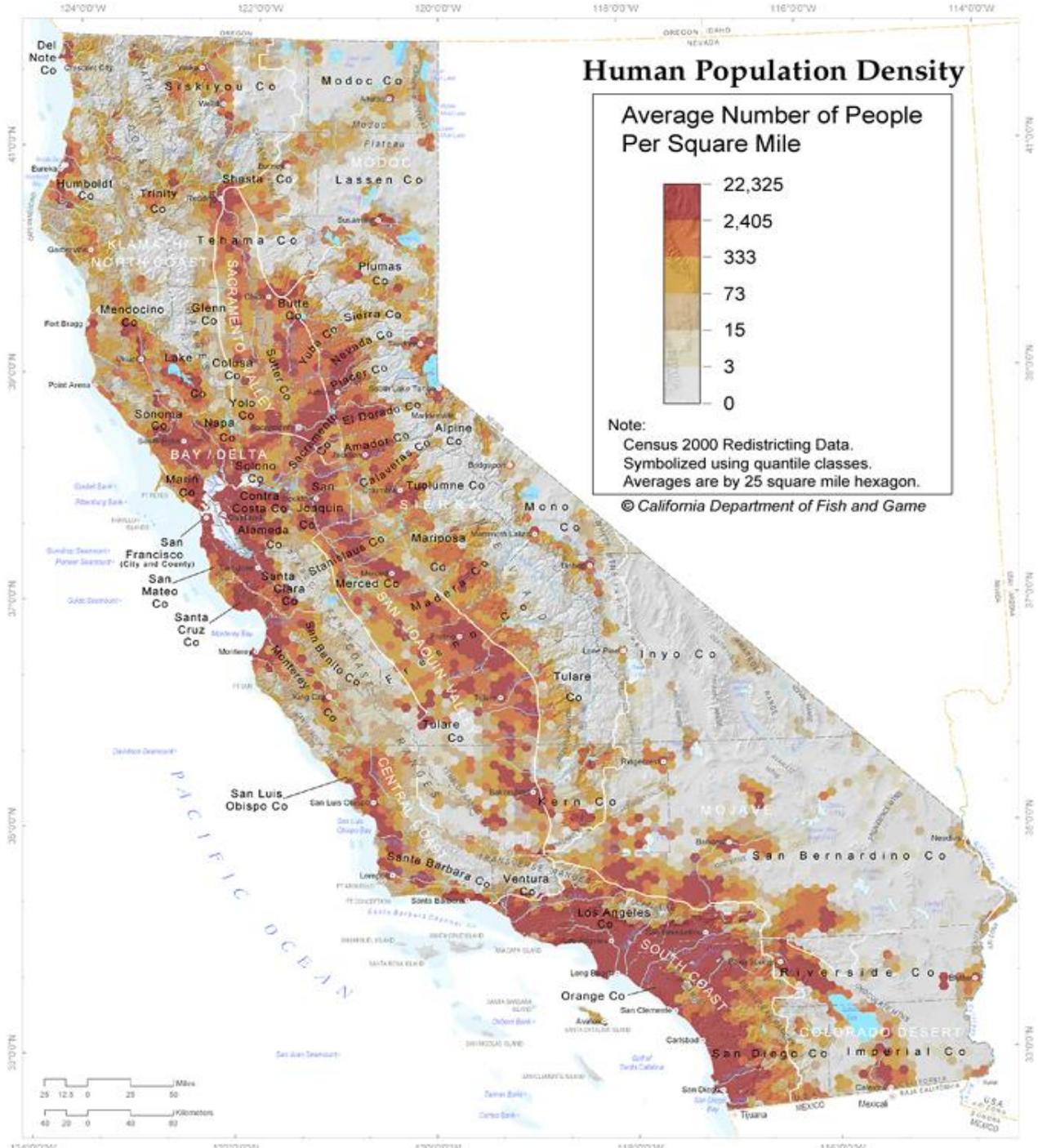


Amphibian Rarity Hotspots



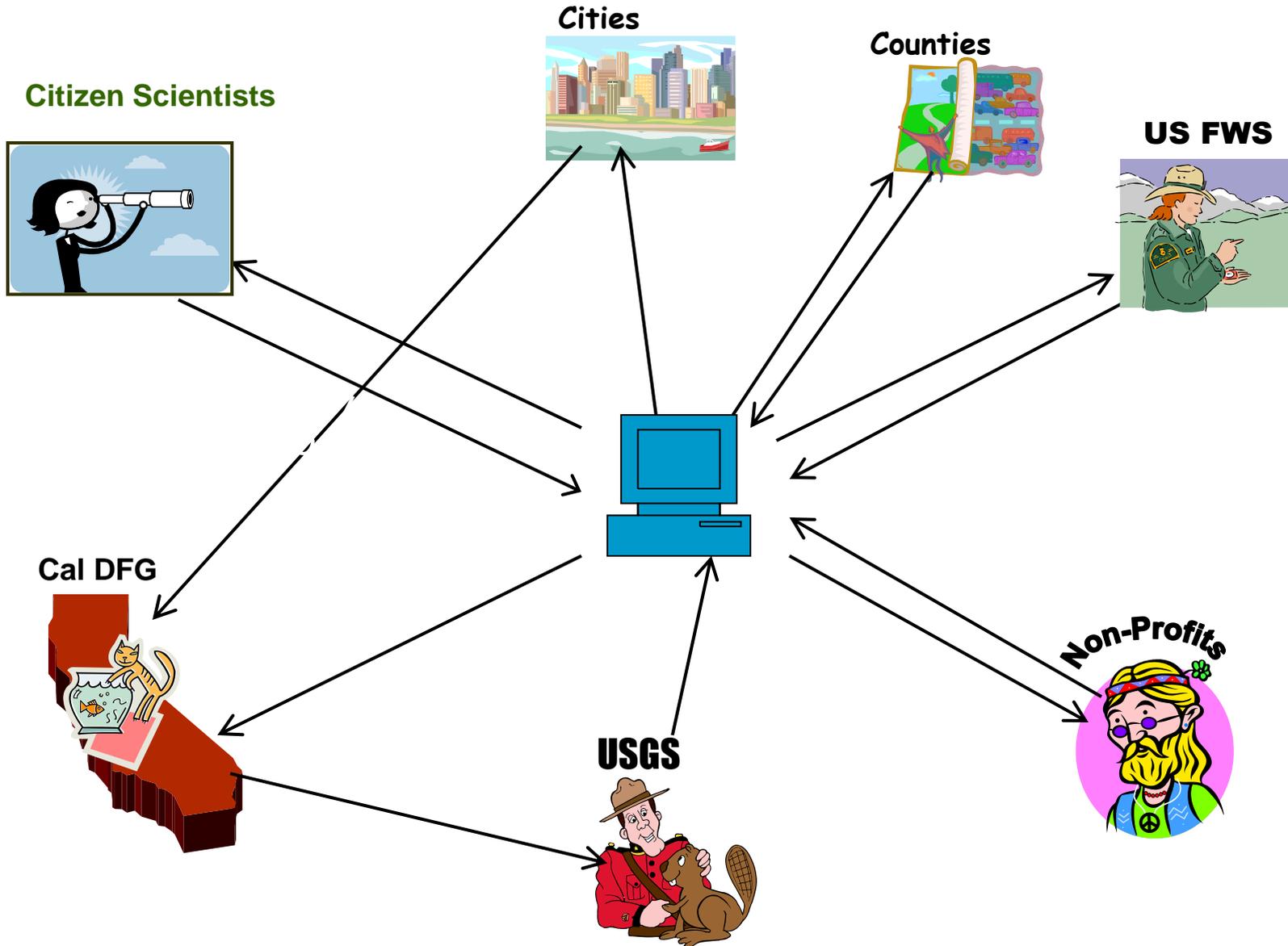
The Sierra Region is home to several special status frogs and toads. A number of salamanders with very restricted distributions also occur there.







Data Collection/Analysis Scenario



Biogeographic Data Branch

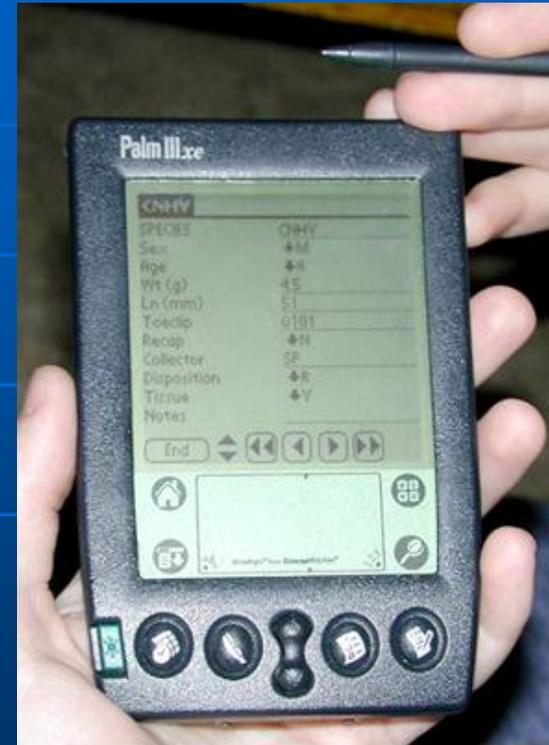
- Our mandate to provide quality information, tools, and expertise to DFG and community, for making informed conservation decisions.
- Programs include:
 - Biogeographic Info and Observation System
 - California Natural Diversity Database
 - California Wildlife Habitat Relationships System
 - Vegetation Classification and Mapping Program
 - Atlas of the Biodiversity of California

BIOS

Biogeographic Information and Observation System

- Utilizes GIS, relational database management, and Internet map server technology to manage biological observations.
- Provides **secure** password protected, layer specific read and download protection.
- Increases transparency by *liberating* data from DFG and our partners.

BIOS data inputs are from existing and new sources



Data are distributed via web-based GIS

The screenshot displays the iMap Viewer interface for the California Department of Fish and Game. The map shows a topographic view of Southern California with various layers visible. The legend on the left includes categories like Natural Resource Layers, Base Layers, and Images. The data table at the bottom provides a summary of UCR Burrowing Owl observations.

ZOOM	SURVEY_DAT	NUMBER	LATITUDE	LONGITUDE	QUAD	NOTES	OWLS PRES	X OWLS	X JUVEHLE	X BURROWS	Shape
1	6/18/2003	161803	33.945833	-117.632778	Prado Dam	Private Land-Historical (Chino Prison)	P	8	2	2	14
2	6/18/2003	261803	33.942778	-117.608333	Corona N	Private Land	P	2	2	2	15
3	6/18/2003	361803	33.9075	-117.581667	Corona N	Private Land	P	3	2	2	16

www.bios.dfg.ca.gov

The California Natural Diversity Database



What is the CNDDDB?

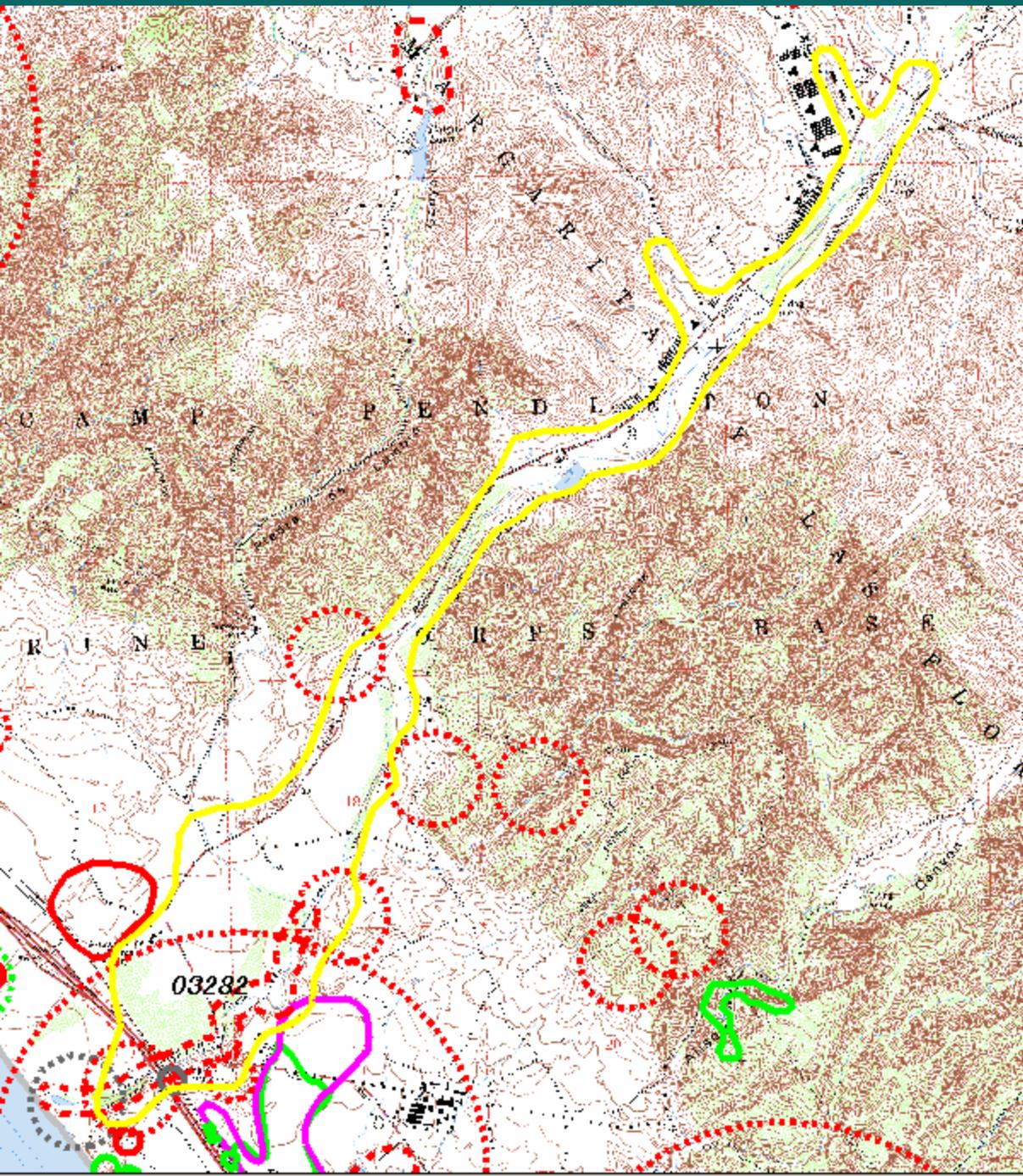
It is a continually updated computerized inventory of location and status information on the rarest plants, animals, and natural communities in California.



What do we track in the CNDDDB?

- ◆ State and/or Federally listed species
- ◆ State and/or Federal candidates for listing.
- ◆ California Species of Special Concern
 - (Animals only)





Least Bell's vireo occ 89

Las Flores Creek, (Las Pulgas Canyon). From just north of Basilone Rd extending SW to Just west of I-5, Camp Pendleton MCB

7 source documents from 1985 to 1999

Vireo bellii pusillus

least Bell's vireo

Element Code: ABP BW01114

_____ Status _____	_____ NDBB Element Ranks _____	_____ Other Lists _____
Federal: Endangered	Global: G5T2	CDFG Status:
State: Endangered	State: S2	

_____ **Habitat Associations** _____**General:** (NESTING) SUMMER RESIDENT OF SOUTHERN CALIF IN LOW RIPARIAN IN VICINITY OF WATER OR IN DRY RIVER BOTTOMS; BELOW 2000 FT.**Micro:** NESTS PLACED ALONG MARGINS OF BUSHES OR ON TWIGS PROJECTING INTO PATHWAYS, USUALLY WILLOW, BACCHARIS, MESQUITE.

Occurrence No. 89	Map Index: 03282	EO Index: 13753	_____ Dates Last Seen _____
Occ Rank: Excellent			Element: 1999-XX-XX
Origin: Natural/Native occurrence			Site: 1999-XX-XX
Presence: Presumed Extant			
Trend: Stable			
Main Source: GRIFFITH, J. 1990 (OBS)		Record Last Updated: 2004-07-23	

Quad Summary: LAS PULGAS CANYON (3311734/051C)**County Summary:** SAN DIEGO

Lat/Long: 33.31782° / -117.43880°	Township: 10S
UTM: Zone-11 N3686607 E459156	Range: 05W
Mapping Precision: SPECIFIC	Section: 07 Qtr: XX
Symbol Type: POLYGON	Meridian: S
Area: 1,101.0 ac	Elevation: 120 ft

Location: LAS FLORES CREEK (LAS PULGAS CYN), FROM JUST NORTH OF BASILONE ROAD EXTENDING SW TO JUST WEST OF I-5, CAMP PENDLETON MCB**Location Detail:** 1981-82: 0.4 MI S OF BASILONE ROAD. 1988-90: 1 MI S OF BASILONE ROAD AND 0.4 - 0.7 MI N TO NE OF STUART MESA RD. 1995 & 1999: PAIRS OBSERVED THROUGHOUT SITE.**Ecological:** RIPARIAN HABITAT; DOMINANTS: SALIX SP, BACCHARIS GLUTINOSA, ALNUS RHOMBIFOLIA, PLATANUS RACEMOSA, SAMBUCUS MEXICANA**Threat:** MARINE CORPS ACTIVITY; TANK ROADS BISECT CREEK; SHEEP GRAZING**General:** 1 MALE OBSERVED IN 1981; 2 MALES OBS IN 1982; 1 TERRITORIAL MALE OBS IN 1983, 1988, AND 1989; 2 PAIRS IN 1988; 3 PAIRS IN 1989; 8 PAIRS DETECTED IN 1990. 111 PAIRS OBS SOMETIME BETWEEN 1 APR & 31 JUL 1995. 102 PAIRS DETECTED IN 1999.**Owner/Manager:** DOD-CAMP PENDLETON MCB_____ **Sources** _____

FWS85U02 U.S. FISH & WILDLIFE SERVICE. TABLES FOR LEAST BELL'S VIREO DATA UP TO 1984. 1985-XX-XX.

GRI89F03 GRIFFITH WILDLIFE BIOLOGY. FIELD SURVEY FORM FOR VIREO BELLII PUSILLUS. 1989-08-31.

GRI90F02 GRIFFITH, J. FIELD SURVEY FORM FOR VIREO BELLII PUSILLUS. 1990-07-31.

GRI90R01 GRIFFITH, J.T., AND J.C. REPORT ON LEAST BELL'S VIREO ON MARINE CORP BASE CAMP PENDLETON, 1989.

The Need for Statewide Vegetation Mapping

California Department of Fish and Game
Vegetation Mapping and Classification Program



Vegetation is four of the top needs identified by GIS users in CA

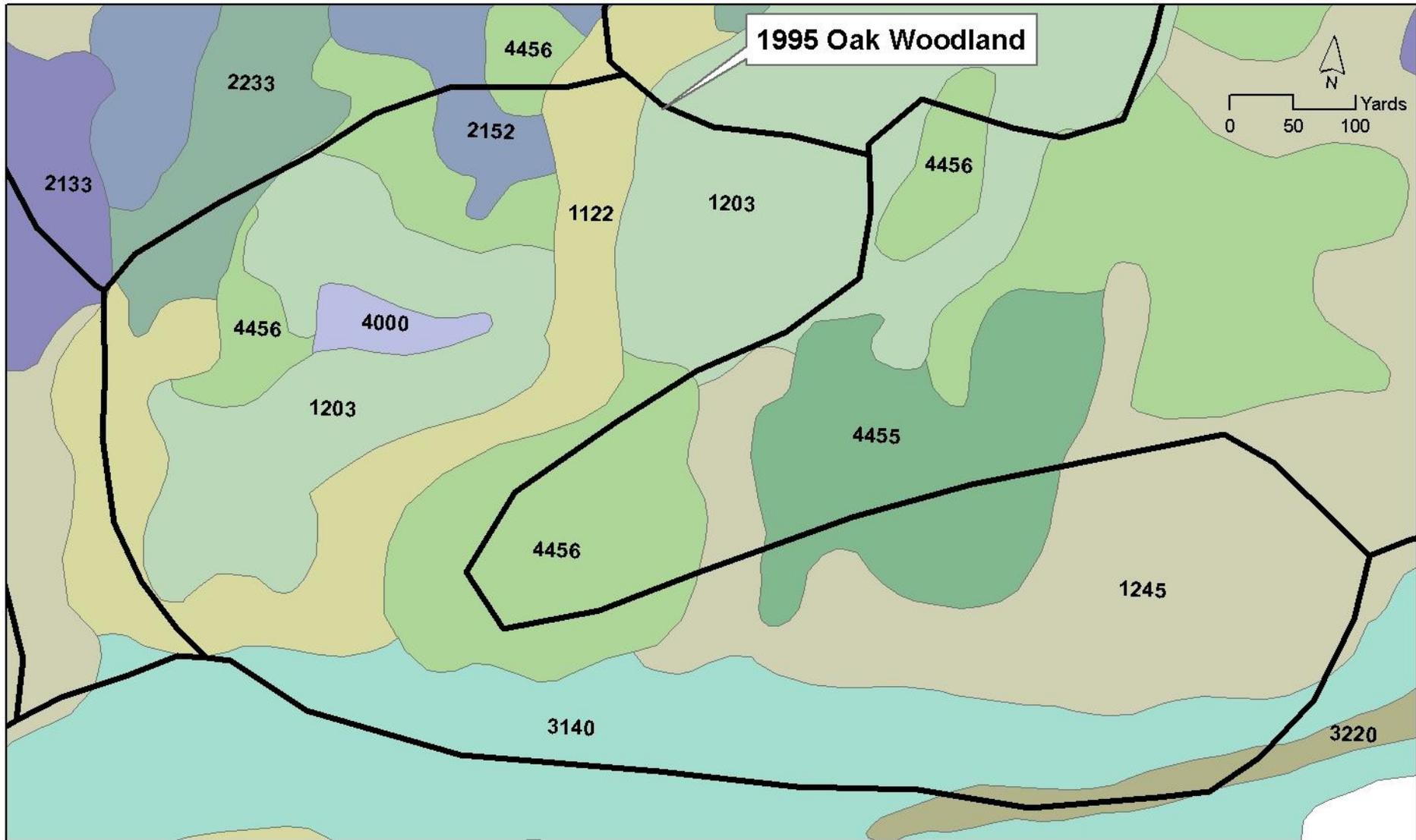
1. Street Addressing
2. Utilities
3. Public Land Conveyance Records
4. Buildings and Facilities
5. Flood Hazards
6. Vegetation
7. Biological Resources
8. Cultural and Demographic Statistics
9. Soils
10. Wetlands
11. Earth Cover

Why vegetation was identified as one of the top needs:

- ◆ Allows informed conservation planning and resource management through:
 - improved regional conservation planning,
 - wildland fire/fuels modeling for improved preparedness,
 - identifying potential rare and endangered species locations,
 - predicting the spread of invasive species,
 - early scoping for transportation projects to avoid rather than mitigate impacts,
 - prioritizing land acquisitions for parks and ecological reserves,
 - identifying important wildlife corridors,
 - setting a baseline for monitoring impacts of global climate change.

Vegetation defined on the ground should be, as much as possible, defined in the map

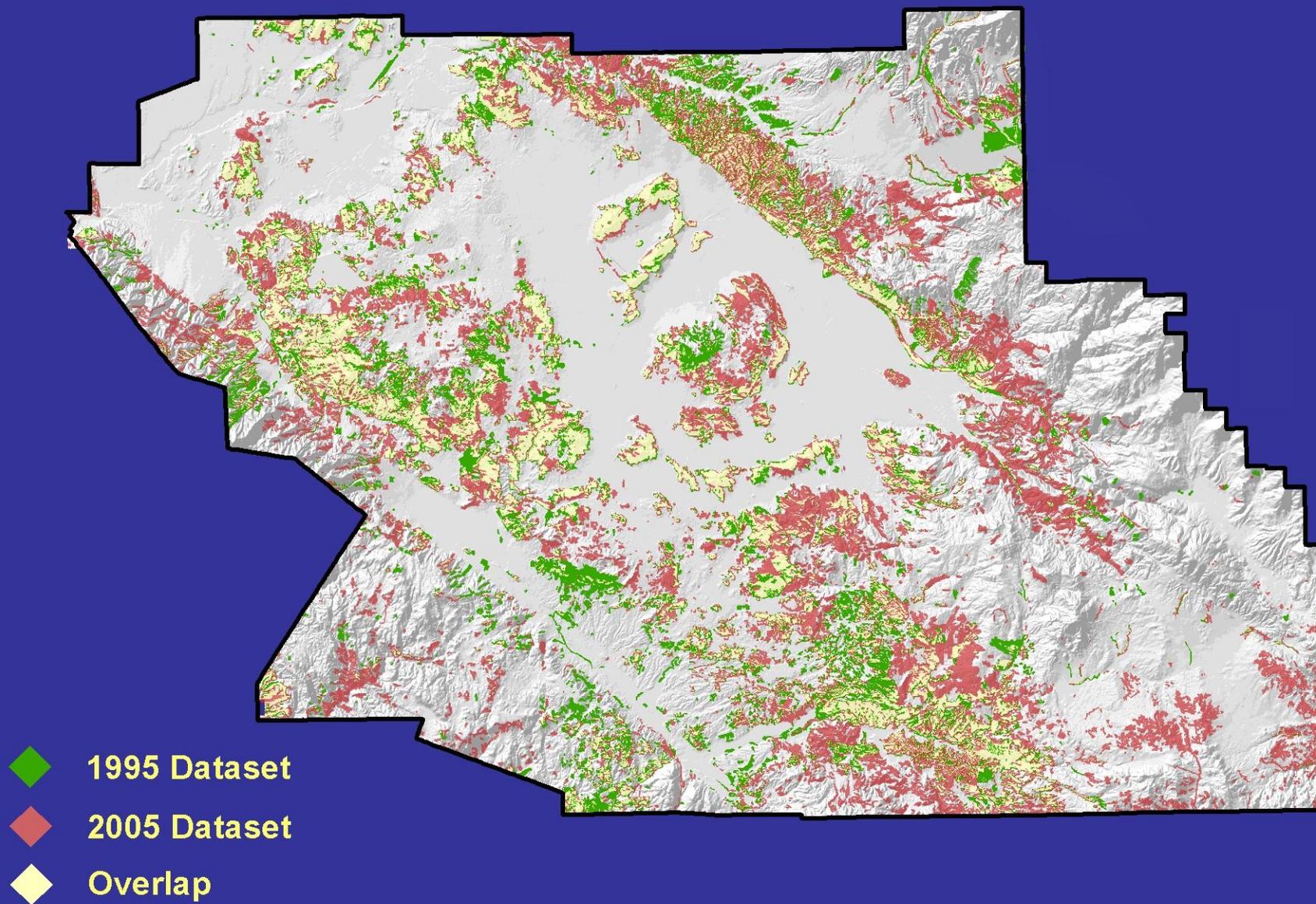




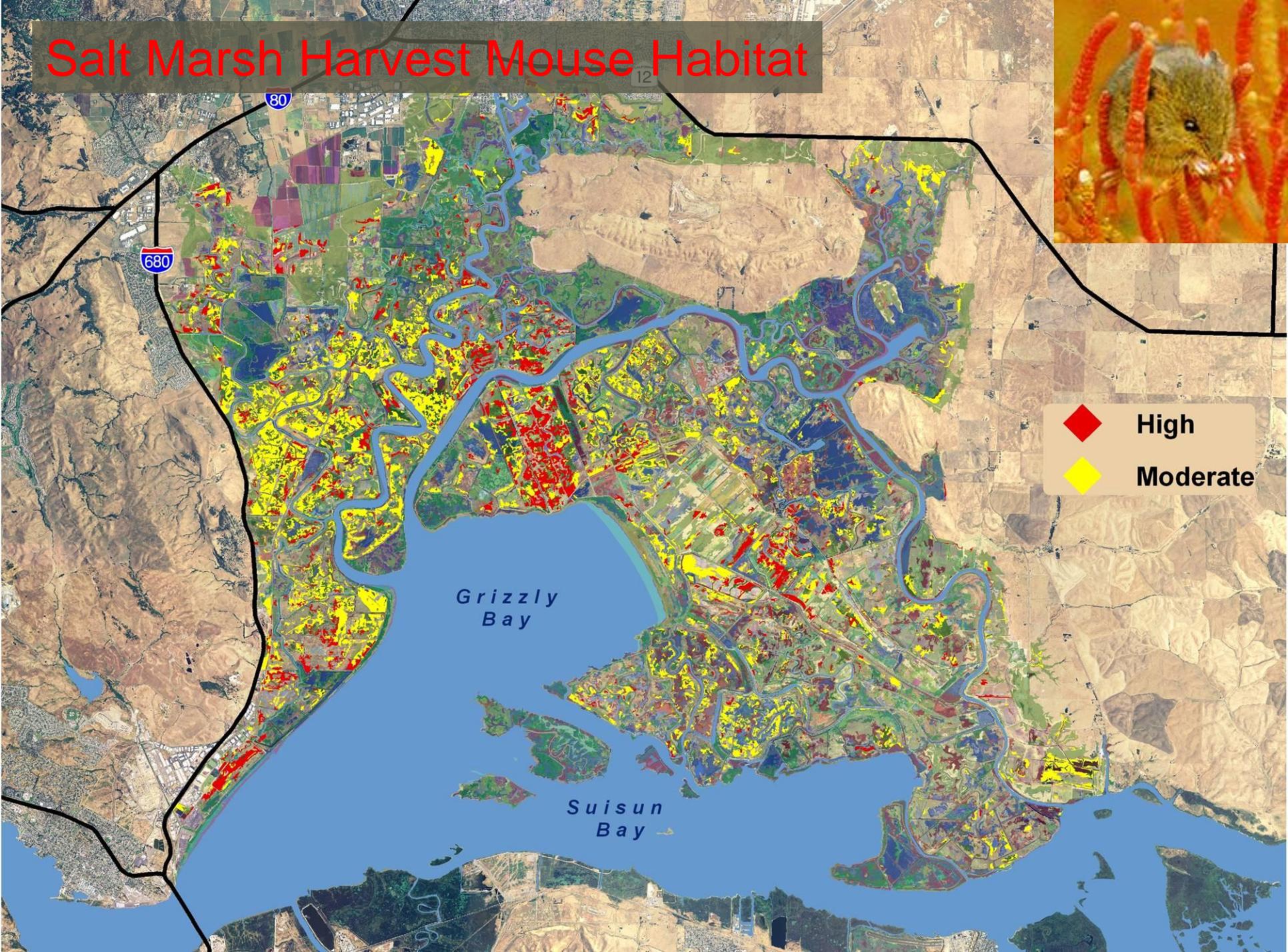
2005 Mapping Codes and Types

- | | |
|--|---|
| ◆ 1122 Canyon Live Oak Alliance | ◆ 2233 White Fir - Sugar Pine - Incense Cedar - Canyon Live Oak Association |
| ◆ 1203 Interior Live Oak - Canyon Live Oak Alliance | ◆ 3140 Black Oak - Incense Cedar Association |
| ◆ 1245 Interior Live Oak - Canyon Live Oak - Coulter Pine Association | ◆ 3220 White Alder Alliance |
| ◆ 2133 Coulter Pine / Eastwood Manzanita Alliance | ◆ 4000 Evergreen Shrubland Formation |
| ◆ 2152 Coulter pine - Canyon live oak / Pink-bracted Manzanita Association | ◆ 4455 Eastwood Manzanita - Interior Live Oak Association |
| | ◆ 4456 Eastwood Manzanita - Pink-bracted Manzanita Association |

Coastal Sage Scrub Habitat within Core Conservation Area



Salt Marsh Harvest Mouse Habitat



Completed Large-scale Mapping Projects

Wiskytown Lake National Recreation Area

Mendocino National Forest

Napa County

Point Reyes National Seashore

Suisun Marsh

Golden Gate National Recreation Area

John Muir National Historic Site

Legal Delta

Cottonwood Creek Wildlife Area

Ponoche Hills Ecological Reserve

Clear Creek (BLM)

Santa Monica Mts National Recreation Area

Western Riverside County

San Diegueto River Park

San Felipe Wildlife Area

Peoria Wildlife Area (BOR)

Yosemite National Park

Sequoia Kings Canyon

Cranebrake Ecological Reserve

Central Mojave

Joshua Tree National Park

Anza Borrego State Park

