

## Watershed Characterization

July 2008



NMFS-SWR-HCD

### San Vicente Watershed

Area	Hydrologic Units	Calwater Subbasins ---	(Planning Watersheds)
6,972 Acres	18060001	3304110203	San Vicente Creek (6972 Acres)
2822 Hectares	4th Field HUC		
11 Square Miles	3304		
<b>Location</b>			
Santa Cruz County			

Species Potential	Miles of Streams with Species Present
Central California Coast <b>Steelhead</b> Santa Cruz Mountains Diversity Stratum - Dependent Population	<u>Steelhead</u> 3 NOAA Fisheries, Critical Habitat Redesignation, 2005
Central California Coast <b>Coho</b> Santa Cruz Mountains Diversity Stratum - Dependent Population	<u>Coho</u> 4 CDFG, Coho Distribution, May 2007

Critical Habitat	
Central California Coast Steelhead	3 Miles of Stream
Central California Coast Coho	All accessible river reaches between Punta Gorda & San Lorenzo River including 2 San Francisco Bay streams: Arroyo Corte Madera del Presidio and Corte Madera Creek (64 FR 24049)

Miles of Waterway <sup>A</sup>	Miles	Number of Dams <sup>C</sup>
Naturally Occurring Waterways		<u>7</u>
Intermittent Stream	2	1 - Impassable
Perennial Stream	21	1 - Partial Barrier 5 - Not a Barrier

<sup>C</sup>Passage Assessment Database,  
Pacific States Marine Fisheries Commission, 2008

<sup>A</sup>USGS National Hydrography Dataset, High Resolution, 2004. 1:24,000

USGS Gaging Stations <sup>B</sup>	Number of Barriers <sup>C</sup>
11161800 San Vicente Creek Near Davenport	<u>19</u> 7 Dams 3 Road Crossings (2 Partially Impassable) 5 Natural Barriers (Chutes, Falls, Log Jams, etc. (4 Impassable))

<sup>C</sup>Passage Assessment Database,  
Pacific States Marine Fisheries Commission, 2008

Average Annual Precipitation <sup>E</sup>	Average Annual Precipitation Range <sup>E</sup>
38.4"	27.5 - 55"

<sup>E</sup>California Mean Annual Precipitation Zones, 1900-1960, CA Department of Forestry, 1990

Roads <sup>A</sup>	Miles
Roads in Watershed	
Secondary and connecting road, state highways	0
Local, neighborhood, and rural road, city street, unseparated	25
Total Miles	25

Road Density	
Miles of Roads per SqMi of Watershed	2.3
Miles of Roads per SqMi of 100m Riparian Buffer*	2.3

\*Buffer is 100 meters on either side of the stream centerline

<sup>A</sup>U.S. Census Bureau - Tiger 2000, 2002. 1:24,000



<b>Slope<sup>D</sup></b>	Acres	Percent of watershed
Lands of 0-2 percent slope	65	1%
Lands of 2-4 percent slope	171	2%
Lands of 4-10 percent slope	1,166	17%
Lands of 10-15 percent slope	898	13%
Lands of 15-30 percent slope	1,898	27%
Lands of 30-60 percent slope	2,345	34%
Lands of 60-100 percent slope	413	6%
Lands of 100-117 percent slope	16	0%
<b>Elevation Range</b>	10 - 2651 ft.	3 - 808 m

<sup>D</sup>Slope derived from USGS 10 meter Digital Elevation Models (DEM's)

<b>Vegetation<sup>G</sup></b>	Acres	Percent of watershed
Agriculture	252	4%
Annual grassland	227	3%
Conifer Forest		
Closed Cone-Pine-Cypress	67	1%
Redwood	1,821	26%
Unknown Conifer	2,325	33%
Hardwood Forest		
Montane Hardwood	116	2%
Shrub	1,707	25%
Urban	435	6%

<sup>G</sup>Multi-source Land Cover Data (2002 v2), CA Department of Forestry, 2002. 100 meter Grid

<b>Erodability of Watershed<sup>F</sup></b>	Acres	Percent of watershed
All of watershed is ranked as 7		

<sup>F</sup>Department of Conservation, Division of Mines and Geology; minimum mapping unit: approx. 8000 acres  
Watersheds were rated based on slope, precipitation, and lithologic susceptibility to failure. Total erosion potential is based on a combination of the landslide potential, debris slide potential, and the surface erosion potential. Rating 0-10 [ 0 = Low slide potential, 10 = High slide potential]

Area Under a <b>Timber Harvest Plan<sup>A</sup></b> past 10 years	Area Under a <b>Timber Harvest Plan<sup>A</sup></b> past 13 years (1994-2006)
1,560 22% of watershed	1,957 28% of watershed

<sup>A</sup>California Department of Forestry, Timber Harvest Plans for San Vicente Watershed, 2006

<b>Land Ownership<sup>H</sup></b>	Acres	Percent of watershed
Private	6,925	99%
State (Fish & Game)	47	1%

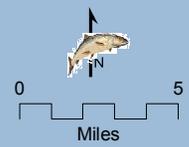
<sup>H</sup>Management Landscape, CA Department of Forestry, 2002

<b>Population<sup>I</sup></b>	<b>Housing<sup>I</sup></b>
Total Population within the watershed -- 1,233 People	Total Housing Units within the watershed -- 457 Houses
	Housing Density
	0 to Less than 1 Housing Unit / 160 Acres 32%
	1 Unit / 160 Acres to 1 Unit / 20 Acres 27%
	1 Unit / 20 Acres to 1 Unit / 5 Acres 34%
	1 Unit / 5 Acres to 2 Units / Acre 7%
	2 Units / Acres to Greater than or Equal to 5 Units / Acre

<sup>I</sup>Census 2000 Block Data (Migrated), CA Department of Forestry, 2003



# San Vicente Creek Watershed





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# San Vicente Creek Watershed CalWater Planning Watersheds



**San Vicente Creek  
6972 Acres**

Mill Creek

San Vicente Creek

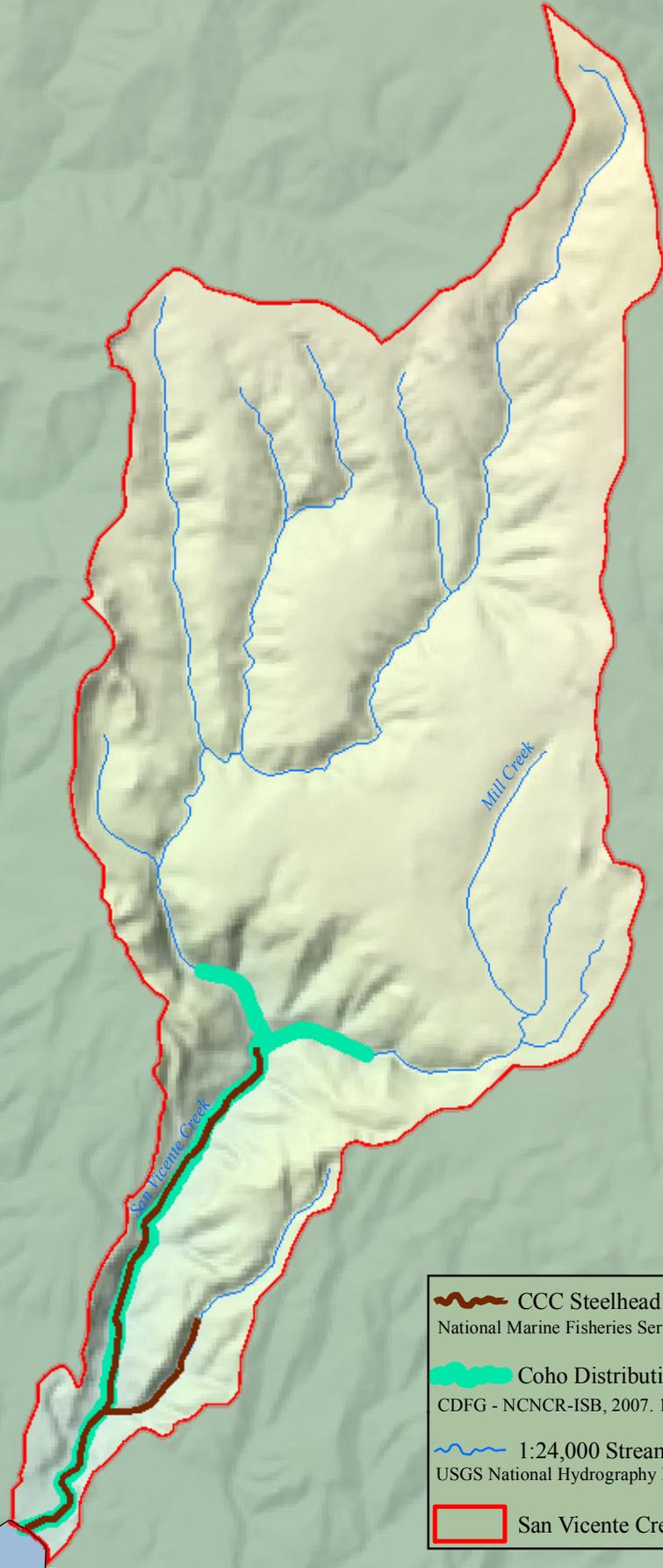




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# San Vicente Creek Watershed Fish Distribution and Critical Habitat



 CCC Steelhead Distribution and Critical Habitat  
National Marine Fisheries Service, August 2005. 1:100,000.

 Coho Distribution  
CDFG - NCNCR-ISB, 2007. 1:100,000.

 1:24,000 Streams  
USGS National Hydrography Dataset, 2004. 1:24,000

 San Vicente Creek Watershed

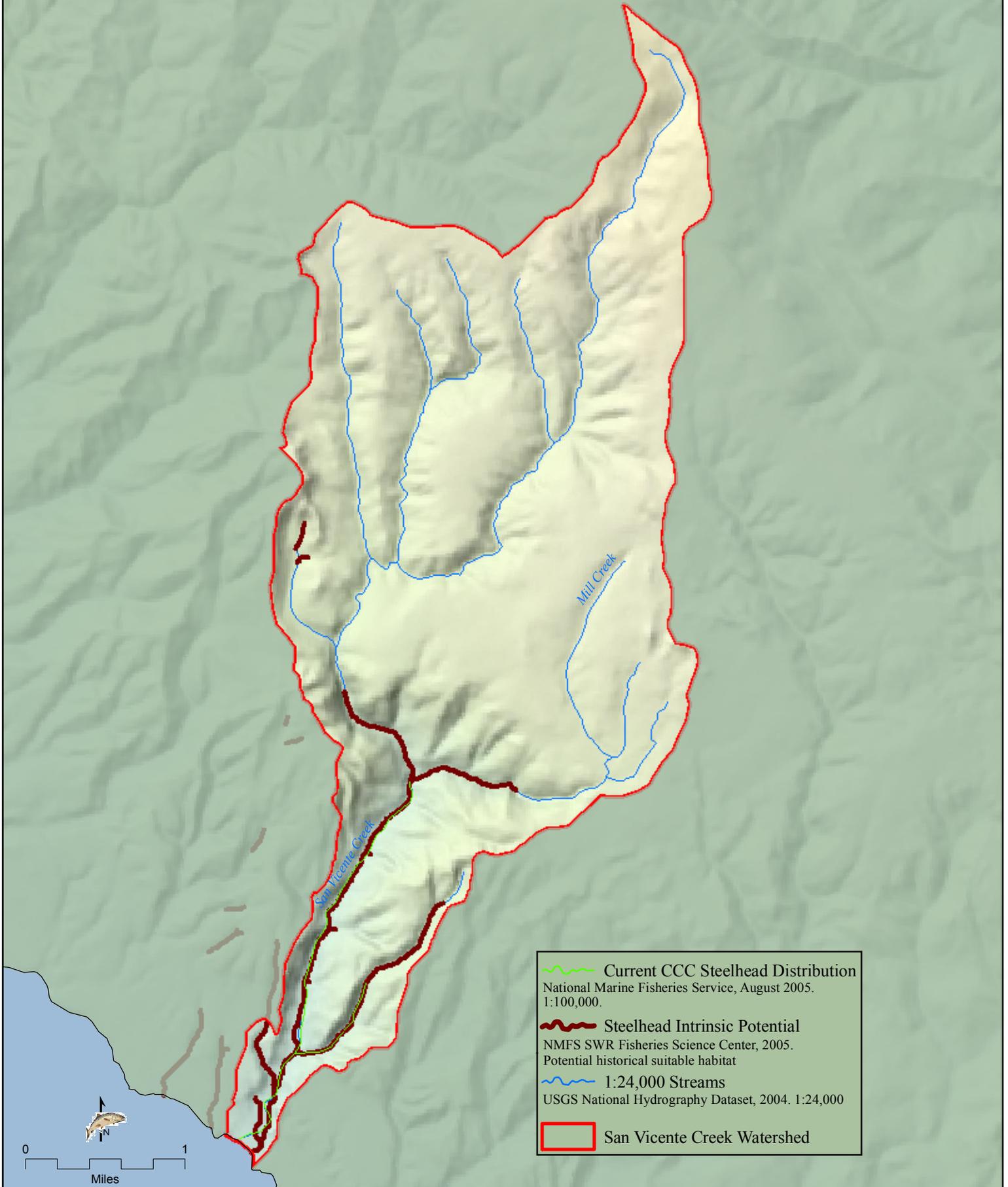




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## San Vicente Creek Watershed Steelhead Current vs. Historical





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# San Vicente Creek Watershed Coho Current vs. Historical



-  Current Coho Distribution  
CDFG - NCNCR-ISB, 2007. 1:100,000.
-  Coho Intrinsic Potential  
NMFS SWR Fisheries Science Center, 2005.  
Potential historical suitable habitat
-  1:24,000 Streams  
USGS National Hydrography Dataset, 2004.  
1:24,000
-  San Vicente Creek Watershed

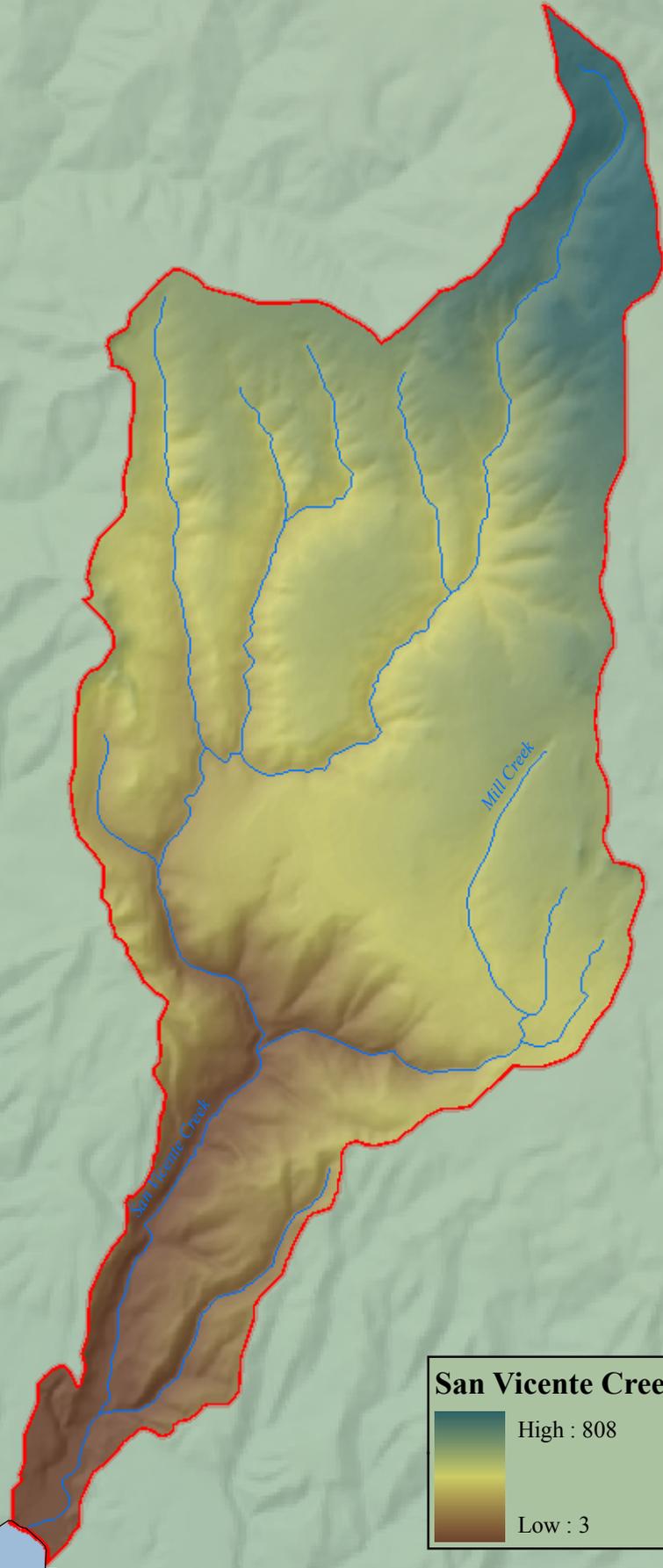




NMFS-SWR-HCD

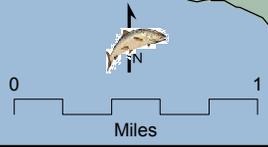
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# San Vicente Creek Watershed Elevation



**San Vicente Creek Elevation (Meters)**

	High : 808	SWR-SCFSC 10 Meter Digital Elevation Model (DEM)
	Low : 3	

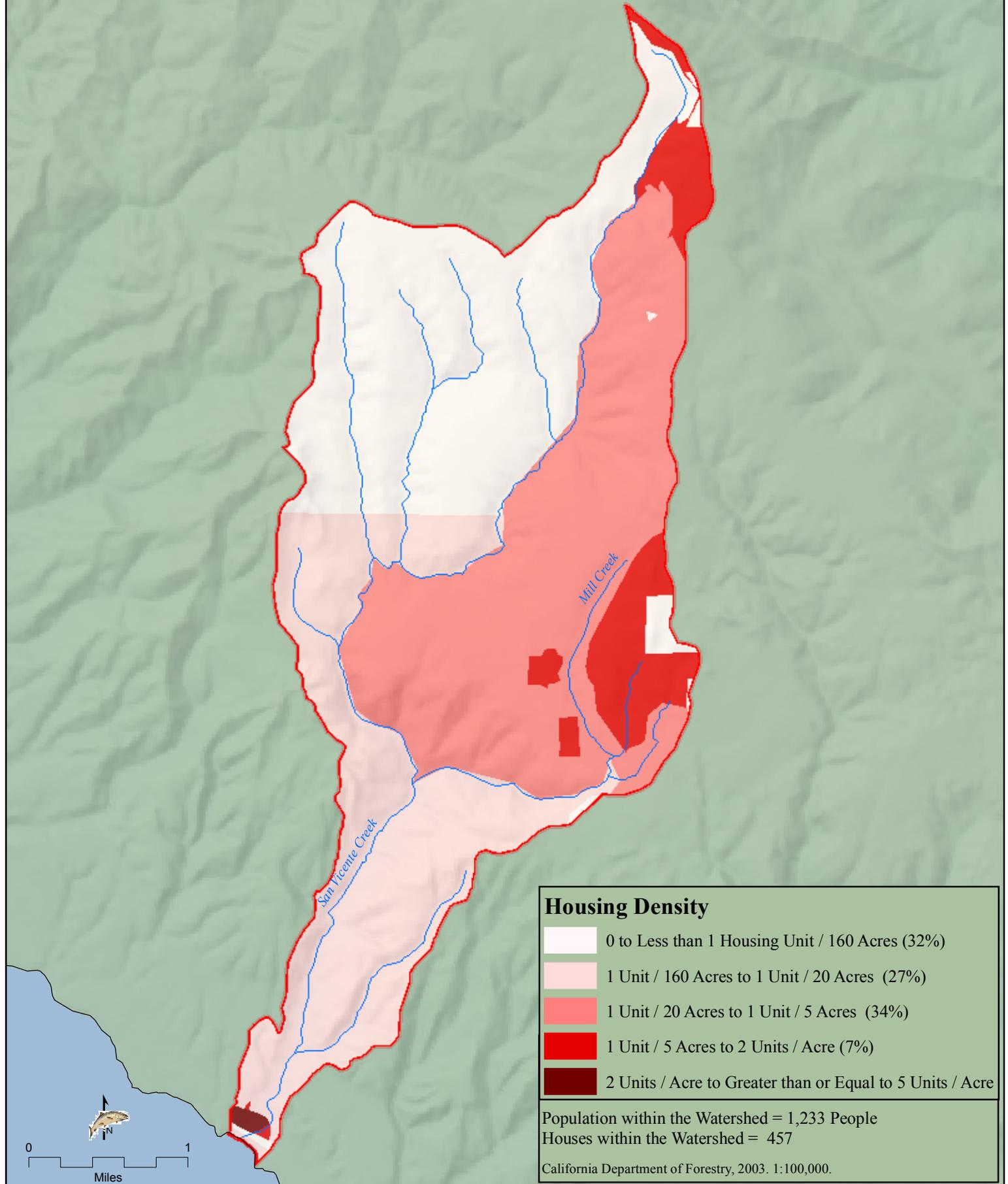




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# San Vicente Creek Watershed Development

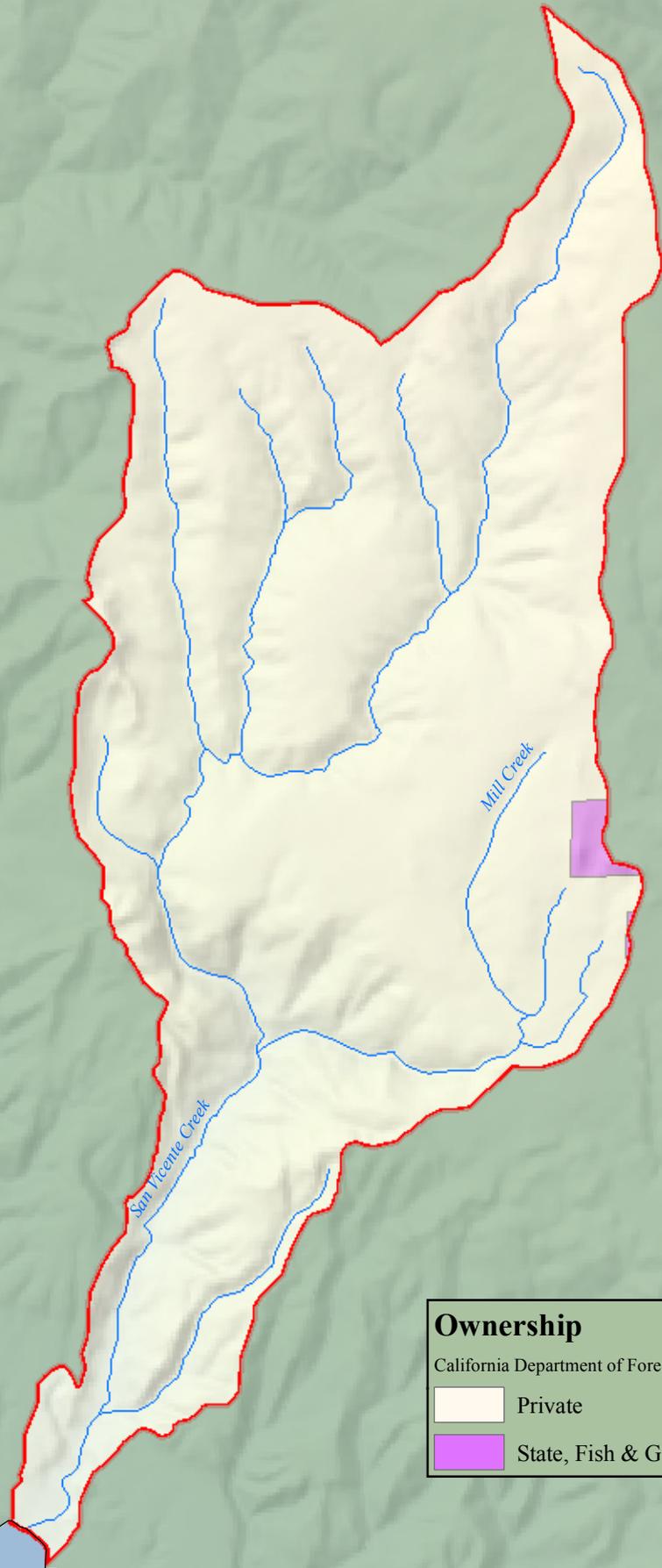




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# San Vicente Creek Watershed Ownership



## Ownership

California Department of Forestry, 1999. 1:100,000.

-  Private
-  State, Fish & Game

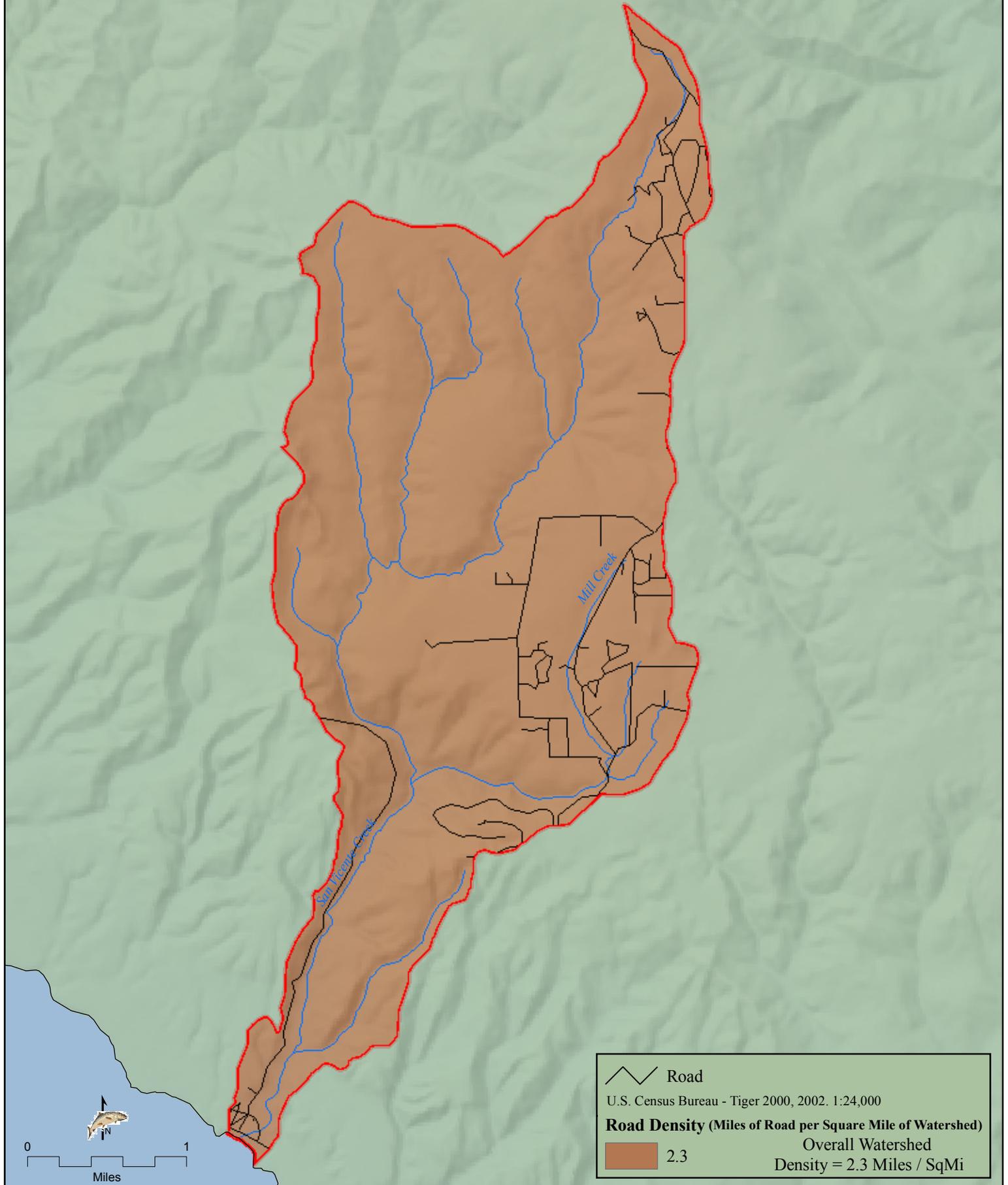




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# San Vicente Creek Watershed Road Density





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# San Vicente Creek Watershed Road Density in the Riparian Corridor

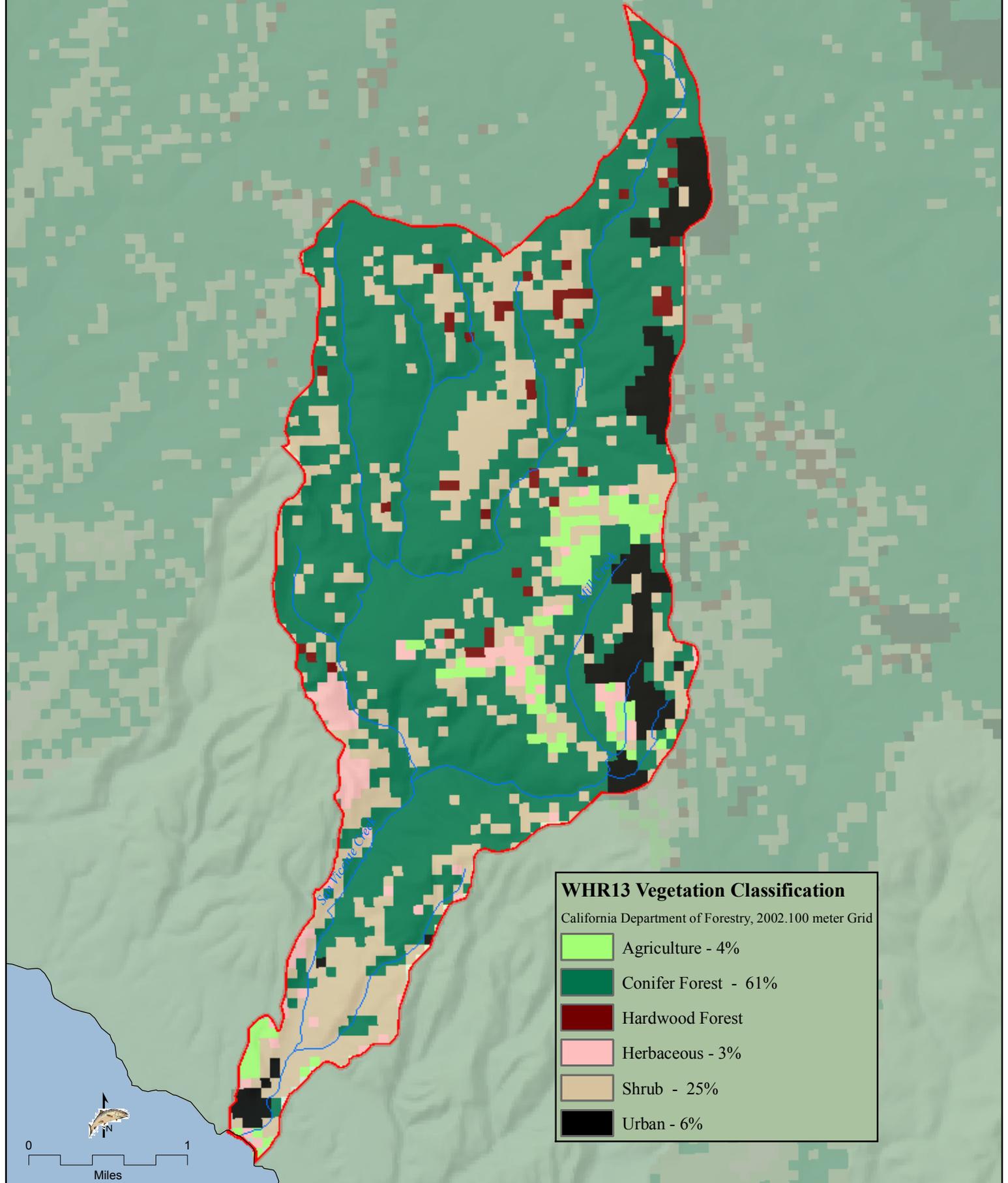




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# San Vicente Creek Watershed Vegetation

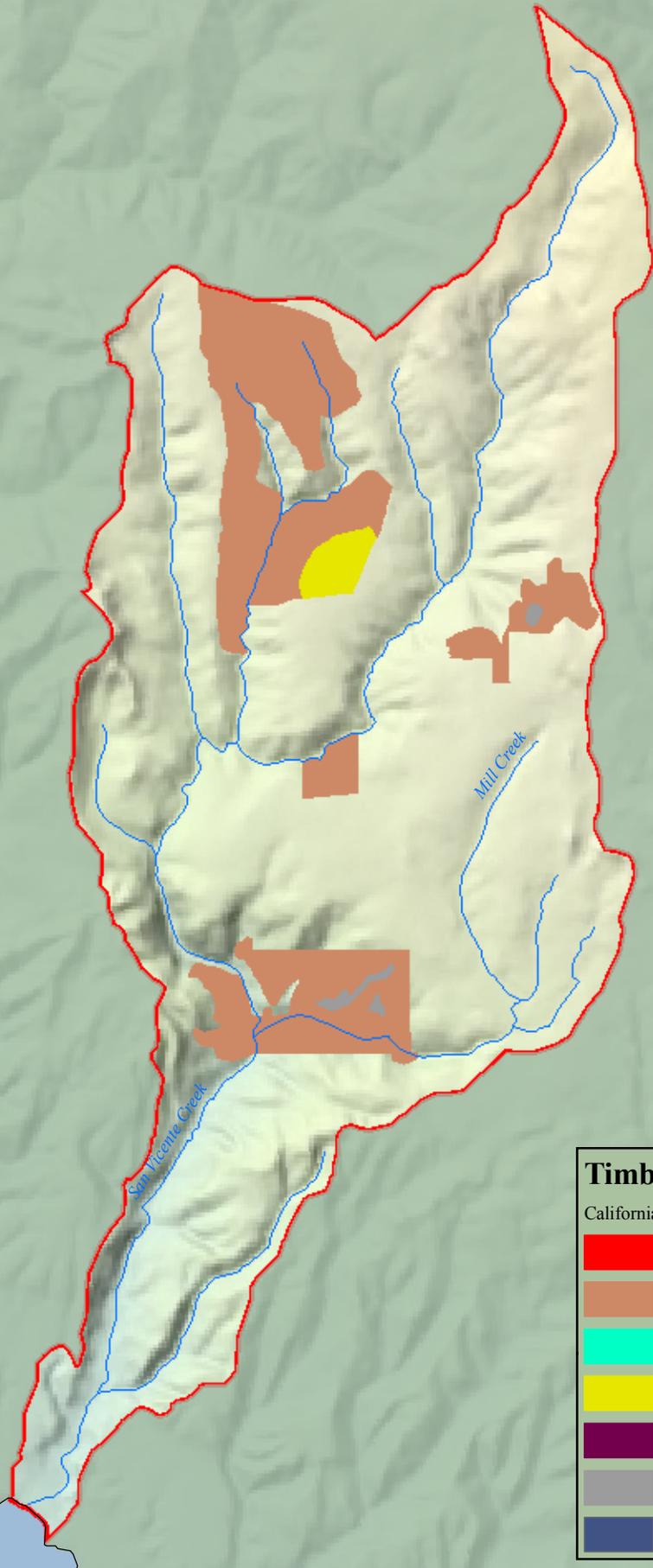




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# San Vicente Creek Watershed Timber Harvesting 1994-2006



## Timber Harvest Plans 1994-2006

California Department of Forestry, 2006.

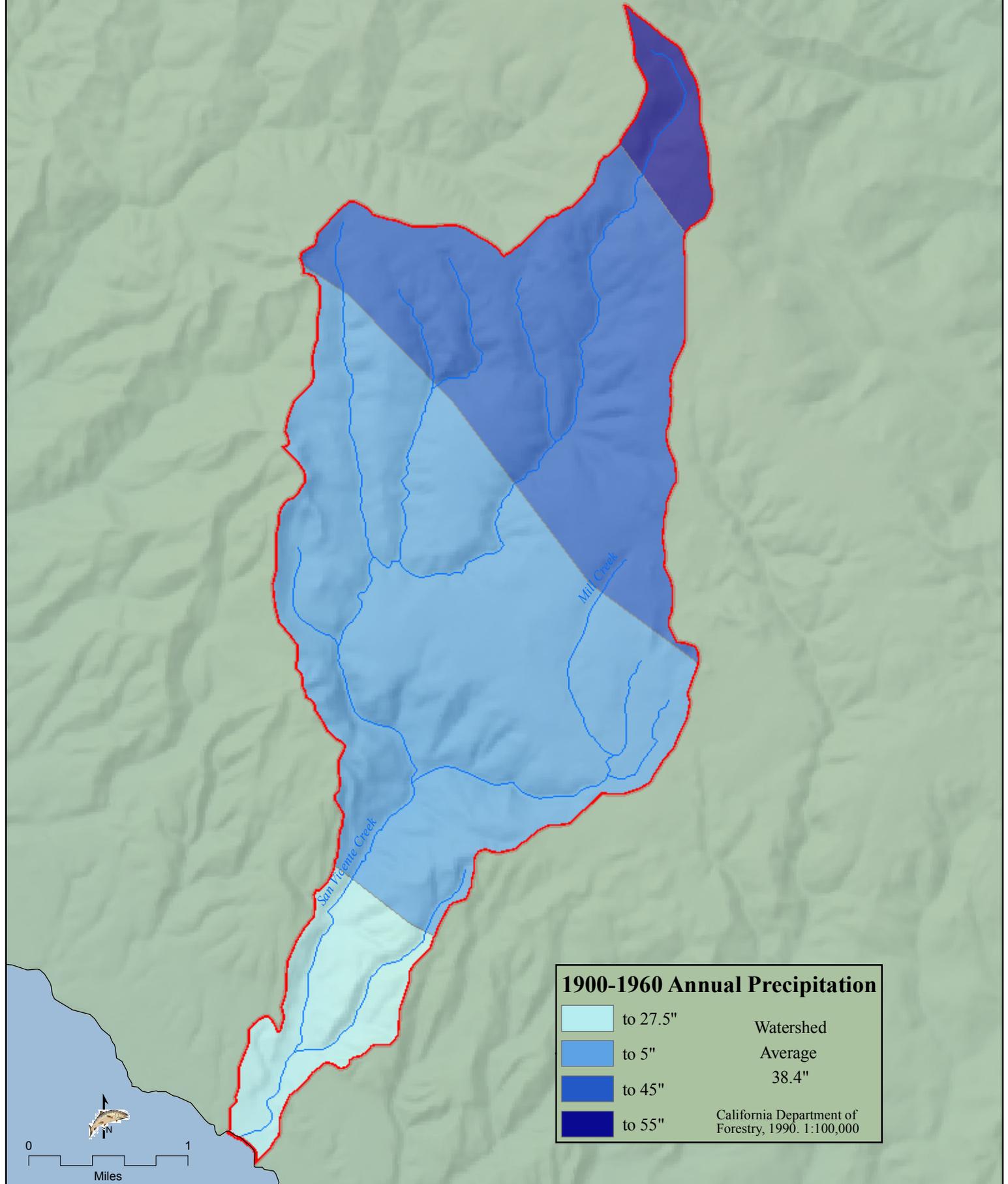
-  Clearcut
-  Uneven Age Removal
-  Even age Removal
-  Alternative Prescription
-  Transition
-  Outside THP
-  Not Coded



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# San Vicente Creek Watershed Precipitation

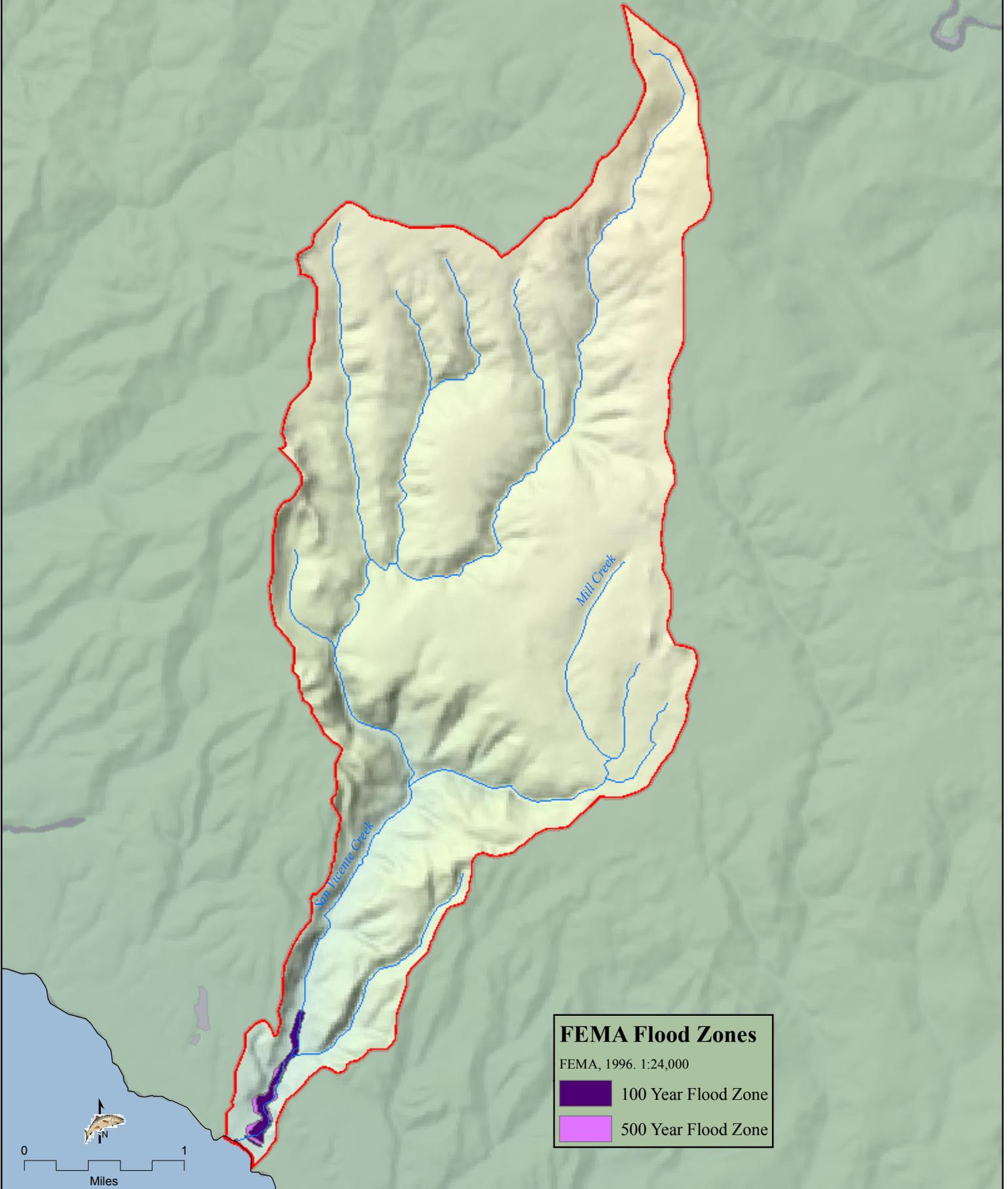




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# San Vicente Creek Watershed Flood Zone



**FEMA Flood Zones**  
FEMA, 1996, 1:24,000

- 100 Year Flood Zone
- 500 Year Flood Zone

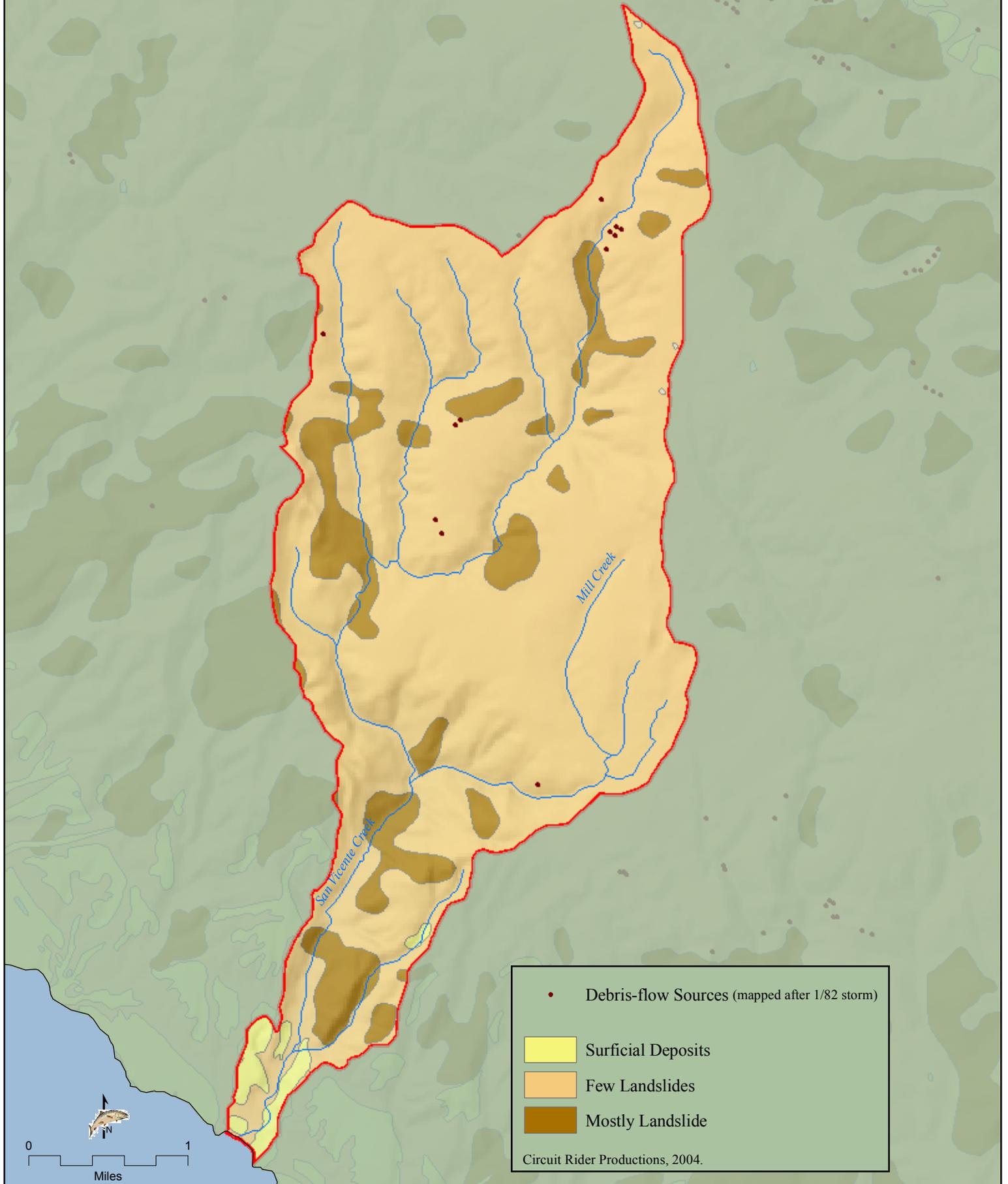




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# San Vicente Creek Watershed Geologic Features



• Debris-flow Sources (mapped after 1/82 storm)

Surficial Deposits

Few Landslides

Mostly Landslide

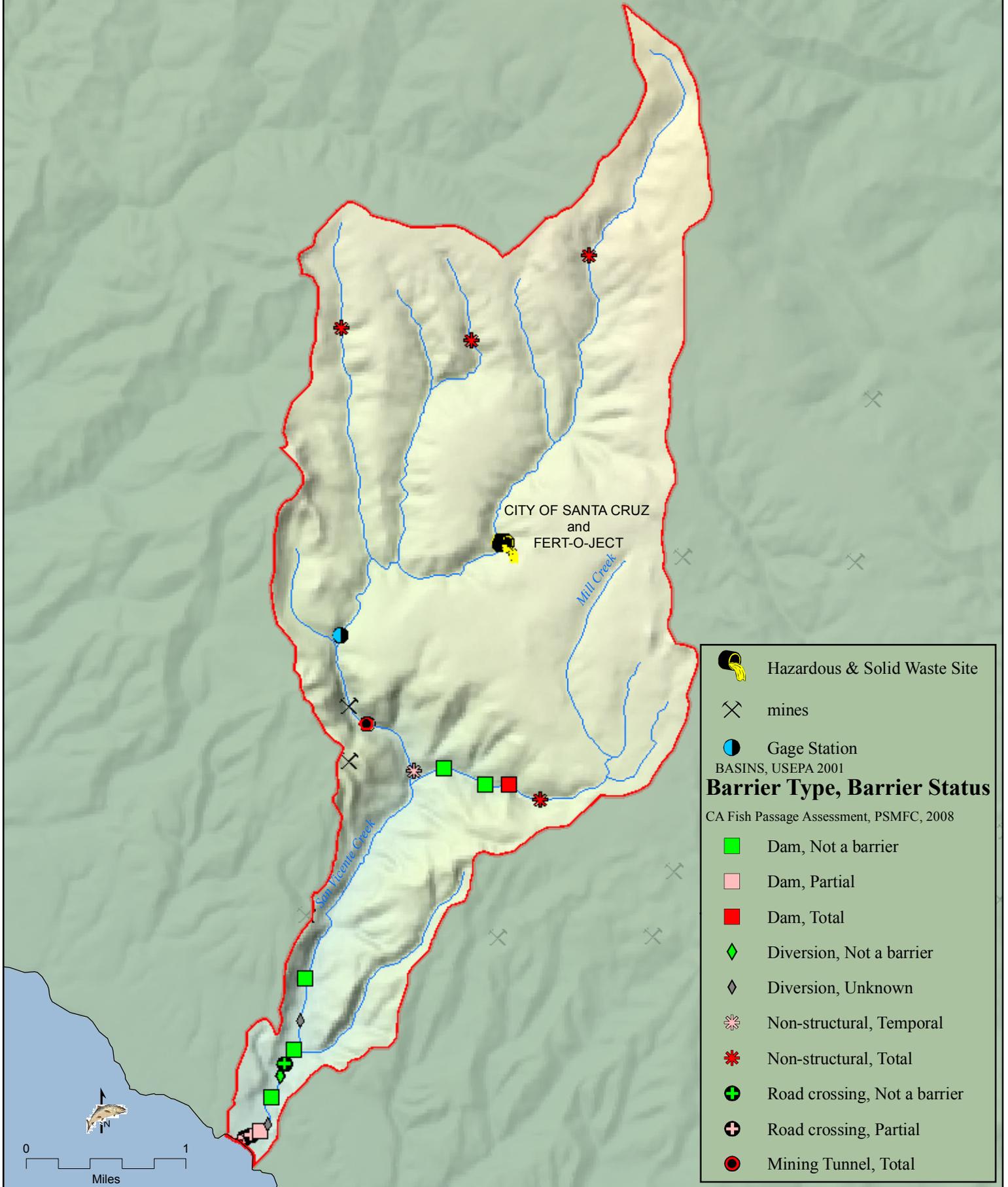
Circuit Rider Productions, 2004.



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# San Vicente Creek Watershed Barriers / Industrial Discharge / Gages

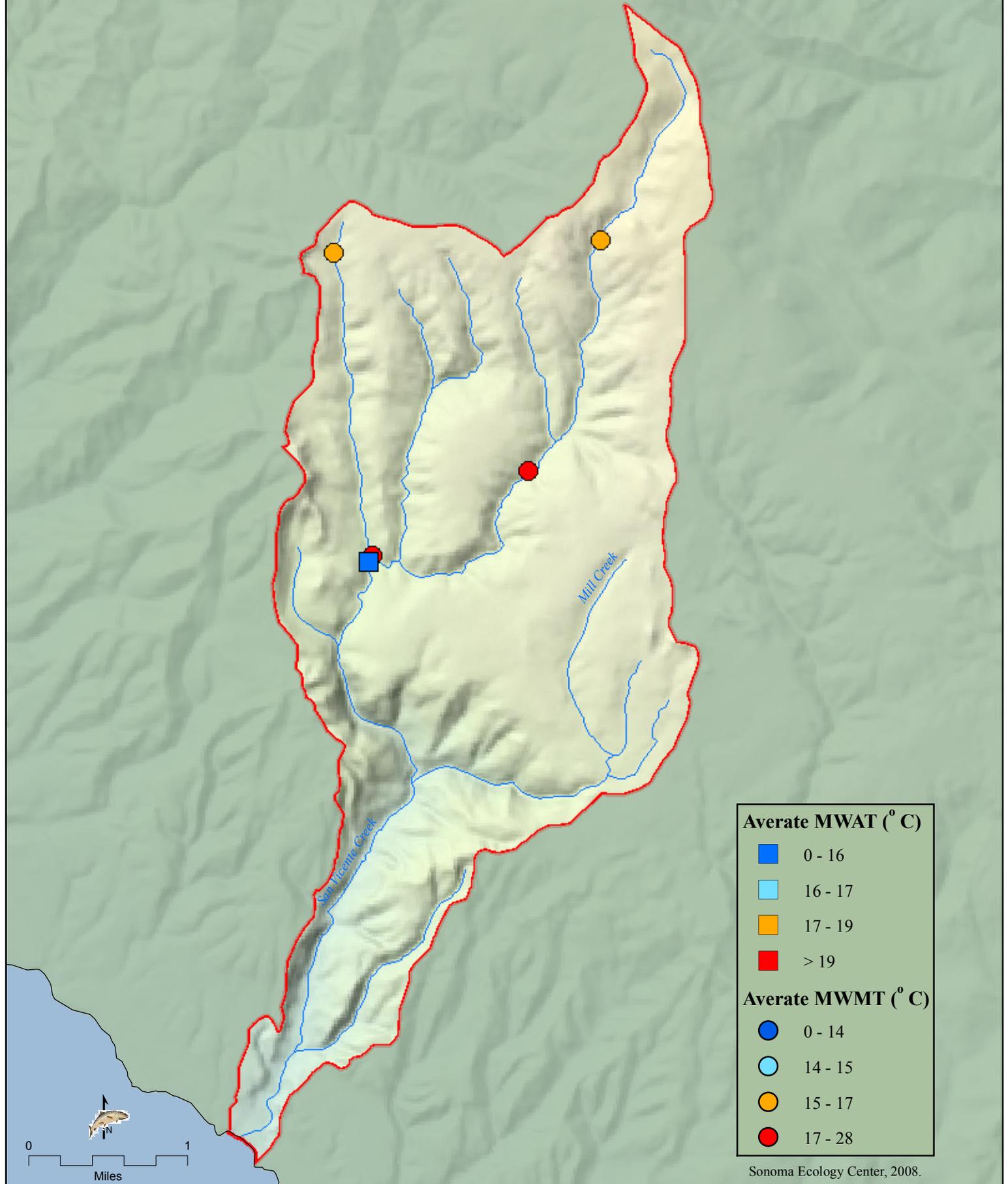




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# San Vicente Creek Watershed Temperature



## References

### Watersheds

calwater\_ver2\_2  
vector digital data  
California Watersheds (CALWATER 2.2)  
California Department of Forestry and Fire  
Protection  
1:24,000  
1999  
<http://www.ca.nrcs.usda.gov/features/calwater/>

### Distribution

Coho\_Distribution  
vector digital data  
Eric Haney - CDFG - NCNCR-ISB  
1:100,000  
2006  
Draft  
<http://www.calfish.org/>

CCC\_Steelhead\_Distribution\_06\_2005  
vector digital data  
National Marine Fisheries Service (NOAA  
Fisheries)  
1:100,000  
August 2005  
<http://swr.nmfs.noaa.gov/salmon/layers/finalgis.htm>

### Critical Habitat

CCC\_Steelhead\_ch\_06\_2005  
vector digital data  
National Marine Fisheries Service (NOAA  
Fisheries)  
1:100,000  
August 2005  
<http://swr.nmfs.noaa.gov/salmon/layers/finalgis.htm>

### Hydrology

1806 NHD Flowline  
vector digital data  
National Hydrography Dataset High Resolution  
United States Geological Survey  
1:24,000  
2004

### Dams

Dams\_2005  
vector digital data  
Goslin, M.,  
Santa Cruz Fishery Science Center

National Marine Fisheries Service  
2005  
<http://swfsc.noaa.gov/>

### Barriers and Diversions

pad\_september2008  
vector digital data  
California Fish Passage Assessment Database  
Pacific States Marine Fisheries Commission  
September 2006  
<http://www.calfish.org/>

### Precipitation

California Mean Annual Precipitation Zones, 1900-  
1960  
Vector digital data  
California Department of Forestry and Fire  
Protection 1990  
1:100,000  
<http://frap.cdf.ca.gov/data/frapgisdata/select.asp>

### Roads

TGRR00  
vector digital data  
Roads  
United States Census Bureau  
1:100000  
2000  
<http://www.census.gov/geo/www/tiger/>

### Elevation

Spline6  
10 Meter Digital Elevation Model (DEM)  
NOAA Fisheries, Santa Cruz Laboratory  
2003

### Vegetation

fveg02\_2  
raster digital data  
Multi-source Land Cover Data  
California Department of Forestry and Fire  
Protection  
100 meter Grid  
2002  
<http://frap.cdf.ca.gov/data/frapgisdata/select.asp>

### **Erodability**

Highly Erodible Watersheds  
vector digital data  
Department of Conservation, Division of Mines and Geology  
Minimum Mapping Unit: Approximately 8000 Acres (20,000 Hectares)  
1994  
<http://gis.ca.gov/catalog/BrowseRecord.epl?id=380>

### **Land Ownership**

GOVTOWNA  
vector digital data  
California Department of Forestry Forest and Rangeland Resources Assessment Program  
Bureau of Land Management Surface Management  
1:100,000  
September 1999  
<http://old.casil.ucdavis.edu/casil/gis.ca.gov/teale/govtowna/>

### **Timber Harvesting**

thp\_(year)  
Annual Timber Harvest Plans  
vector digital data  
California Department of Forestry and Fire Protection  
Santa Rosa, CA  
1983-2001

### **Developed Area and Population**

Census 2000 Block Data (Migrated)  
vector digital data  
California and the Department of Forestry and Fire Protection, FRAP  
2003  
1:100,000  
<http://frap.cdf.ca.gov/data/frapgisdata/select.asp>

### **Imagery**

naip\_1-1\_2n\_s\_ca087\_2006\_1 (Santa Cruz)  
remote-sensing image  
raster digital data  
National Agriculture Imagery Program (NAIP)  
USDA-FSA Aerial Photography Field Office  
Salt Lake City, Utah  
2004  
<http://datagateway.nrcs.usda.gov/GatewayHome.html>

### **Historic Suitable Habitat (Coho, Chinook, Steelhead)**

Intrinsic Potential Model  
vector digital data  
NOAA Fisheries  
Santa Cruz Laboratory, Santa Cruz, CA  
2005  
<http://swfsc.noaa.gov/>

### **Forest Industrial Ownership**

nwca\_own  
vector digital data  
United States Fish and Wildlife Service  
Arcata, CA  
2000

### **Temperature**

MWMT\_20080117\_selected\_watersheds  
Vector digital data  
Sonoma Ecology Center  
2008

MWAT\_20080117\_selected\_watersheds  
Vector digital data  
Sonoma Ecology Center  
2008

### **Geologic Features**

Geopoint  
vector digital data  
Department of Conservation, Division of Mines and Geology  
Minimum Mapping Unit: Approximately 8000 Acres (20,000 Hectares)  
1994

Gorge  
vector digital data  
Department of Conservation, Division of Mines and Geology  
Minimum Mapping Unit: Approximately 8000 Acres (20,000 Hectares)  
1994

### **Records Management System (RMS)**

### **Public Consultation Tracking System (PCTS)**

National Marine Fisheries Service  
Oracle Databases  
2008