



*San Lorenzo Creek Watershed*

Area	Hydrologic Units	Calwater Subbasins ---	(Planning Watersheds)
29,530 Acres	18050004	2204200201	Polomares Creek (10,705 Acres)
11,950 Hectares	4th Field HUC	2204200202	Crow Creek (13,224 Acres)
46 Square Miles		2204200203	San Lorenzo Creek (4,819 Acres)
		2204200400	Oakland Creek (782 Acres)
<b>Location</b>		220420	
Alameda County		4th Field Calwater	

Species Potential	Miles of Streams with Species Present
Central California Coast <b>Steelhead</b> Interior San Francisco Bay Diversity Stratum - Independent Population	<u>Steelhead</u> 17 NOAA Fisheries, Critical Habitat Redesignation, 2005

Critical Habitat	Miles of Stream
Central California Coast Steelhead	0 Miles of Stream

Miles of Waterway <sup>A</sup>	Miles	Number of Dams <sup>C</sup>
Naturally Occurring Waterways		36
Intermittent Stream	65	6 - Impassable
Perennial Stream	40	2 - Not a Barrier
		28 - Temporal &/or Partial Barriers

<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>
11180810	107
Palomares Creek near Hayward	36 Dams
11180825	19 Road Crossings (5 Impassable, 9 Temp. &/or Partially Impassable)
San Lorenzo Creek above Don Castro Reservoir near Castro Valley	16 Natural Barriers (Chutes, Falls, Log Jams, etc. (2 Impassable))
11180900	30 diversions
Crow Creek near Hayward	
11180960	
Cull Creek above Cull Creek Reservoir near Castro Valley	
11180965	
Cull Creek below Cull Creek Reservoir near Castro Valley	
11181000	
Can Lorenzo Creek at Hayward	
11181004	
Castro Valley Creek at Castro Valley	
11181006	
Castro Valley Creek at Knox Street	
11181008	
Castro Valley Creek at Hayward	
11181040	
San Lorenzo Creek at San Lorenzo	

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

<sup>B</sup>US Environmental Protection Agency BASINS Project, 2001



EPA Total Maximum Daily Load Classification (TMDL)<sup>l</sup>

Diazinon

Sources: Urban Runoff / Storm Sewer

<sup>l</sup>State Water Resources Control Board, 2006

Average Annual Precipitation <sup>E</sup>	Average Annual Precipitation Range <sup>E</sup>
23.5"	18" - 27.5"

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

Roads <sup>A</sup>	Miles
Roads in Watershed	
Primary Road / Highway	8
Secondary and connecting road, state highways	2
Local, neighborhood, and rural road, city street, unseparated	223
Vehicular trail, 4WD	4
Driveway or service road	2
Total Miles	239

Road Density	
Miles of Roads per SqMi of Watershed	5.2
Miles of Roads per SqMi of 100m Riparian Buffer*	4.8

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

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

Slope <sup>D</sup>	Acres	Percent of watershed
Lands of 0-2 percent slope	1,379	5%
Lands of 2-4 percent slope	1,246	4%
Lands of 4-10 percent slope	2,542	9%
Lands of 10-15 percent slope	2,209	7%
Lands of 15-30 percent slope	8,077	27%
Lands of 30-60 percent slope	12,580	42%
Lands of 60-100 percent slope	1,567	5%
Lands of 100-117 percent slope	3	0%

Elevation Range	0 - 1,949 ft.	0 - 594 m
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<sup>D</sup>Slope derived from USGS 10 meter Digital Elevation Models (DEM's)

Vegetation <sup>G</sup>	Acres	Percent of watershed
Annual grassland	5,357	18%
Conifer Forest		
Unknown Conifer	707	2%
Hardwood Forest		
Montane Hardwood	526	2%
Hardwood Woodland		
Coastal Oak Woodland	5,683	19%
Valley Foothill Riparian	7	0%
Shrub	8,980	30%
Urban	8,322	28%
Water	42	0%
Wetland	2	0%

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



<b>Land Ownership<sup>H</sup></b>	Acres	Percent of watershed
Private	28,939	98%
Local, City/County Park	665	2%

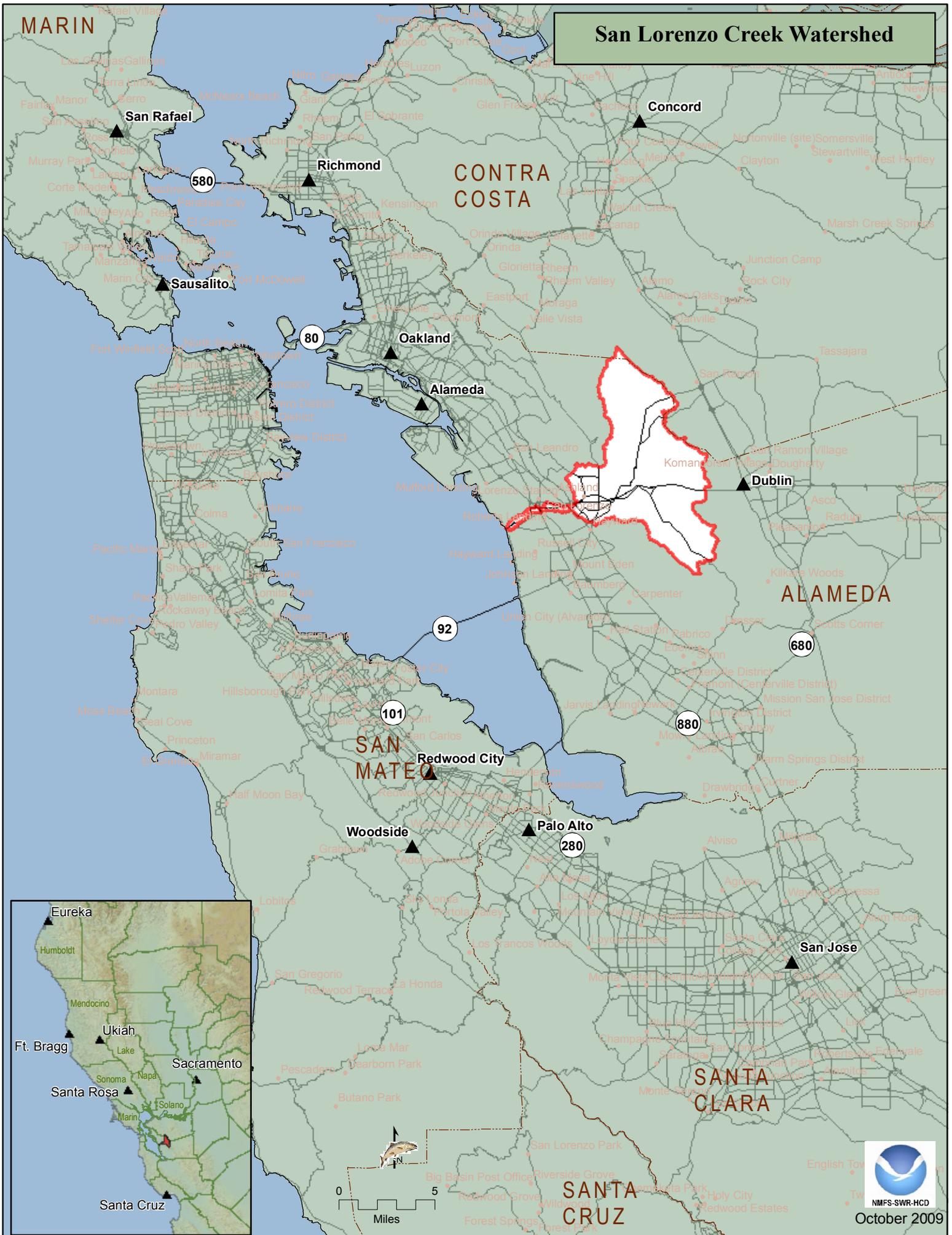
<sup>H</sup>Management Landscape, CA Department of Forestry, 2002

<b>Population<sup>I</sup></b>	<b>Housing<sup>I</sup></b>
Total Population within the watershed -- 76,719 People	Total Housing Units within the watershed -- 29,457 Houses
	Housing Density
	0 to Less than 1 Housing Unit / 160 Acres (20%)
	1 Unit / 160 Acres to 1 Unit / 20 Acres (45%)
	1 Unit / 20 Acres to 1 Unit / 5 Acres (1%)
	1 Unit / 5 Acres to 2 Units / Acre (16%)
	2 Units / Acres to Greater than or Equal to 5 Units / Acre (17%)

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



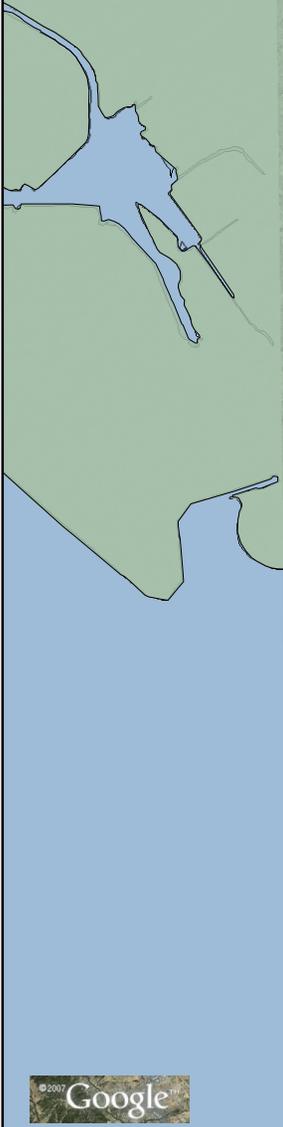
# San Lorenzo Creek Watershed





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# San Lorenzo Creek Watershed





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# San Lorenzo Creek Watershed CalWater Planning Watersheds





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October 2009

# San Lorenzo Creek Watershed Fish Distribution

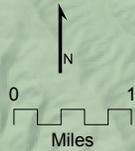
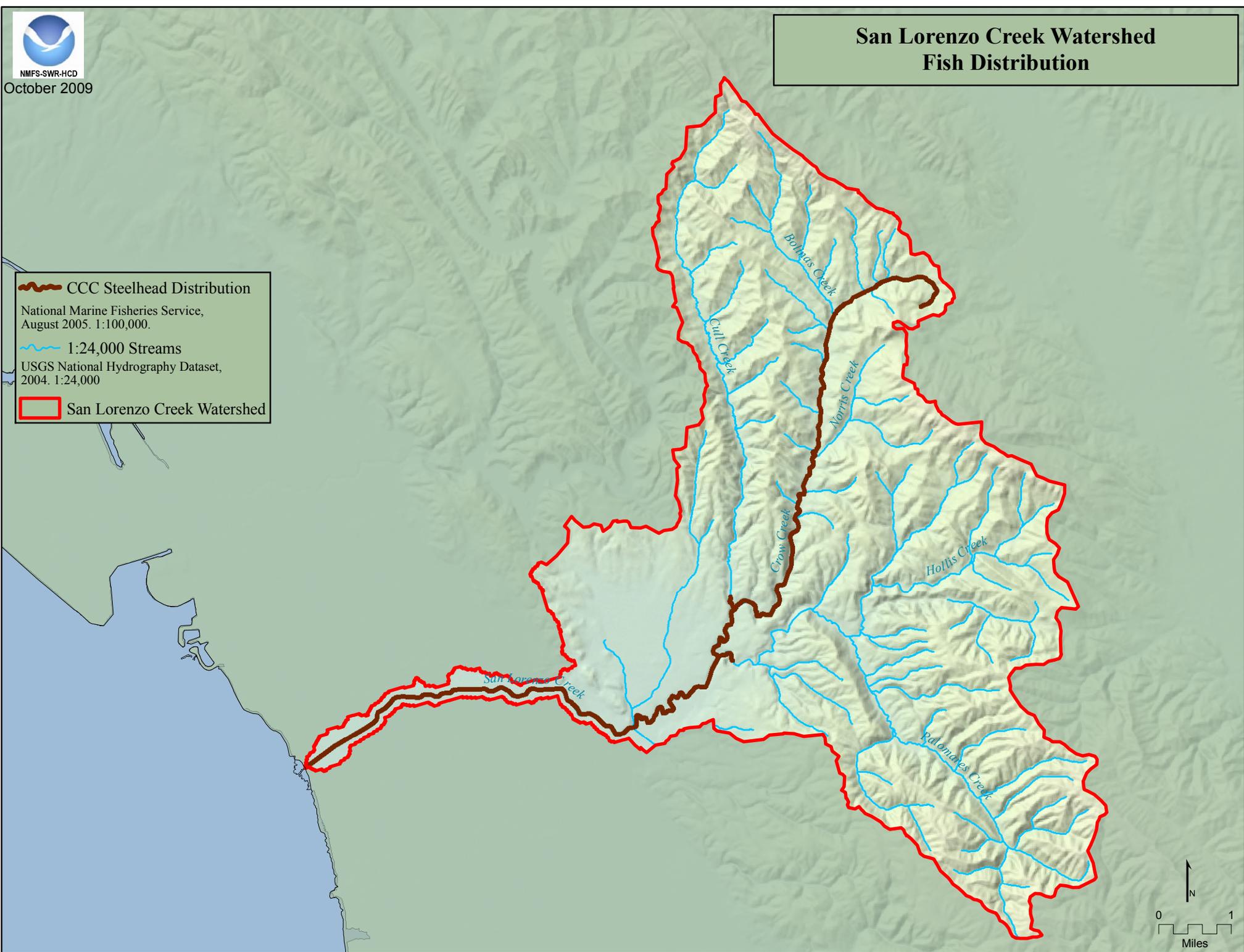
 CCC Steelhead Distribution

National Marine Fisheries Service,  
August 2005. 1:100,000.

 1:24,000 Streams

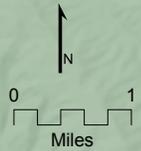
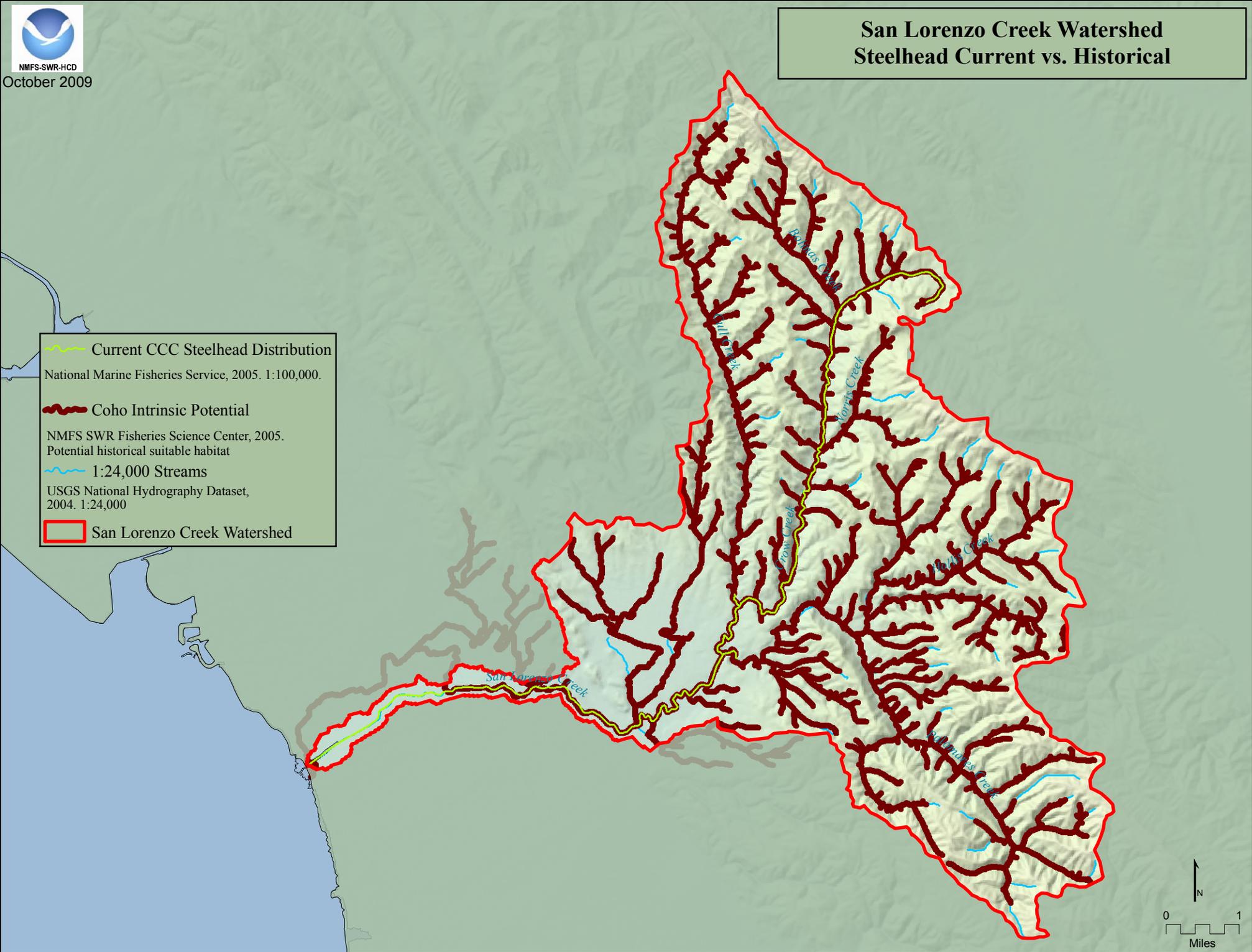
USGS National Hydrography Dataset,  
2004. 1:24,000

 San Lorenzo Creek Watershed



# San Lorenzo Creek Watershed Steelhead Current vs. Historical

-  Current CCC Steelhead Distribution  
National Marine Fisheries Service, 2005. 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 Lorenzo Creek Watershed



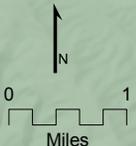
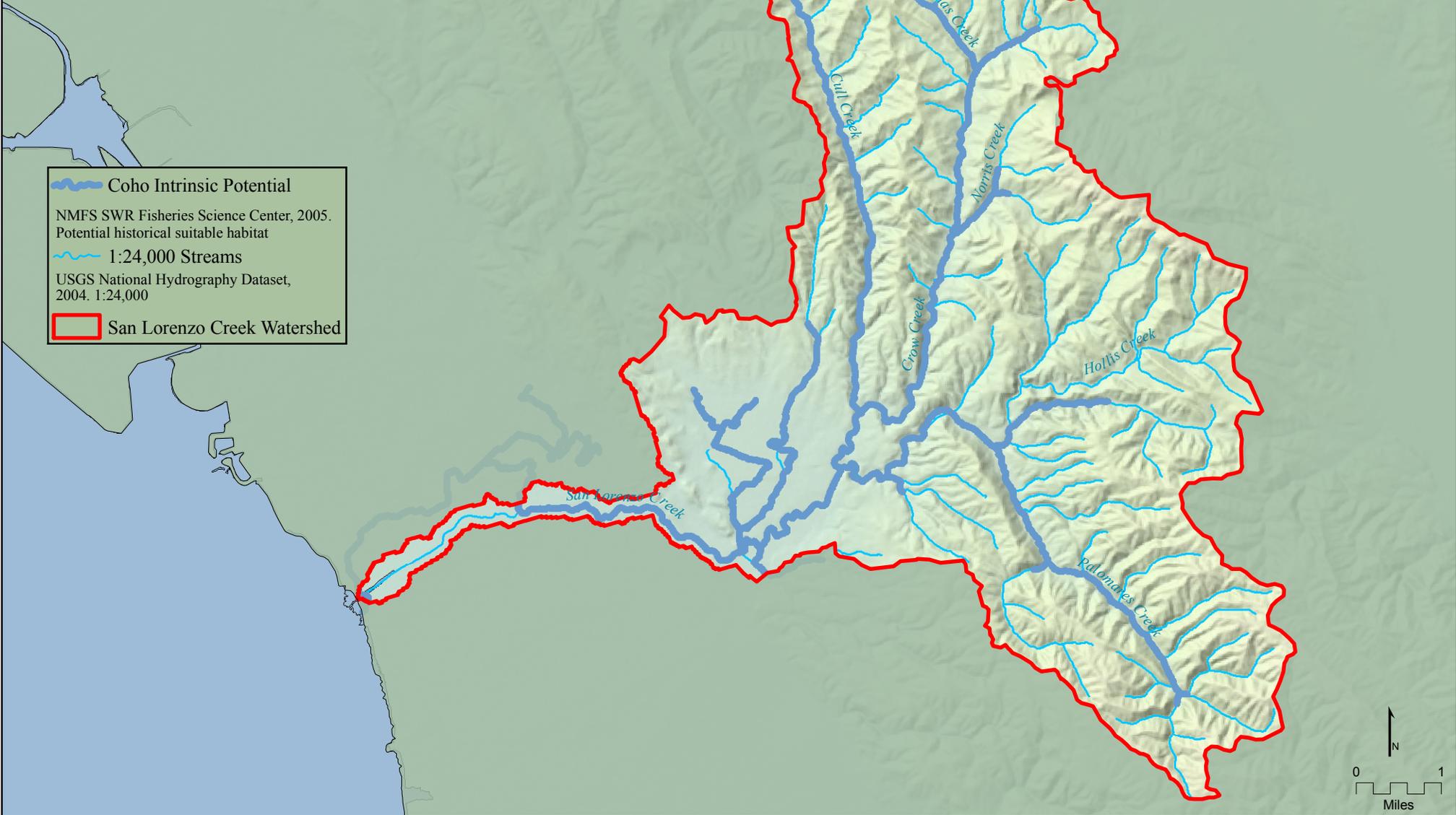


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# San Lorenzo Creek Watershed Coho Historical

-  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 Lorenzo Creek Watershed



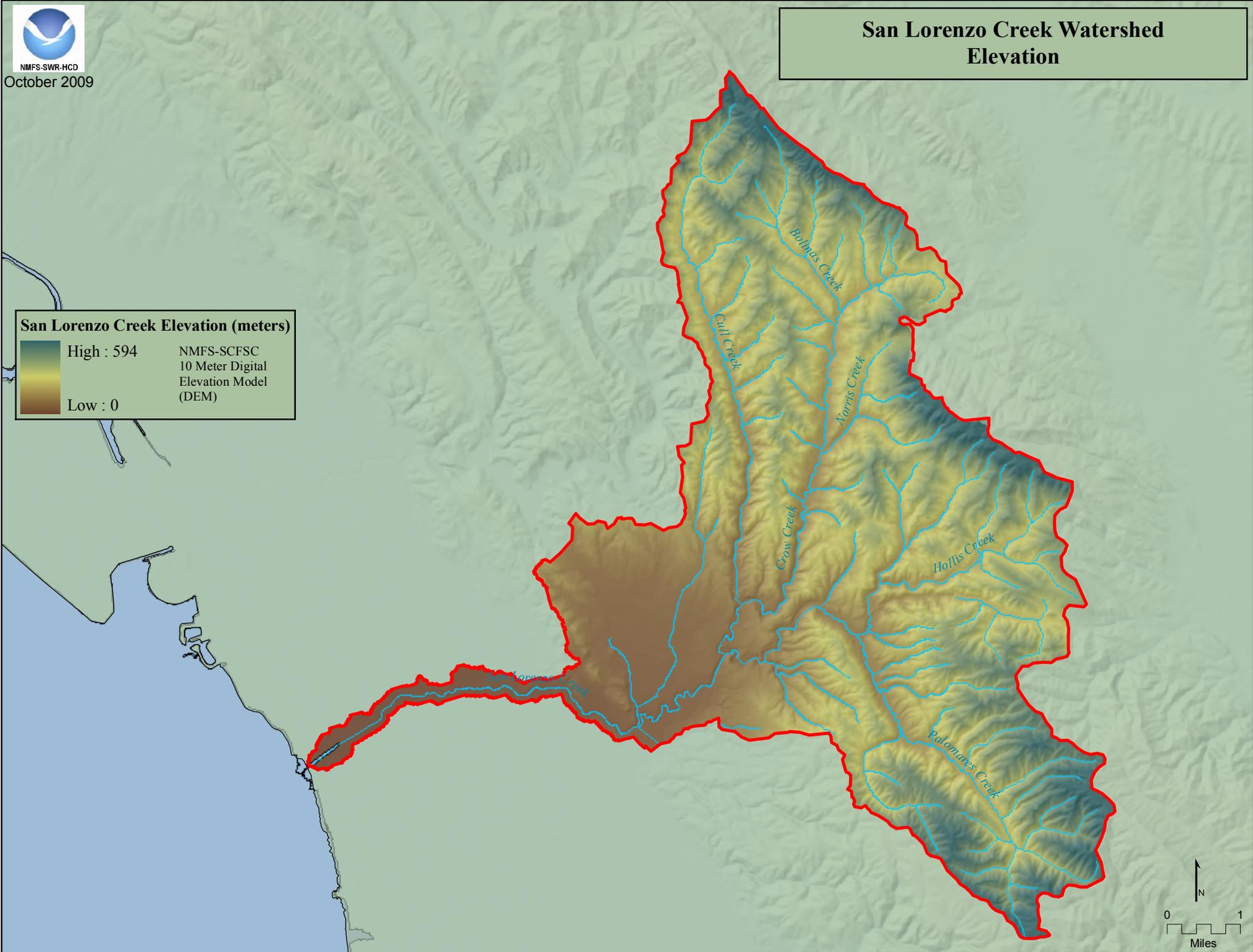
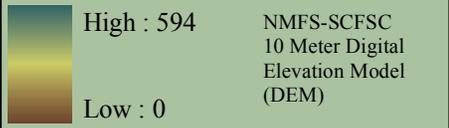


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# San Lorenzo Creek Watershed Elevation

## San Lorenzo Creek Elevation (meters)





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# San Lorenzo Creek Watershed Development

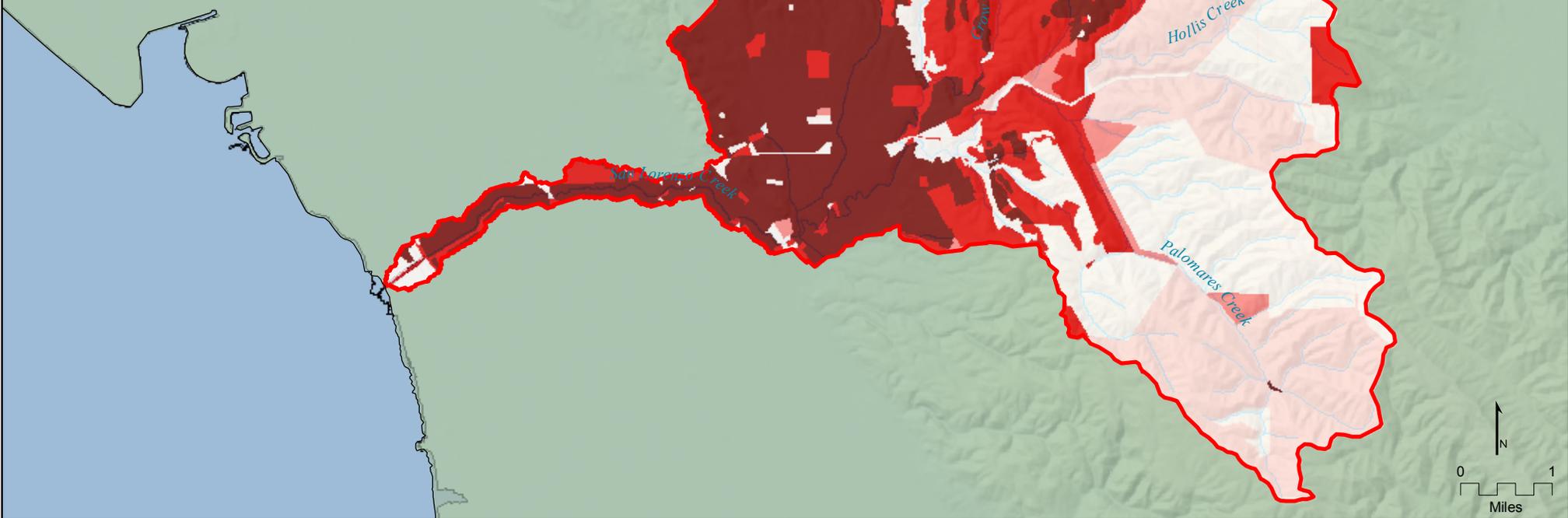
## Housing Density

-  0 to Less than 1 Housing Unit / 160 Acres (20%)
-  1 Unit / 160 Acres to 1 Unit / 20 Acres (45%)
-  1 Unit / 20 Acres to 1 Unit / 5 Acres (1%)
-  1 Unit / 5 Acres to 2 Units / Acre (16%)
-  2 Units / Acre to Greater than or Equal to 5 Units / Acre (17%)

Population within the Watershed = 76,719 People

Houses within the Watershed = 29,457

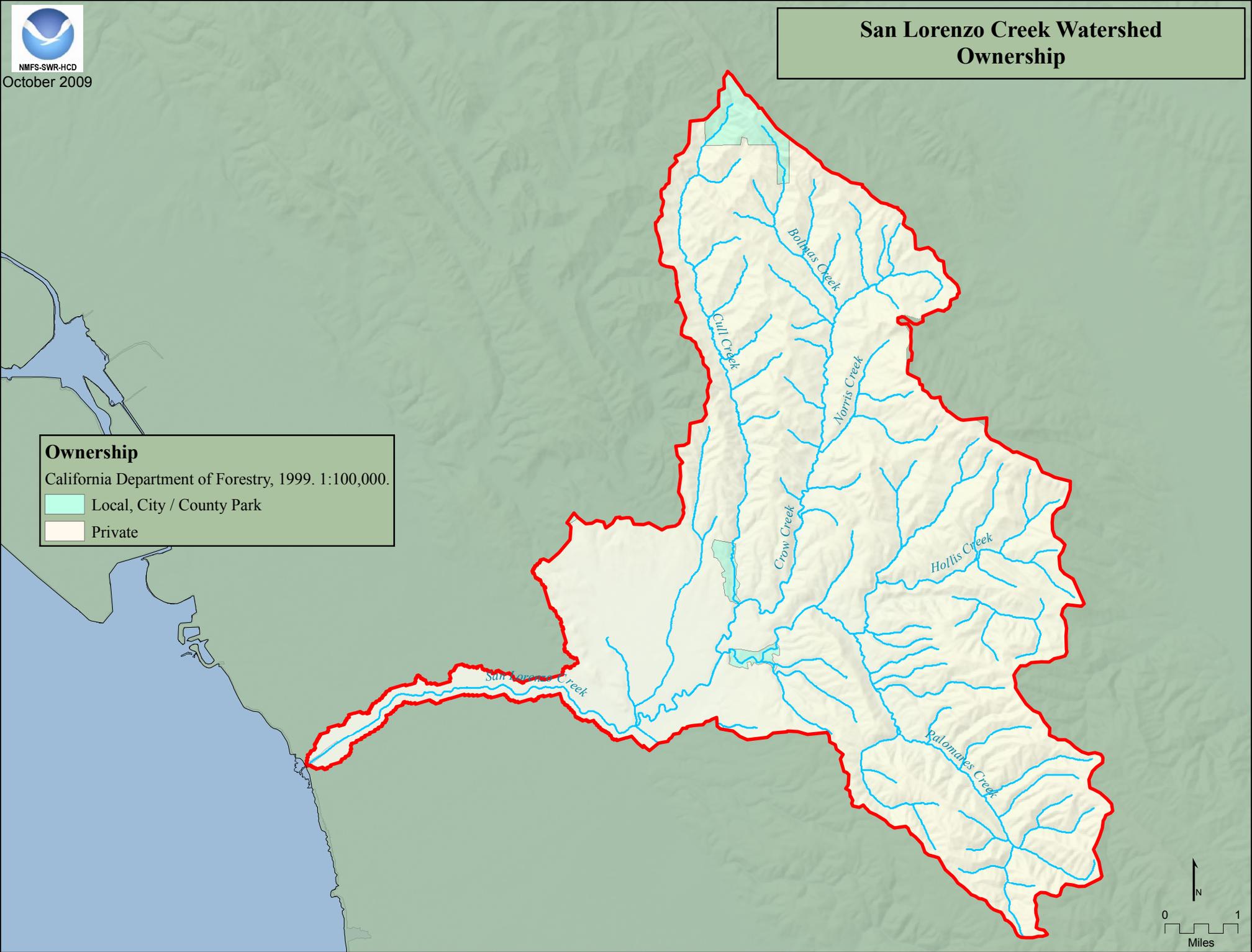
California Department of Forestry, 2003. 1:100,000.



# San Lorenzo Creek Watershed Ownership

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

- Local, City / County Park
- Private



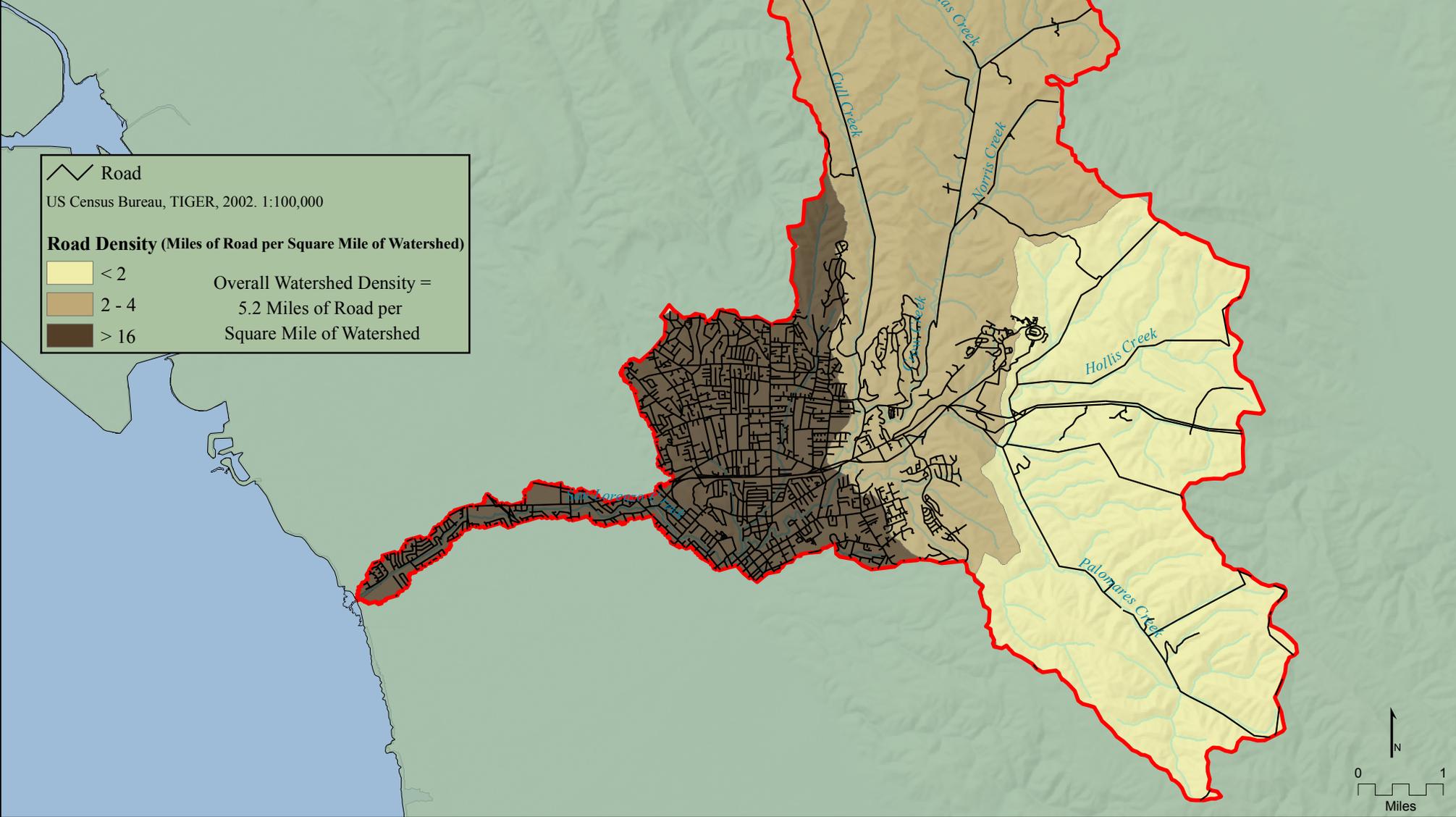
# San Lorenzo Creek Watershed Road Density

 Road  
US Census Bureau, TIGER, 2002. 1:100,000

**Road Density (Miles of Road per Square Mile of Watershed)**

	< 2
	2 - 4
	> 16

Overall Watershed Density =  
5.2 Miles of Road per  
Square Mile of Watershed



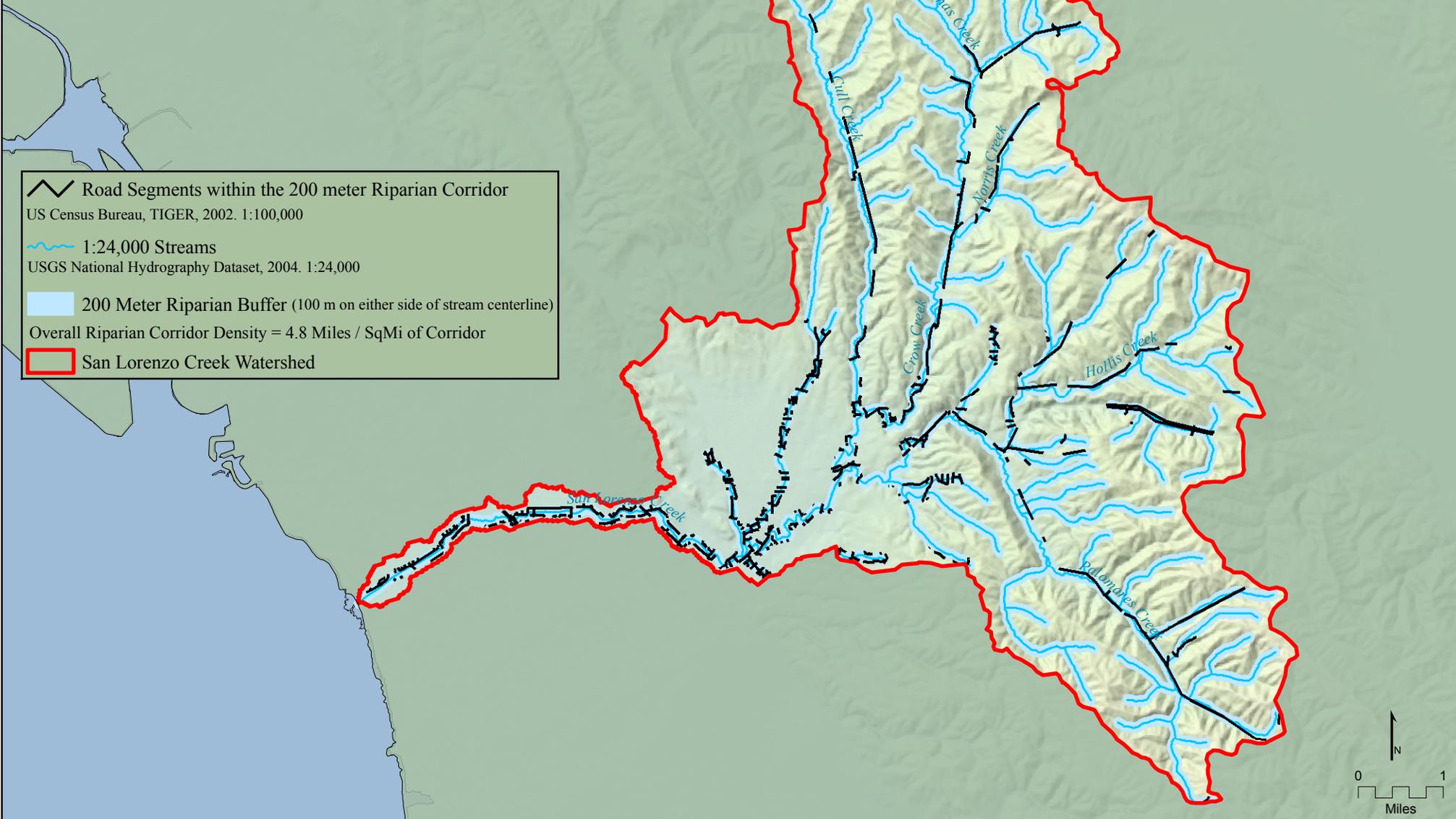


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## San Lorenzo Creek Watershed Road Density in the Riparian Corridor

-  Road Segments within the 200 meter Riparian Corridor  
US Census Bureau, TIGER, 2002. 1:100,000
-  1:24,000 Streams  
USGS National Hydrography Dataset, 2004. 1:24,000
-  200 Meter Riparian Buffer (100 m on either side of stream centerline)  
Overall Riparian Corridor Density = 4.8 Miles / SqMi of Corridor
-  San Lorenzo Creek Watershed





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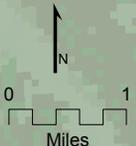
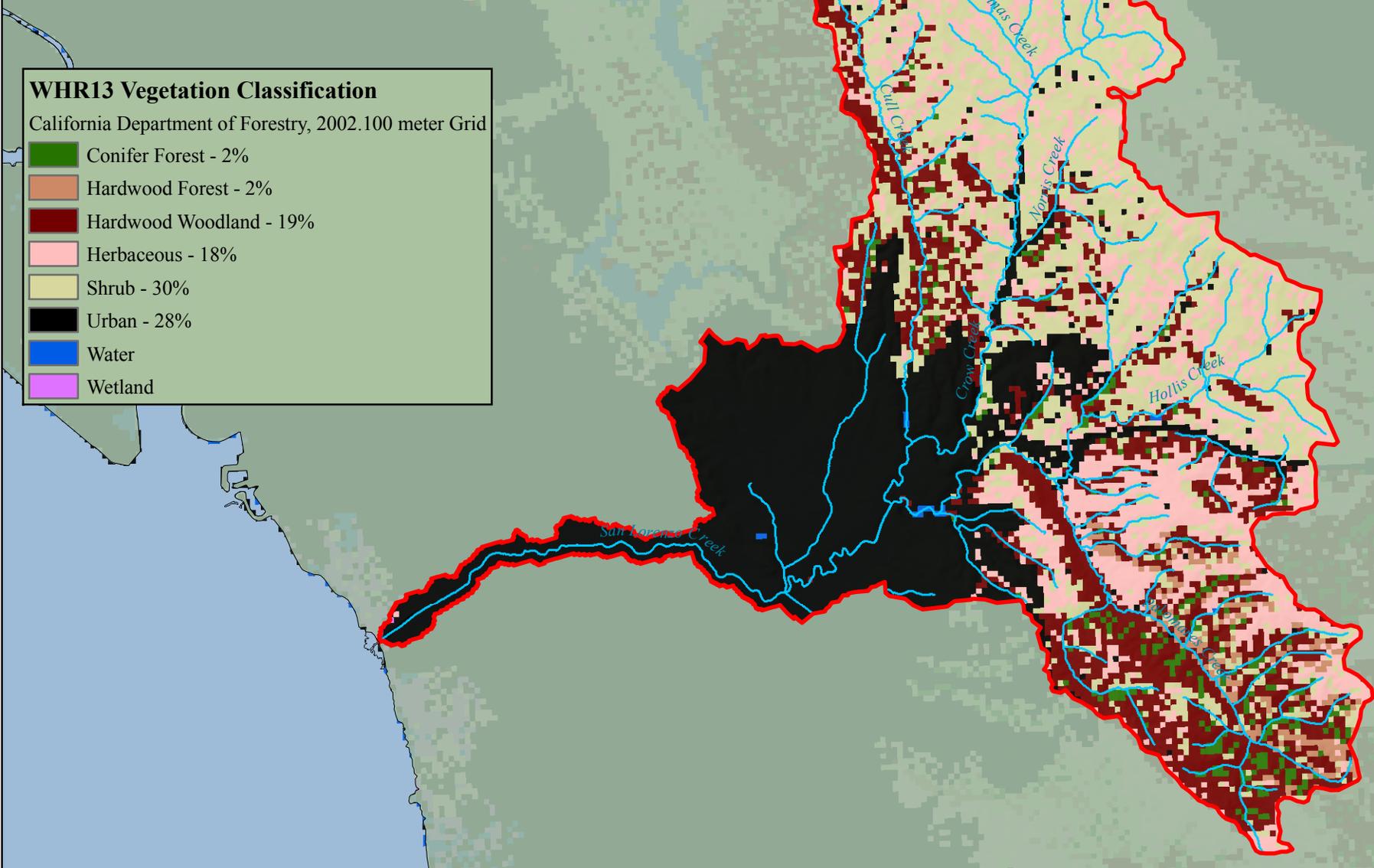
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# San Lorenzo Creek Watershed Vegetation

## WHR13 Vegetation Classification

California Department of Forestry, 2002.100 meter Grid

- Conifer Forest - 2%
- Hardwood Forest - 2%
- Hardwood Woodland - 19%
- Herbaceous - 18%
- Shrub - 30%
- Urban - 28%
- Water
- Wetland





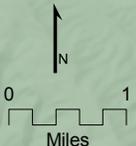
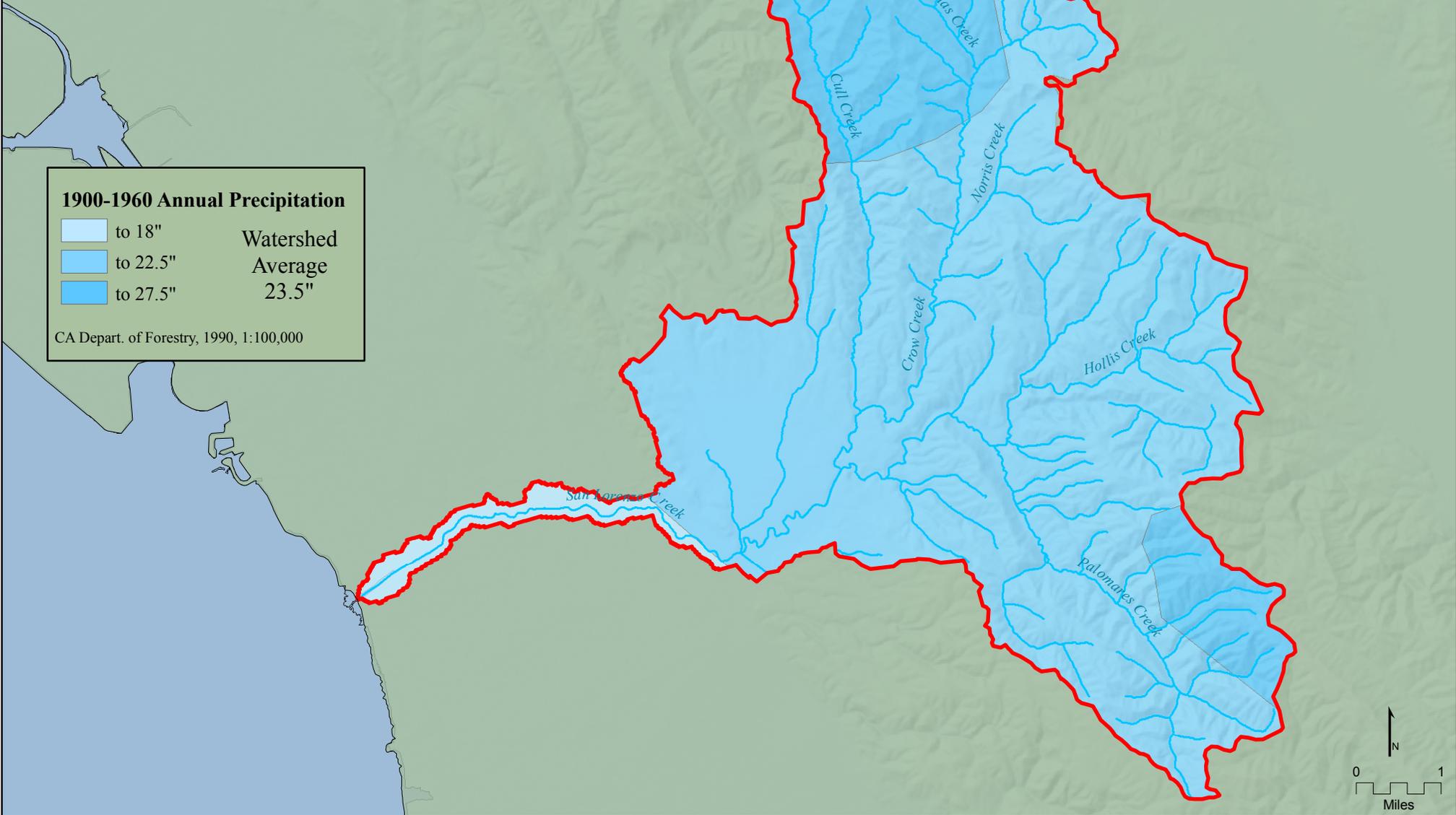
NMFS-SWR-HCD  
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# San Lorenzo Creek Watershed Precipitation

## 1900-1960 Annual Precipitation

	to 18"	Watershed Average 23.5"
	to 22.5"	
	to 27.5"	

CA Depart. of Forestry, 1990, 1:100,000



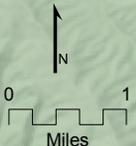
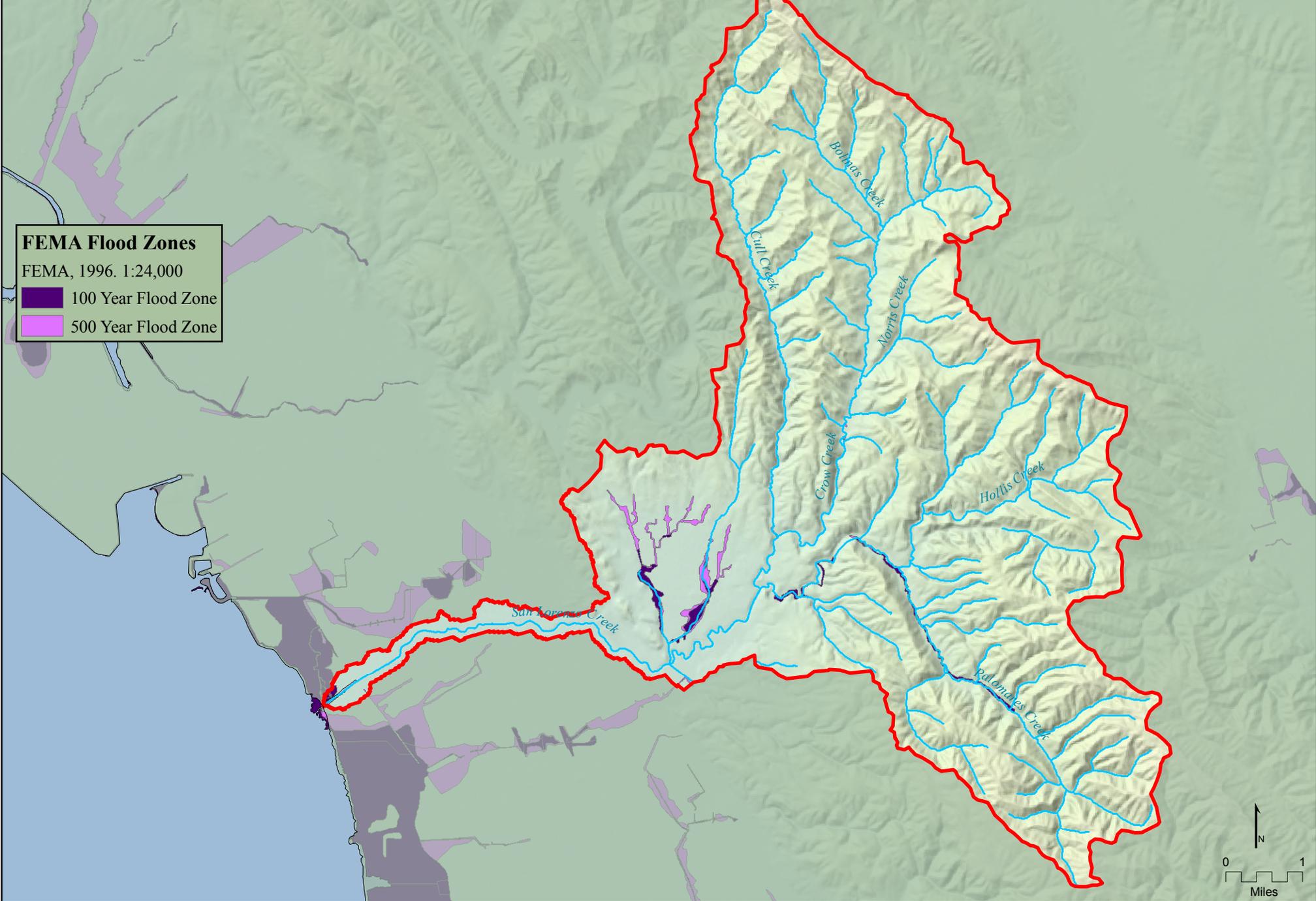


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# San Lorenzo Creek Watershed Flood Zone

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

- 100 Year Flood Zone
- 500 Year Flood Zone





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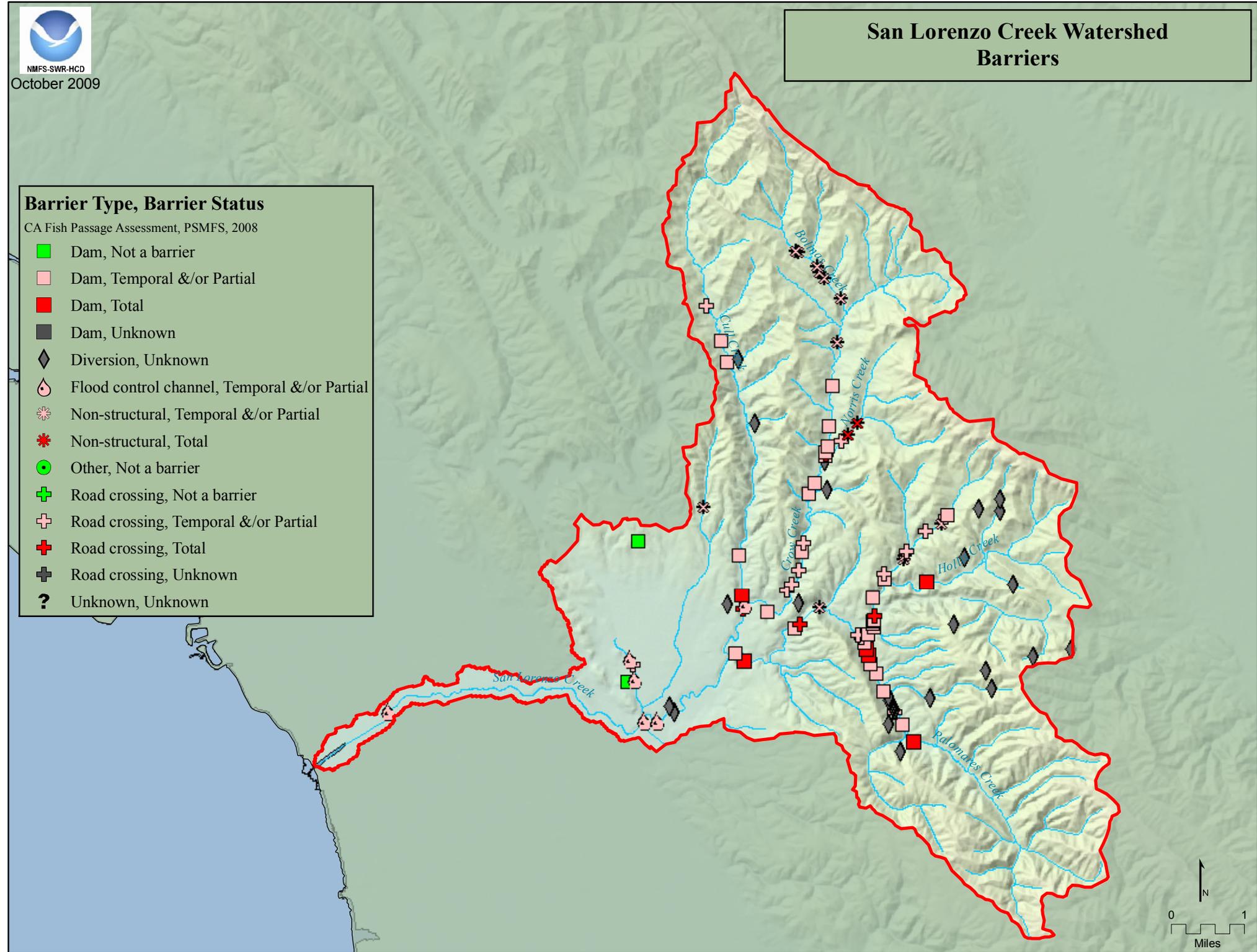
October 2009

# San Lorenzo Creek Watershed Barriers

## Barrier Type, Barrier Status

CA Fish Passage Assessment, PSMFS, 2008

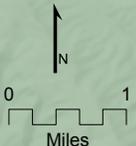
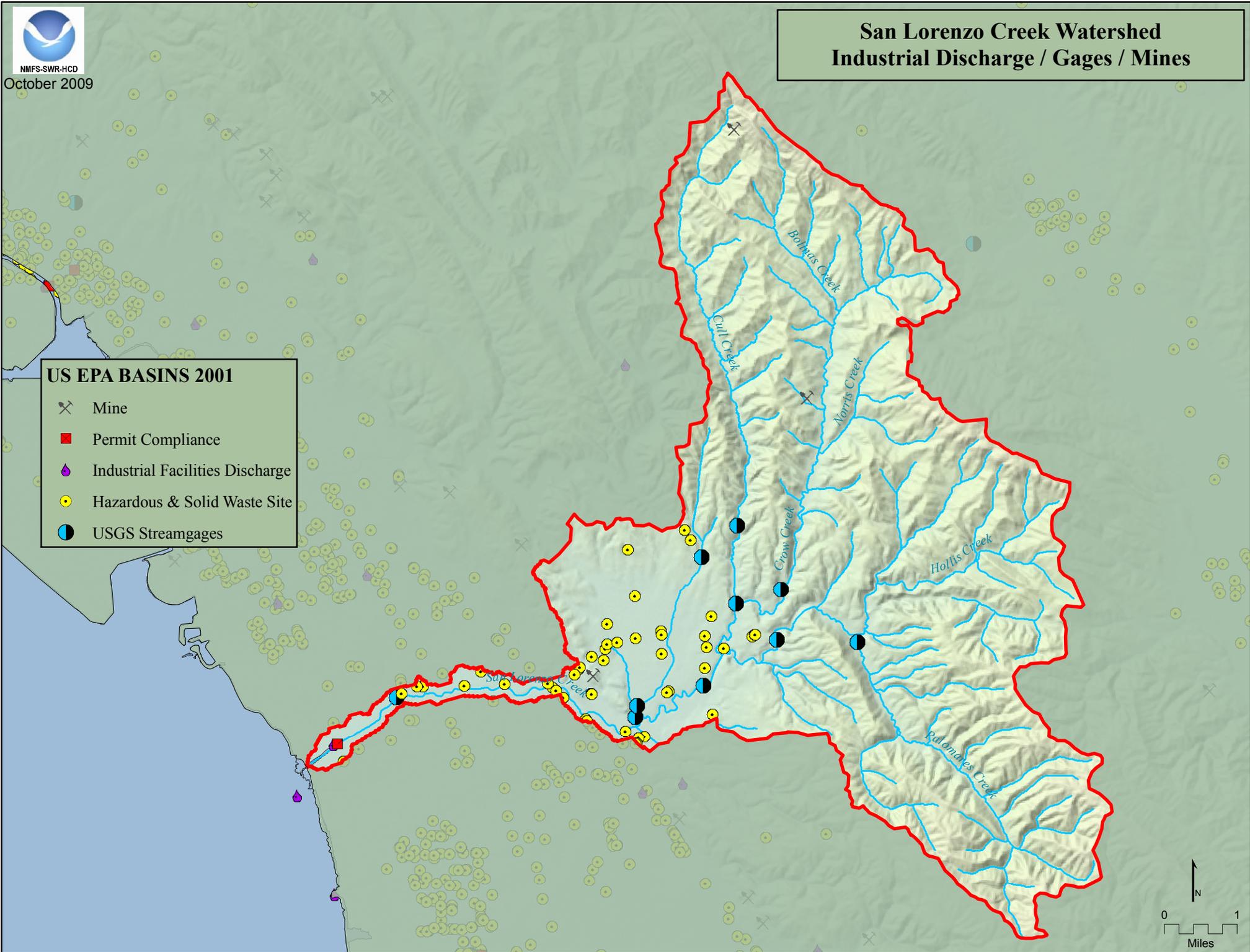
- Dam, Not a barrier
- Dam, Temporal &/or Partial
- Dam, Total
- Dam, Unknown
- ◆ Diversion, Unknown
- ⦿ Flood control channel, Temporal &/or Partial
- ✱ Non-structural, Temporal &/or Partial
- ✱ Non-structural, Total
- Other, Not a barrier
- + Road crossing, Not a barrier
- + Road crossing, Temporal &/or Partial
- + Road crossing, Total
- + Road crossing, Unknown
- ? Unknown, Unknown



# San Lorenzo Creek Watershed Industrial Discharge / Gages / Mines

## US EPA BASINS 2001

- ✕ Mine
- Permit Compliance
- ◆ Industrial Facilities Discharge
- Hazardous & Solid Waste Site
- USGS Streamgages





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# San Lorenzo Creek Watershed Public Consultation Tracking System

● PCTS Record

Current as of September 24, 2009.  
Only those records with a  
Latitude and Longitude  
entered appear here

San Lorenzo Creek Sediment Removal Project,  
Alameda County

Zone 2, Line B Erosion Repair at  
Wingate Way, Hayward

Zone 2, Line K desilting,  
Hayward

Maud Avenue Subdivision Project

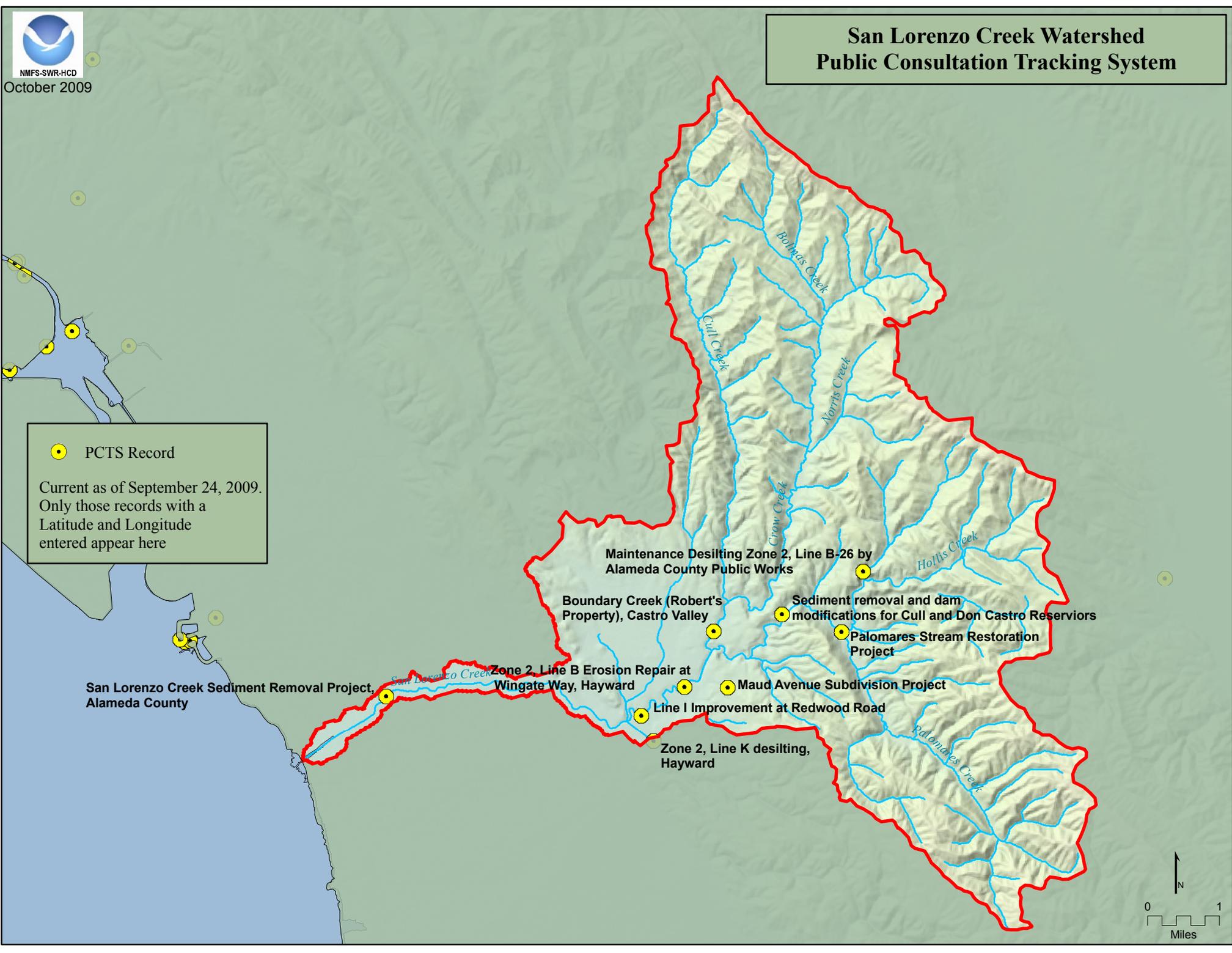
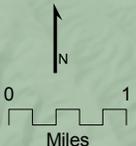
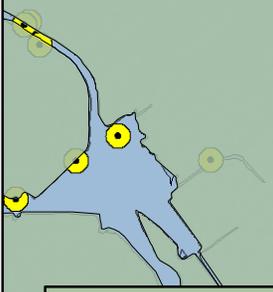
Line I Improvement at Redwood Road

Boundary Creek (Robert's  
Property), Castro Valley

Maintenance Desilting Zone 2, Line B-26 by  
Alameda County Public Works

Sediment removal and dam  
modifications for Cull and Don Castro Reservoirs

Palomares Stream Restoration  
Project



## 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**

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**

1805 NHD Flowline  
vector digital data  
National Hydrography Dataset High Resolution  
United States Geological Survey  
1:24,000  
2004

### **Barriers and Diversions**

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

### **Gaging Stations**

USGS Streamgages  
vector digital data  
U.S. Geological Survey  
Reston, Va  
2006  
[http://water.usgs.gov/GIS/dsdl/USGS\\_Streamgages-NHD\\_Locations\\_Shape.zip](http://water.usgs.gov/GIS/dsdl/USGS_Streamgages-NHD_Locations_Shape.zip)

### **Total Maximum Daily Load (TMDL)**

R1\_rivers\_2006 303d  
vector digital data  
State Water Resources Control Board (SWRCB)  
California Environmental Protection Agency  
2006

### **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**

Spln\_mos\_02  
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>

### **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/>

### **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**

Google Maps

remote-sensing image

raster digital data

2008

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

Intrinsic Potential Model

vector digital data

NOAA Fisheries

Santa Cruz Laboratory, Santa Cruz, CA

2005

<http://swfsc.noaa.gov/>

### **Toxins**

Hazardous\_&\_solid\_waste\_sites

Better Assessment Science Integrating point and  
Nonpoint Sources (BASINS)

vector digital data

United States Environmental Protection Agency

2001

<http://www.epa.gov/waterscience/basins/>

mines

vector digital data

Better Assessment Science Integrating point and  
Nonpoint Sources (BASINS)

United States Environmental Protection Agency

2001

<http://www.epa.gov/waterscience/basins/>

Industrial\_discharge\_sites

vector digital data

Better Assessment Science Integrating point and  
Nonpoint Sources (BASINS)

United States Environmental Protection Agency  
2001

<http://www.epa.gov/waterscience/basins/>

Permit\_compliance

vector digital data

Better Assessment Science Integrating point and  
Nonpoint Sources (BASINS)

United States Environmental Protection Agency  
2001

<http://www.epa.gov/waterscience/basins/>

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

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

National Marine Fisheries Service

Oracle Databases

2009