



**Soquel  
Demonstration State  
Forest**

East Branch of Soquel  
Creek

**Large Wood and  
Habitat Complexity  
Project**

**Site 1:**

August/September  
2012 (work funded  
by the RCDSCC)

**Site 2, 4, 5:**

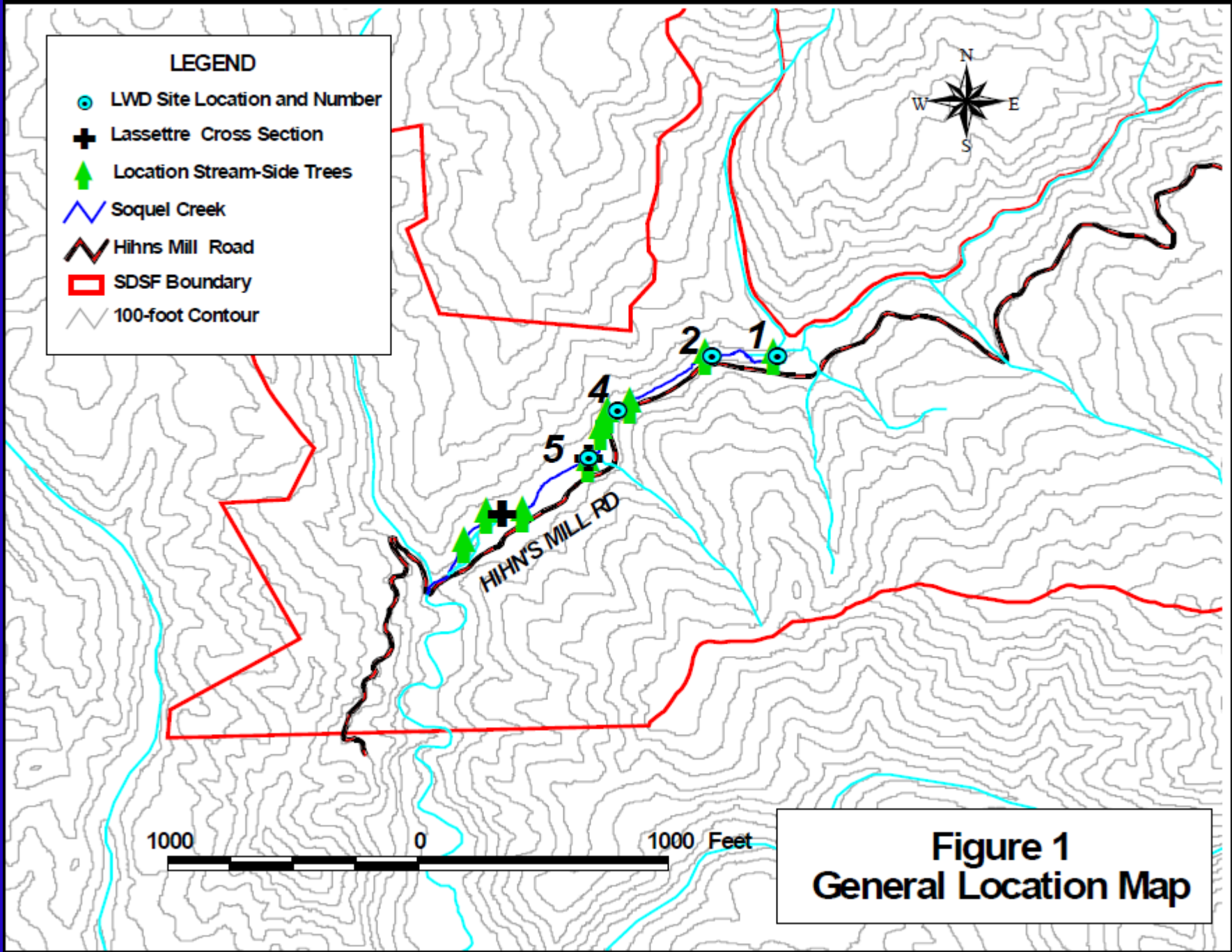
August-September  
2013 (work funded  
by CAL FIRE)

# Soquel Demonstration State Forest Large Wood and Habitat Complexity Project

- Jonathan Ambrose, NMFS, initially requested the project in April 2010.
  - Jim Robins, *Alnus* Ecological, has coordinated the permitting process and assisted with the field installation.
  - Steve Reynolds, CGS, is the lead engineer on the project.
- **Goals of the project are to:**
  - Accomplish placement of large wood that will contribute to survival of coho salmon and steelhead in the Soquel Creek watershed,
  - Demonstrate feasibility of a large wood placement project within the NMFS Recovery Plan area, and
  - Conduct an experiment to determine success of different types of wood placement projects.

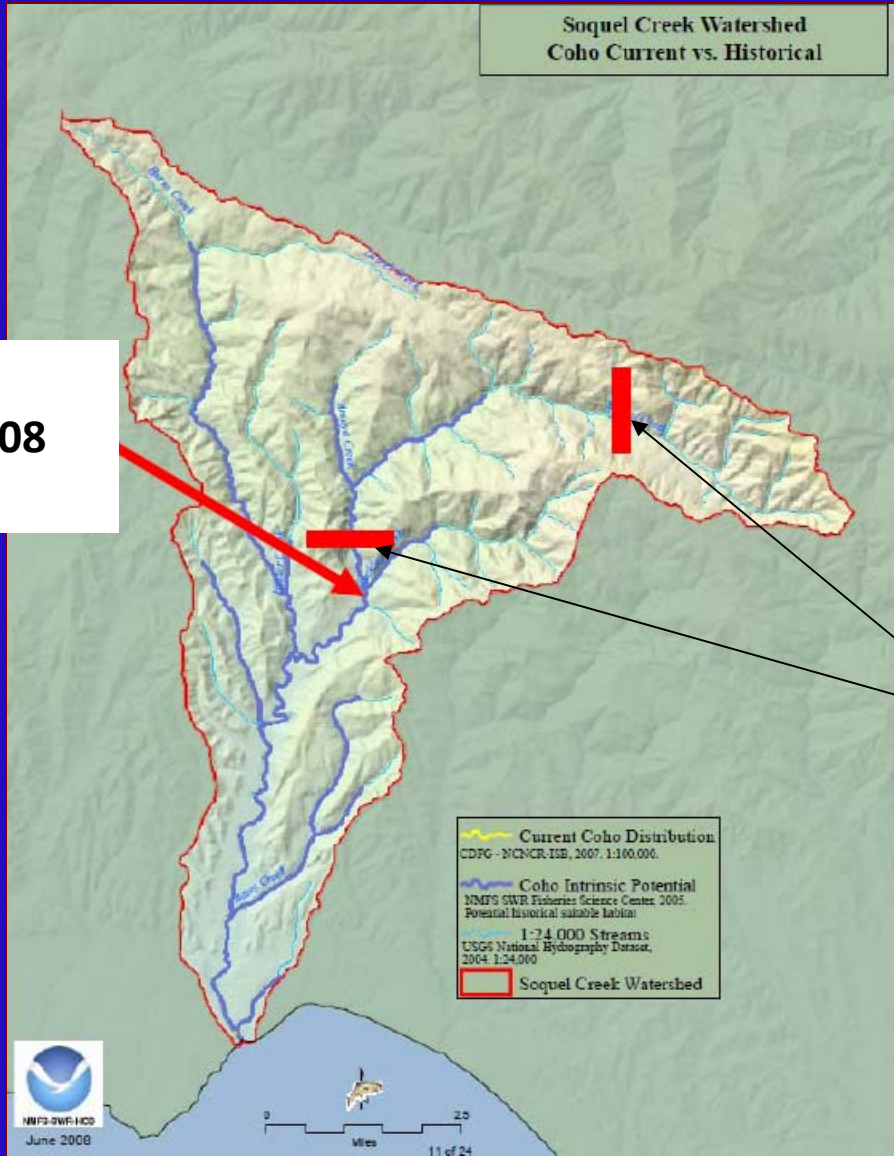
# Soquel Demonstration State Forest Large Wood and Habitat Complexity Project

- Install large wood structures along 0.7 mile stretch of the East Branch of Soquel Creek at 4 sites.
- Reaches approximately 300 ft long.
- Logs from THP road right-of-way, riparian cooridoor.
- Descriptions of 4 sites:
  - Site 1. Three log clusters (redwood clumps).
  - Site 2. Dewatered (200 ft); one log cluster, one log vane (anchored), one rootwad anchor.
  - Site 4. Dewatered (200 ft); one log cluster, one log vane (anchored), one rootwad anchor.
  - Site 5. One log cluster.



# Soquel Creek Watershed

**Coho Salmon  
observed in 2008  
by NMFS**



**Soquel  
Demonstration  
State Forest  
Boundaries**

**Site 1**  
**August 2012**



**Site 1**  
**August 2012**



**Site 1**  
**December 2012**





**Site 1**  
**March 2013**



**August 2012**



**Site 1; Lowest Redwood Clump  
Before and After 5-yr Return  
Interval Flow Event**

**Pool scoured, lateral bar formed,  
modest increase in channel  
sinuosity**

**February 2013**



**Photo: Steve Reynolds, CGS**

# LWD Site #1- facing downstream to structure 1A

Pre Implementation- Winter



Figure 1a. January 25, 2012

Post Implementation- Summer



Figure 1b. August 15, 2013

## LWD Site #1- facing upstream to structure 1C

Pre Implementation- Winter



Figure 6a. January 25, 2012

Post Implementation- Summer



Figure 6b. September 4, 2013



**Site 2:  
200 foot  
Dewatered  
Reach  
  
August 2013**

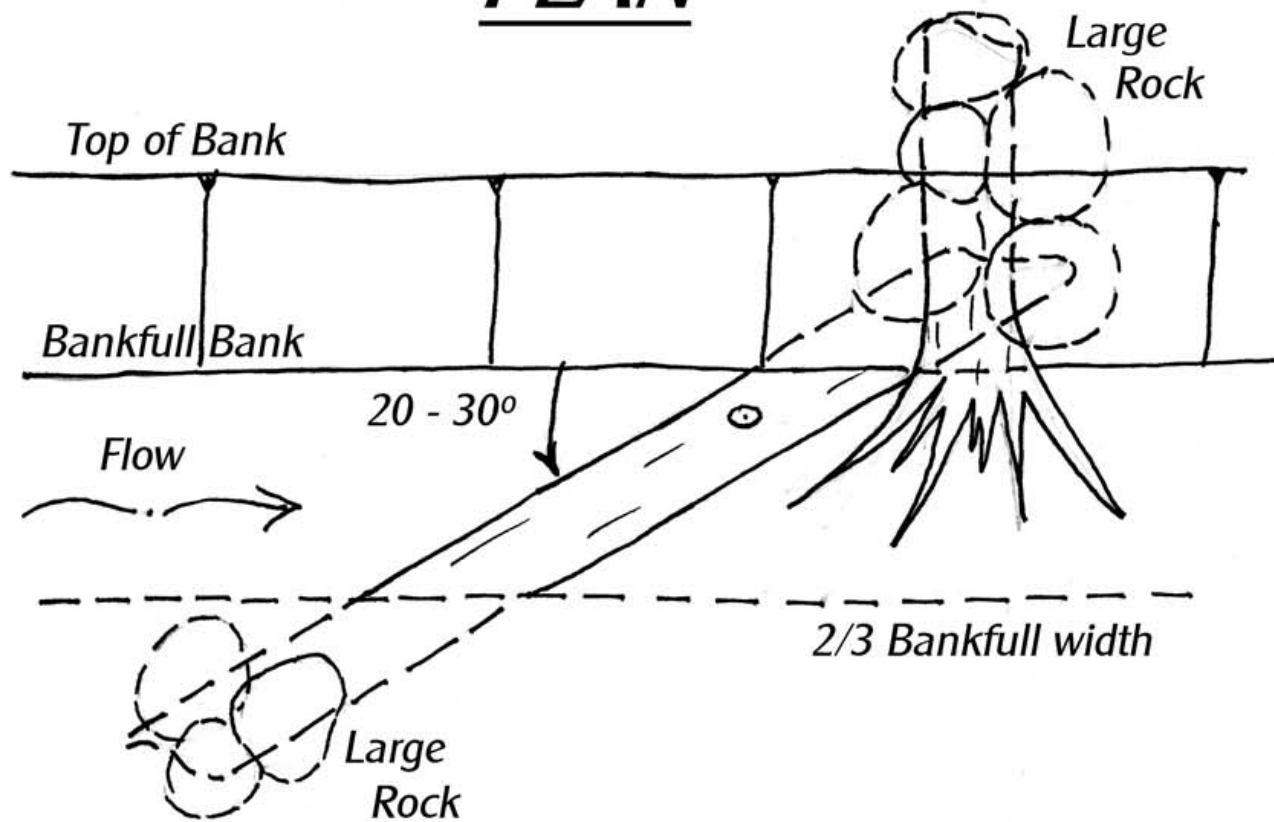


## Log Cluster Structure, upper end of Site 2, August 2013



Log vane structure with root-wad for fish cover.

## PLAN



## Log Vane Structure, middle of Site 2, August 2013





**Site 2, Log Vane Structure  
September 2013**



**Rootwad Anchor (2 rootwads present), lower end of Site 2  
August 2013**



## LWD Site #2- facing downstream at structure 2C

Pre Implementation- Winter



Figure 11a. January 25, 2012

Post Implementation- Summer



Figure 11c. September 9, 2013

## LWD Site #2- facing upstream at structure 2C

Pre Implementation- Winter



Figure 12a. January 25, 2012

Post Implementation- Summer



Figure 12c. September 9, 2013

**Log Cluster—Site 4  
September 2013**



**Rootwad Anchor Site 4**  
**September 2013**



## Excavating the Trench for the Log Vane Structure at Site 4



**Log Vane Structure,  
lower end of Site 4,  
September 2013**



09/20/2013 14:37



## Building the Log Cluster at Site 5, September 2013



**Site 5**  
**Log Cluster**  
**September 2013**



## LWD Site #2-facing downstream to structure 5C

Pre Implementation- Winter



Figure 23a. January 24, 2012

Post Implementation- Summer



Figure 23c. October 16, 2013

# Monitoring Data—D.W. Alley and Associates

- Steelhead density at site 2:
  - **Density estimates, based on the 3-pass depletion model, were 47 YOY steelhead/ 100 ft; 12 yearling+ steelhead/ 100 ft**
- Steelhead density at site 4:
  - **Density estimates, based on the 3-pass depletion model, were 24 YOY steelhead/ 100 ft; 7 yearling+ steelhead/ 100 ft**

Note: Flow conditions from January to March 2013 were low, limiting adult steelhead passage stormflows, and the number of steelhead indicates limited spawning effort/success.