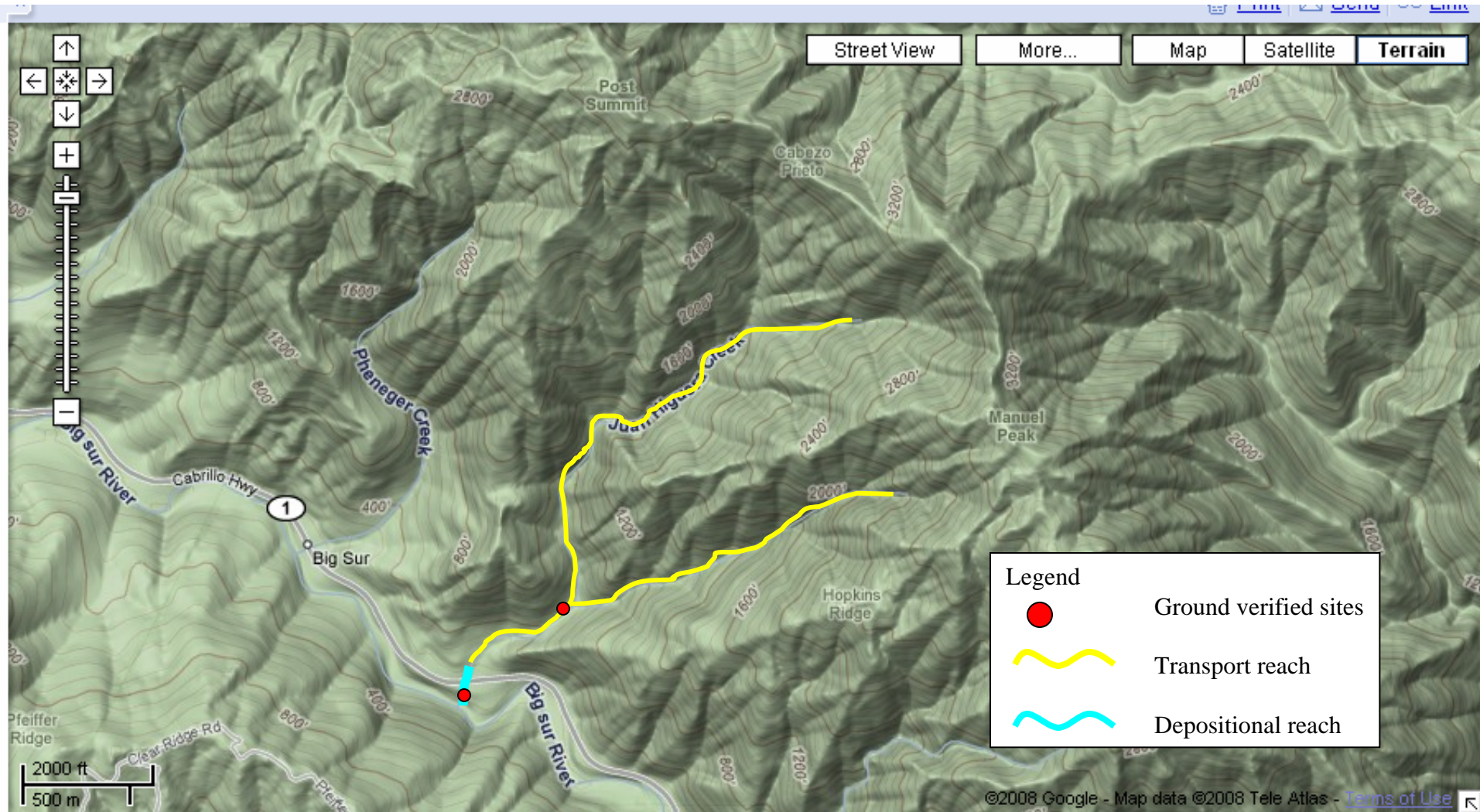


USDA Forest Service
Assessment of Juan Higuera Creek
Following the 2008 Basin Complex Fire
October 15, 2008



On October 15 2008, Casey Shannon, Paul Powers and Tom Murphey assessed Juan Higuera Creek for potential locations to install redwood debris flow modulators. We began by looking at Juan Higuera Creek below Highway 1 to the confluence with the Big Sur River (on an alluvial fan). We observed that the stream had been confined into a single thread and woody debris recently removed. A small culvert passes the stream beneath a road that provides access to the local grange hall. This road crossing has high potential for failure during a debris/sediment flow.

Next we traveled up the Hopkins Ridge Road to assess the upper watershed on National Forest Lands (NFS) for potential sites to enhance the existing channel and reduce flood and debris flow impacts to residents below. We found that the upper watershed was nearly completely denuded of vegetation outside of the immediate stream corridors. The entire upper watershed (above Highway 1) is steep and prone to slope failure following a watershed disturbance. Stream channels are steep and highly confined. Therefore they are erosional and transport reaches for the most part. There are small areas of sediment deposition along the stream, however these tend to be rotational failures that deposit at the confluence with the stream (along with woody material) rather than stream flood deposits.

After viewing the watershed from above, we thought that the confluence between the main stem and south fork would be the lowest gradient and would have the highest potential for increased sediment storage. We found that this site has a fair amount of woody material protruding from the banks (old slope failures) into and across the stream channel. We found the site to have little capacity for increased storage, and inaccessible for heavy equipment or hand crews. Woody material could be added with a helicopter but would be difficult due to the height of the mature redwood overstory.

Existing downed wood is limited on the valley slopes, however, the wood that is present is stabilizing the banks. Movement of this material would destabilize the slopes resulting in slope failure and the delivery of additional sediment to the stream channel. For these reasons, we do not think that the addition of redwood debris flow modulation structures on NFS lands would be effective in reducing the magnitude or degree of flood and/or debris flow events downstream.



Photo 1

Photo 1: Upstream view of Juan Higuera Creek below Hwy. 1 bridge. Crews have recently removed large trees along this reach. As a result, debris and flood flows will move with increased velocity and could add to channel and bank instability. At moderate flows, water and sediment will tend to stay in channel and not move onto adjacent terraces.



Photo 2

Photo 2: Upstream view of Juan Higuera Creek, 200 feet below the confluence of the main branch and southern branch. The channel is confined within a U-shaped valley with no floodplain. There are steep, narrow alluvial terraces from rotational failures. This reach has the lowest gradient of the survey reach at approximately 10%. Above and below this short segment channel slopes exceed 40% (estimated).

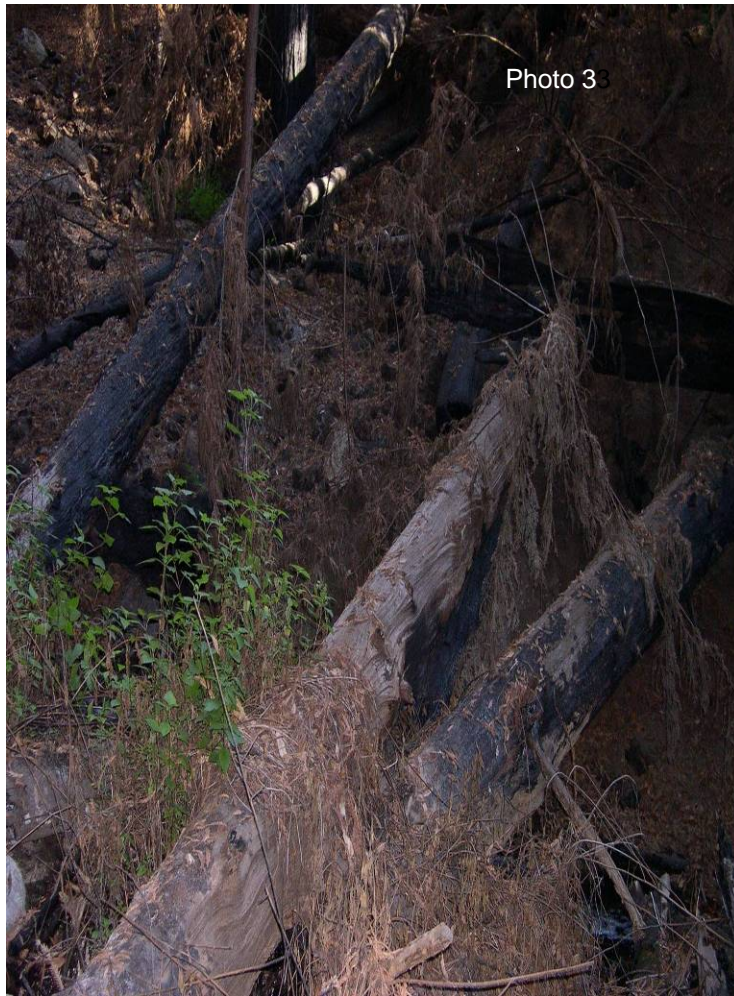


Photo 3

Photo 3: Embedded large wood (redwood) within Juan Higuera Creek below the confluence of the two branches. Large woody materials are stabilizing adjacent stream banks/valley walls and have potential to slow flood and debris flows. These trees protrude from an old debris deposit several hundred years old. Access to this site is down an embankment several hundred feet deep (approximately 80%). Overstory is mature redwood, making structure placement by helicopter difficult. Movement of existing downed wood, would destabilize valley walls.

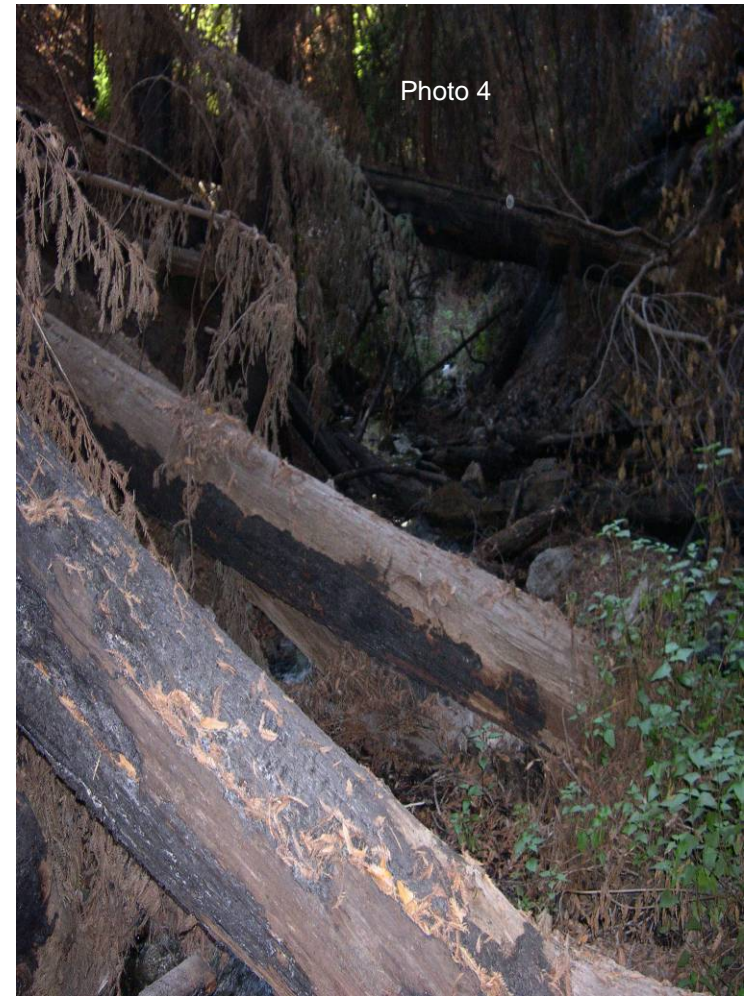


Photo 4

Photo 4: Juan Higuera Creek below confluence of main branch and southern branch. Bed material is armored by calcium carbonate deposits. Steep terrace banks along creek are comprised of mostly coarse landslide materials. Stream channel is confined within a deep, narrow valley.



Photo 5

Photo 5: View of the upper Juan Higuera Creek drainage. Estimated channel gradients above the confluence of the two forks range from 20 to 40 percent and are almost entirely erosional channel types. The reach immediately below the confluence was selected for evaluation as this section was the most likely to have a depositional characteristic where channel grade lessened.