



Stream Reaches Surveyed For Hazard Analysis

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Big Sur River



Stream Segment: 70% erosional; 20% depositional; 10 % transitional of reach surveyed

Stream Azimuth Effects: Deposition occurs at all confluences. Small in size depending upon wood load. All confluence >60 degrees

Stream Gradient: Using 2x valley width , gradient ranges from 3 to 5%. Within falls areas gradient exceed 15%

Valley Character: Very young with steep 80-150 % gradient side slopes. Valley narrows at meander bends due to opposing ridges being eroded to rock faces. Valley pinch point at the nose of these ridges can be as narrow as 30-50 feet. Once through meander valley widens to 100 feet with pockets of slightly wider widths. Widest width observed in survey reach was approximately 150 feet. Slopes contain shallow soils at peaks and ridges due to gradient and weathered material. Deeper soils are found at base of hill slope, valley bottoms, in colluvial deposits. Vegetation corresponds to soils depth. Grass, shrub dominated peaks and ridges with trees being found in base slopes and valley bottoms. **Note:**Off Forest Service lands valley character is constrained to 15 feet and then widens to > 500 feet.

Width: 30- 150 feet'

Tree type/size: Redwood overstory 10 – 100 inches with predominate size class being 40-70 “ class. Ca. Laurel, Sycamore, Tan oak and shrub species found in the understory. Forest Service land contains grass/ shrub species on upper slopes with trees found on north aspects within channel bottoms.

Substrate condition: > 90 % embedded, with 30% boulder; 30% gravels/sands; 30% cobble; 10% bedrock. All angular and mobile at high flows (> 15 year flow).

Potential sediment sources: Upslope ravel.

Potential wood for anchoring: Wood availability low < 2 piece per 100 feet in surveyed reach Pieces found within small pockets of accumulated debris in backwater areas downstream of constriction points.

Access: Foot travel is dangerous due to steepness of side slopes. Traveled in on Pine Ridge trail to Wilderness Boundary and dropped into canyon to river.

Safety factors: High risk due to sideslopes, stream gradient, and availability of rock raveling down side slopes. Trail is nonexistent in some locations due to ravel and loss of tread. Woody material across trail in several locations.



Photo 1: Side slopes dropping into survey reach at wilderness boundary off the Pine Ridge trail.

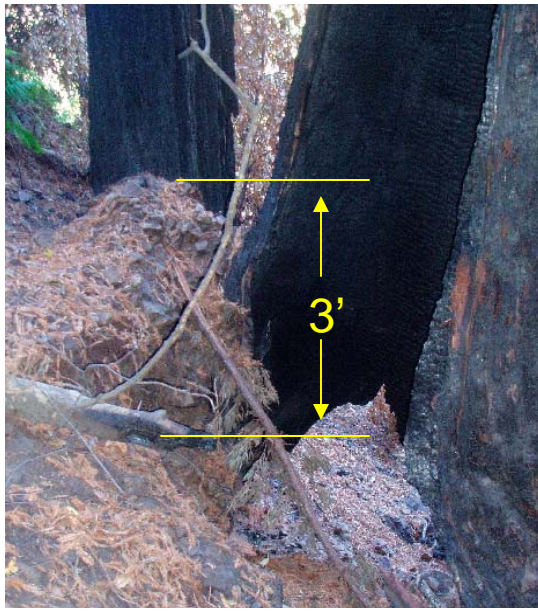


Photo 2: Example of dry ravel build up behind redwood tree. Approximately 3 feet. Numerous cat faced redwoods.

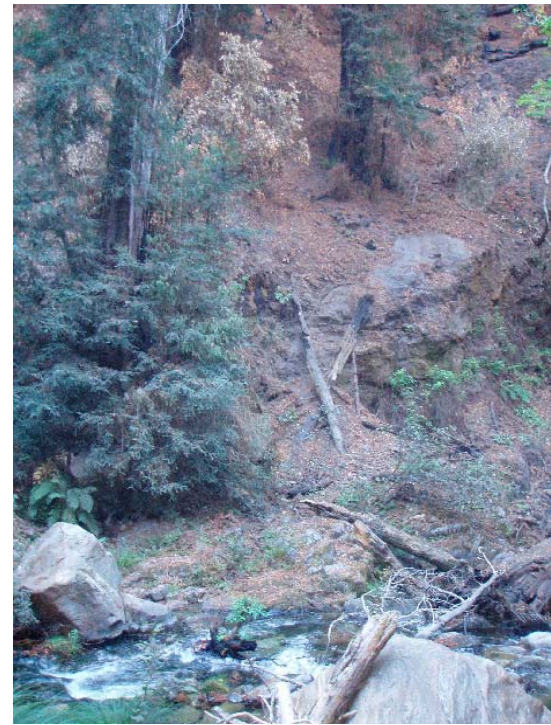


Photo 3: Dry ravel entering Big Sur River and constricting valley bottom. Valley width 100'.



Photo 4: Composite of photos showing typical valley width. Photo take facing down stream from photo 3 location.



Photo 5: Typical valley facing downstream. Note bedrock constriction on Right Hand Bank



Photo 6: Turning and facing upstream from photo 5 a view of typical valley width, 50- 70 feet.



Photo 7: Valley constriction due to bedrock pinch point. Photo facing downstream. Valley width 30 feet



Photo 8: Valley constriction due to bedrock pinch point. Photo facing upstream. Valley width 50 feet.

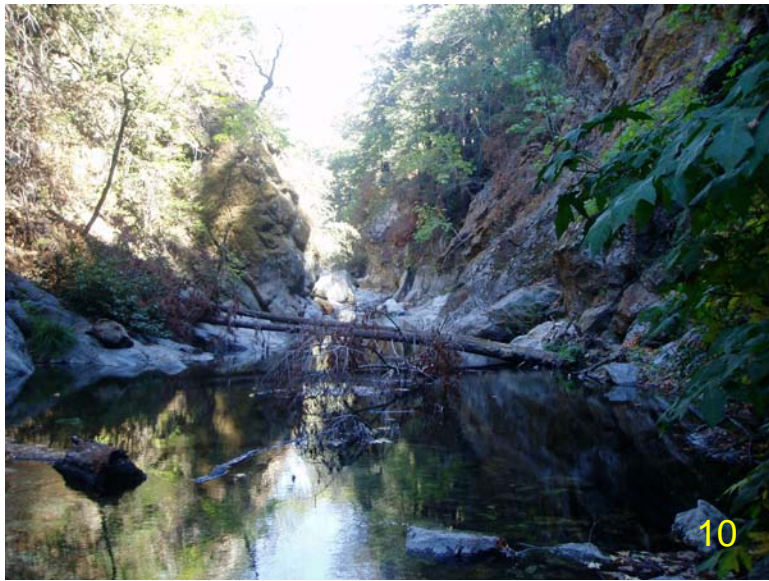


Photo 10 & 11: Continuation of narrow valley. Facing upstream. Valley less than 50 feet wide.

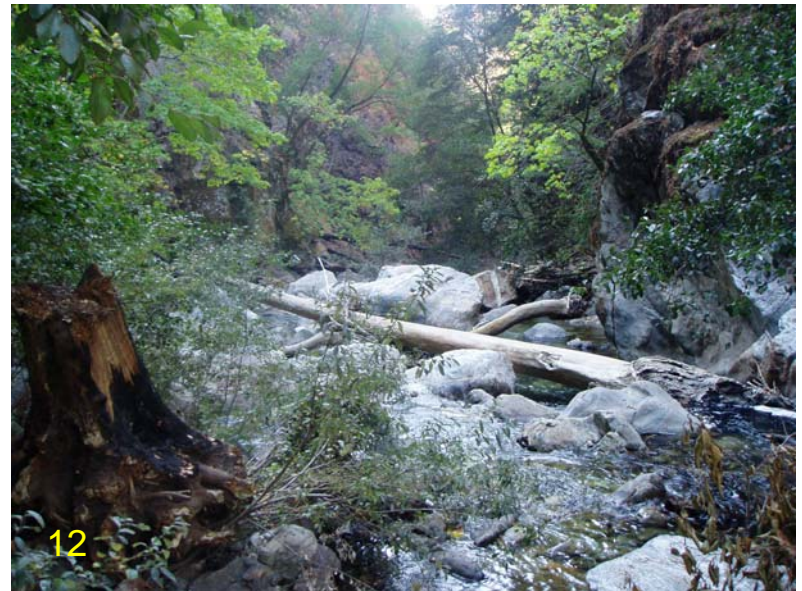


Photo 12: Facing downstream at photo 10 site.

Photo 13: Tributary coming in on south side, left hand bank, of river. Channel gradient $> 40\%$. Steps are created by large wood holding back ravel. Note chunk of wood lower left of photo. Historic removal of wood has created a very mobile system. Scar in tree shows damage of riparian vegetation from raveling material



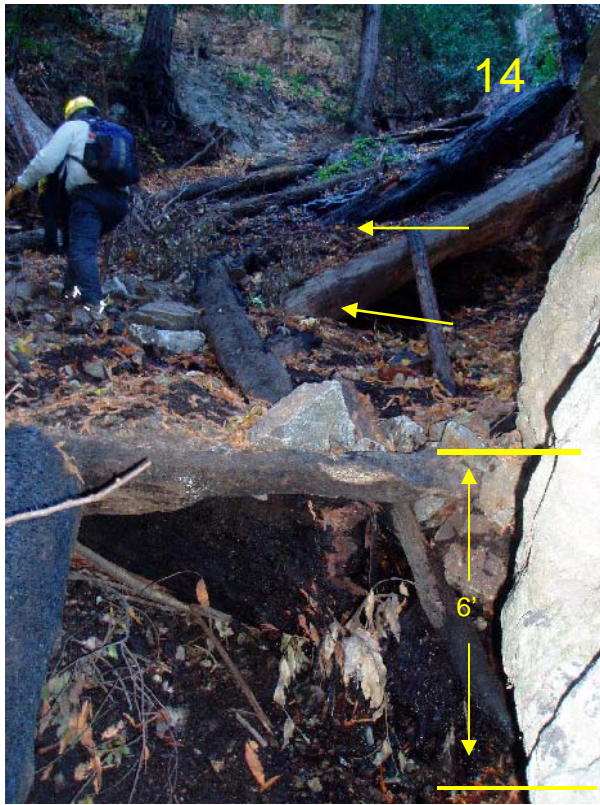


Photo 14: Wood steps along the channel have been burned and are susceptible to failure. Wood is being buried by slope ravel and could possibly fail due to loss of integrity from fire. One can see the lower ends of the logs that are buried as one progresses up channel. (arrows)

Photos 15- 18, following page, Show the narrow gorge are directly above the State park Campground. Unable to proceed upstream of photo 16 due to the sheer walls and the deep pool. Directly downstream of the pool, photo 15, a small accumulation of wood exists. A backwater area is formed as the water is forced through the narrow gorge and wood accumulates along the right hand bank as channel widens. Valley width 50-70 feet. Photo 17 and 18 show the channel character directly below, downstream, of the gorge. At yellow line valley opens and was historically part of an oxbow meander. This has in recent times been cut off and a berm exists to prevent the channel from accessing historic flood plain. This is all on State Park Lands.





Photos 19-21 show some of the upland conditions of the upper slopes. Limited wood is being utilized in photo 19 and sprouting at based of tree and shrub species is occurring photo 20. Lack of vegetation of the southern aspect, photo 21, indicate higher risk to failure due to lack of root strength.

Photo 22 depicts a downstream view of the Big Sur River from the Pine Ridge trail.

