# STREAM INVENTORY REPORT

## Unnamed Water Gulch Tributary

### WATERSHED OVERVIEW

The unnamed Water Gulch tributary is tributary to Water Gulch, tributary to Chamberlain Creek, tributary to North Fork Big River, tributary to Big River, tributary to Pacific Ocean located in Mendocino County, California (Map 1). Unnamed Water Gulch tributary's legal description at the confluence with Water Gulch is T17N R15W S06. Its location is 39°20′05″ north latitude and 123°34′33″ west longitude. Unnamed Water Gulch tributary is an ephemeral stream according to the USGS Comptche 7.5 minute quadrangle. Unnamed Water Gulch tributary drains a watershed of approximately 0.36 square miles. Elevations range from about 480 feet at the mouth of the creek to 1300 feet in the headwater areas. Grass and mixed conifer forest dominates the watershed. The watershed is entirely within the Jackson Demonstration State Forest and is managed for timber production. Vehicle access exists via state route 20.

### HABITAT INVENTORY RESULTS AND DISCUSSION

The habitat inventory of July 25 and August 05, 1997, was conducted by Craig Mesman and Tara Cooper (CCC), and Mary Fowlkes and Lisa Campbell (WSP\AmeriCorps). The total length of the stream surveyed was 2,037 feet.

Flow was measured approximately 200 feet from the confluence with Water Gulch with a Marsh-McBirney Model 2000 flowmeter at 0.13 cfs on June 20, 1997.

Unnamed Water Gulch tributary is a B4 channel type for the entire 2,037 feet of stream surveyed. The suitability of B4 channel types for fish habitat improvement structures is described in the main body of this report.

The water temperatures recorded on the survey dates ranged from 55 to 60 degrees Fahrenheit. Air temperatures ranged from 58 to 75 degrees Fahrenheit. This is a suitable water temperature range for salmonids. To make any further conclusions, temperatures would need to be monitored throughout the warm summer months, and more extensive biological sampling would need to be conducted.

Based on the total **length** of this survey, Level II habitat units consisted of 55% flatwater units, 24% pool units, and 16% riffle units (Table 1). The pools are extremely shallow, with only 1 of the 34 pools having a maximum depth greater than 2 feet (Table 4).

Thirteen of the 34 pool tail-outs measured had embeddedness ratings of 3 or 4. Three had a 1 rating. Cobble embeddedness of 25% or less, a rating of 1, is considered best for the needs of salmon and steelhead. In unnamed Water Gulch tributary, sediment sources should be mapped and rated according to their potential sediment yields, and control measures should be taken. The mean shelter rating for pools was low with a rating of 10. The shelter rating in the flatwater habitats was 5. A pool shelter rating of approximately 100 is desirable. Log and root wad cover

structures in the pool and flatwater habitats are needed to improve both summer and winter salmonid habitat.

Twenty-eight of the 34 pool tail-outs measured had gravel or small cobble as the dominant substrate. This is generally considered good for spawning salmonids.

The mean percent canopy density for the stream was 97%. This is a relatively high percentage of canopy. In general, revegetation projects are considered when canopy density is less than 80%.

The percentage of right and left bank covered with vegetation was moderate at 84.7% and 87.5%, respectively. In areas of stream bank erosion or where bank vegetation is not at acceptable levels, planting endemic species of coniferous and deciduous trees, in conjunction with bank stabilization, is recommended.

## BIOLOGICAL INVENTORY RESULTS

Two sites were electrofished on August 8, 1995, in unnamed Water Gulch tributary. The units were sampled by Tara Cooper and Craig Mesman (CCC).

The first site sampled included habitat units 17 through 20, a series of pools, runs, and a riffle 442 feet from the confluence with Water Gulch. This site had an approximate length of 117 feet. The site yielded four steelhead, and 6 Pacific giant salamanders.

The second site included habitat units 73 through 82, a series of pools, runs, and riffles 1,728 feet above the creek mouth. This site had a length of approximately 184 feet. No fish were sampled, but at least 3 Pacific giant salamanders were observed.

## RECOMMENDATIONS

1) Unnamed Water Gulch tributary should be managed as an anadromous, natural production stream.

2) Increase woody cover in the pools and flatwater habitat units. Adding high quality complexity with woody cover is desirable.

3) Active and potential sediment sources related to the road system need to be identified, mapped, and treated according to their potential for sediment yield to the stream and its tributaries.

4) The limited water temperature available suggests that the maximum temperatures are within the acceptable range for juvenile salmonids. To establish more complete and meaningful temperature regime information, 24-hour monitoring during the July and August temperature extreme period should be performed for 3 to 5 years.

**Unnamed Tributary to Water Gulch**

COMMENTS AND LANDMARKS

The following landmarks and possible problem sites were noted. All distances are approximate and taken from the beginning of the survey reach.

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| 0' | Begin survey at the confluence with Water Gulch (approximately 7,992 feet from the confluence of Water Gulch and Chamberlain Creek). Channel type is a B4. There is a three foot jump over embedded wood at the confluence. |
| 183' | Four foot diameter culvert in good condition, set at a low gradient. The culvert is under road number 220. |
| 442' | First electrofishing site. |
| 603' | Left bank erosion, 8 feet high and 36 feet long. |
| 656' | Four foot diameter log lodged lengthwise in the channel creating a 5.5 foot jump. |
| 824' | Steelhead observed. |
| 1,047' | Log debris accumulation (LDA), 4.5' high x 10' wide x 5' long, retaining sediment 4.5' high. |
| 1,237' | Salmonids observed. |
| 1,531' | Well-entrenched channel with woody debris completely clogging channel for a distance of 50 feet. |
| 1,663' | Two, 6' diameter logs down across channel. Not a barrier. |
| 1,728' | Second electrofishing site. |
| 1,799' | Four foot high jump, retaining gravel 4' deep. Probable barrier. |
| 1,872' | Six foot diameter log embedded in channel. |
| 2,048' | End of survey. Channel gets narrower and steeper. The substrate becomes larger in size, mostly large cobble and boulders. No fish observed after 1,237'. |

**Unnamed Tributary to Water Gulch**