

STREAM INVENTORY REPORT

Unnamed Tributary to Brushy Creek

WATERSHED OVERVIEW

The unnamed tributary is a tributary to Brushy Creek, a tributary to Bear River, which drains to the Pacific Ocean. It is located in Humboldt County, California (Map 1). The unnamed tributary's legal description at the confluence with Brushy Creek is T01S R01E S08. Its location is 40.4008 degrees north latitude and 124.1017 degrees west longitude. The unnamed tributary is an intermittent stream according to the USGS Scotia 7.5 minute quadrangle. The unnamed tributary drains a watershed of approximately 0.6 square miles. Summer base runoff is approximately 1.14 cubic feet per second (cfs) at the mouth. Elevations range from about 1,550 feet at the mouth of the creek to 2,700 feet in the headwater areas. Douglas fir forest dominates the watershed. The watershed is entirely privately owned and is managed for timber production. Vehicle access via Monument Ridge Road.

HABITAT INVENTORY RESULTS AND DISCUSSION

The habitat inventory of July 16, 1997 was conducted by Dave Jones and Bill Malinowski (WSP/AmeriCorps). The total length of the stream surveyed was 4,325 feet with an additional 90 feet of side channel.

Flow was measured at the bottom of the survey reach with a Marsh-McBirney Model 2000 flowmeter at 0.43 cfs on July 22, 1997.

The unnamed tributary to Brushy Creek is a B3 channel type for the entire 4,325 feet of stream surveyed. The suitability of B3 channel types for fish habitat improvement structures is: excellent for plunge weirs, boulder clusters, bank placed boulders, single and opposing wing-deflectors, and log cover.

The water temperatures recorded on the survey day July 16, 1995 ranged from 61 to 69 degrees Fahrenheit. Air temperatures ranged from 63 to 71 degrees Fahrenheit. This water temperature is near the threshold stress level for juvenile salmonids. For a more complete and accurate water temperature profile, 24-hour temperatures need to be monitored throughout the warm summer months.

Based on the total length of this survey, Level II habitat units consisted of 68% flatwater units, 17% riffle units, and 6% pool units. The pools are relatively shallow, with only three of the 19 pools having a maximum depth greater than two feet.

Eleven of the 19 pool tail-outs measured had embeddedness ratings of 3 or 4. One had an embeddedness rating of 1. Cobble embeddedness of 25% or less, a rating of 1, is considered best for the needs of salmon and steelhead. In the unnamed tributary, sediment sources should be mapped and rated according to their potential sediment yields, and control measures should be taken.

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The mean shelter rating for pools was 29. The shelter rating in the flatwater habitats was 8. 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.

Fourteen of the 19 pool tail-outs measured had gravel or small cobble as the dominant substrate. This is generally considered suitable for spawning salmonids.

The mean percent canopy density for the stream was 55%. This is a relatively low percentage of canopy. The percentage of right and left bank covered with vegetation was 63% and 51%, respectively. In areas of stream bank erosion or where bank vegetation is at unacceptable levels, planting endemic species of coniferous and deciduous trees, in conjunction with bank stabilization, is recommended.

BIOLOGICAL INVENTORY RESULTS

One site was electrofished on July 22, 1997 in the unnamed tributary to Brushy Creek. The unit was sampled by David Jones and Bill Malinowski (WSP/AmeriCorps).

The site sampled was a unit approximately 100 feet long. The site yielded 26 steelhead/rainbow trout.

RECOMMENDATIONS

- 1) Unnamed tributary to Brushy Creek should be managed as an anadromous, natural production stream.
- 2) The limited water temperature available suggest that the maximum temperatures are nearing threshold stress level 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.
- 3) Where feasible, design and engineer pool enhancement structures to increase the number of pools. This must be done where the banks are stable or in conjunction with stream bank armor to prevent erosion.
- 4) Increase woody cover in the pools and flatwater habitat units. Most of the existing cover is from boulders. Adding high quality complexity with woody cover is desirable.
- 5) 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.

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- 6) Increase the canopy on Unnamed tributary to Brushy Creek by planting willow, alder, redwood, and Douglas fir along the stream where shade canopy is not at acceptable levels. The reaches above this survey section should be inventoried and treated as well, since the water flowing here is effected from upstream. In many cases, planting will need to be coordinated to follow bank stabilization or upslope erosion control projects.

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.

Position Comments:
(ft):

0'	Start of survey at confluence with Brushy Creek. The unnamed tributary to Brushy Creek is a B3 channel type.
914'	Dry left bank tributary.
2,184'	Log debris accumulation (LDA) measures 50' long x 15' high.
2,222'	4' plunge.
2,371'	Right bank erosion site measures 217' long x 300' high.
2,712'	Right bank tributary. The water temperature was 62 degrees Fahrenheit.
2,973'	6' high plunge.
3,332'	Left bank erosion site measures 130' long x 60' high.
3,681'	Salmonids observed.
3,694'	Left bank erosion site measures 180' long x 70' high.
3,726'	Right bank erosion site measures 150' long x 60' high.
3,873'	6' high plunge.
4,173'	Right bank tributary with high gradient.
4,325'	End of survey. LDA measures 150' long.

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REFERENCES

Flosi, G., and F. Reynolds. 1994. California salmonid stream habitat restoration manual, 2nd edition. California Department of Fish and Game, Sacramento, California.

Hopelain, J. 1995. Sampling levels for fish habitat inventory, unpublished manuscript. California Department of Fish and Game, Inland Fisheries Division, Sacramento, California.

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LEVEL III and LEVEL IV HABITAT TYPE KEY

RIFFLE

Low Gradient Riffle	[LGR]	1.1
High Gradient Riffle	[HGR]	1.2

CASCADE

Cascade	[CAS]	2.1
Bedrock Sheet	[BRS]	2.2

FLATWATER

Pocket Water	[POW]	3.1
Glide	[GLD]	3.2
Run	[RUN]	3.3
Step Run	[SRN]	3.4
Edgewater	[EDW]	3.5

MAIN CHANNEL POOLS

Trench Pool	[TRP]	4.1
Mid-Channel Pool	[MCP]	4.2
Channel Confluence Pool	[CCP]	4.3
Step Pool	[STP]	4.4

SCOUR POOLS

Corner Pool	[CRP]	5.1
Lateral Scour Pool - Log Enhanced	[LSL]	5.2
Lateral Scour Pool - Root Wad Enhanced	[LSR]	5.3
Lateral Scour Pool - Bedrock Formed	[LSBk]	5.4
Lateral Scour Pool - Boulder Formed	[LSBo]	5.5
Plunge Pool	[PLP]	5.6

BACKWATER POOLS

Secondary Channel Pool	[SCP]	6.1
Backwater Pool - Boulder Formed	[BPB]	6.2
Backwater Pool - Root Wad Formed	[BPR]	6.3
Backwater Pool - Log Formed	[BPL]	6.4
Dammed Pool	[DPL]	6.5