

Tributary To Woodacre Creek

Surveyed 2006



**California Department of Fish and Game
Stream Habitat Assessment Report**

STREAM INVENTORY REPORT

Woodacre Creek Tributary

Survey Completed Summer 2006

Report Completed April 2008

INTRODUCTION

A stream inventory was conducted during 9/25/2006 on a Tributary to Woodacre Creek. The survey began at the confluence with San Geronimo Creek and extended upstream 1.3 miles. Stream inventories and reports were also completed for one tributary to Woodacre Creek. The objective of the habitat inventory was to document the habitat available to anadromous salmonids in Woodacre Creek.

The objective of this report is to document the current habitat conditions and recommend options for the potential enhancement of habitat for Chinook salmon, coho salmon, and steelhead trout. Recommendations for habitat improvement activities are based upon target habitat values suitable for salmonids in California's north coast streams

WATERSHED OVERVIEW

Woodacre Creek Tributary is a tributary to Woodacre Creek, a tributary to Lagunitas Creek, a tributary to Pacific Ocean, located in Marin County, California. Woodacre Creek Tributary's legal description at the confluence with Woodacre Creek is T02N R07W S16. Its location is 38°00'23.0" north latitude and 122°38'13.0" west longitude, and the LLID number is 1226369380063. Woodacre Creek Tributary is an ephemeral stream according to the USGS National Hydrography Datasheet (NHD). Woodacre Creek Tributary drains a watershed of approximately 0.44 square miles. Elevations range from about 417 feet at the mouth of the creek to 1391 feet in the headwater areas. Mixed hardwood dominates the watershed. About half the watershed is owned by the Local Government which accounts for 50.4% of the land area. Private property owners own the other half of about 49.6%. Approximately eight six percent of the considered natural and 13.3% is urban. Vehicle access exists via Sir Francis Drake Blvd. to Redwood Drive in Woodacre, CA.

METHODS

The habitat inventory conducted in Woodacre Creek follows the methodology presented in the *California Salmonid Stream Habitat Restoration Manual* (Flosi et al, 1998). The California Department of Fish and Game (DFG) personnel and Watershed Stewards Project/AmeriCorps (WSP) members that conducted the inventory were trained in standardized habitat inventory methods by the California Department of Fish and Game. This inventory was conducted by a two-person team.

HABITAT INVENTORY RESULTS AND DISCUSSION

The habitat inventory of 9/25/2006 was conducted by Mitsuko Terry (DFG) and Henning Fett (DFG). The total length of the stream surveyed was 3,577 feet.

Stream flow was measured near the bottom of the survey reach with a Marsh-McBirney Model 2000 flowmeter at 0.004 cfs on 9/25/2006.

Woodacre Creek Tributary is a B4 channel type for 2,168 feet of the stream surveyed (Reach 1) and an A2 channel type for 1,463 feet of the stream surveyed (Reach 2). The suitability of B4/A2 channel types for fish habitat improvement structures is as follows: B4 channel types are moderately entrenched, have a moderate gradient, and have a riffle dominated channel with infrequently spaced pools; very stable plan and profile; stable banks and a gravel channel. B4 channel types are good for low stage plunge weirs, boulder clusters, bank placed boulders, log cover and opposing wing deflectors. A2 channel types are steep, narrow, cascading step-pool streams. They are high energy and have a large amount of debris transportation associated with depositional soil and has a boulder channel. A2 channel types are generally not suitable for fish habitat improvement structures.

The water temperatures recorded on 9/25/2006 ranged from 53 to 57 degrees Fahrenheit. Air temperatures ranged from 59 to 74 degrees Fahrenheit. For a more complete and accurate water temperature profile, 24-hour temperatures would need to be monitored throughout the warm summer months.

Based on the total length of this survey, Level II habitat units consisted of 48% dry units, 34% flatwater units, 10% culvert units, 5% riffle units and 4% pool units. The pools are relatively shallow, with only 1 of the 10 pools having a maximum residual depth greater than 2 feet.

Two of the 10 pool tail-outs measured had embeddedness ratings of 1 or 2. Five of the pool tail-outs had embeddedness ratings of 3 or 4. Cobble embeddedness of 25% or less, a rating of 1, is considered best for the needs of salmon and steelhead. In Woodacre Creek 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 23. The shelter rating in the flatwater habitats was 16. A pool shelter rating of approximately 100 is desirable.

All of the low gradient riffles 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 81%. In general, revegetation projects are considered when canopy density is less than 80.

Woodacre Creek Tributary 2006

The percentage of right and left bank covered with vegetation was 49% and 37%, respectively. In areas of stream bank erosion or where bank vegetation is not at acceptable levels, it is recommended to plant endemic species of coniferous and hardwood trees, in conjunction with bank stabilization.

RECOMMENDATIONS

See the recommendations section of the Woodacre Creek report for all recommendations of the Woodacre Creek watershed including this unnamed tributary.

PROBLEM SITES AND LANDMARKS

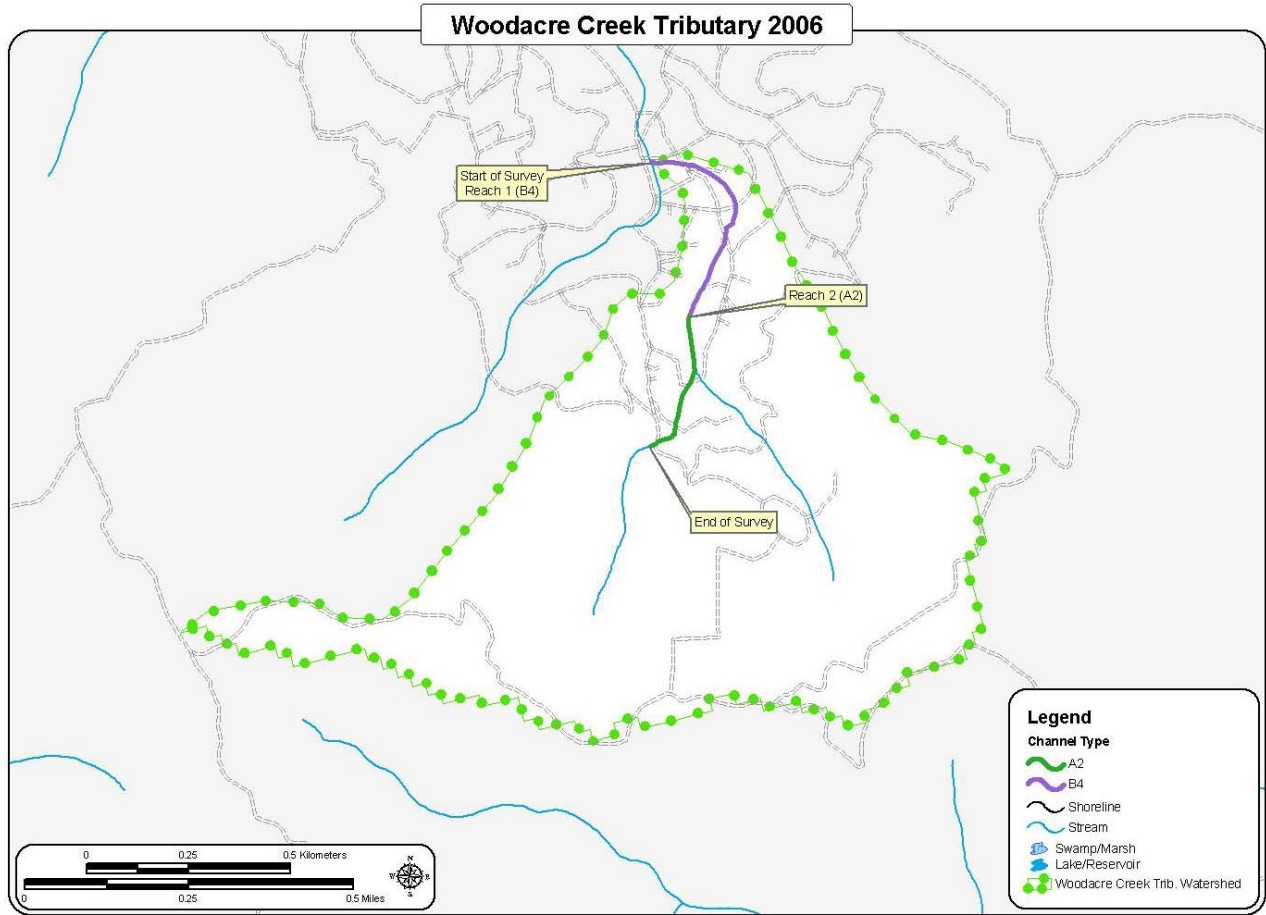
The following landmarks and possible problem sites were noted. All distances are approximate and taken from the beginning of the survey reach.

Position (ft.)	Habitat Unit #	Comments
0	0001.00	Start of Survey at confluence with Woodacre Creek. Reach 1, B4 channel type.
40	0002.00	Structures: Culvert #1: L44 W5.5 H4, No down cutting, Not retaining gravel. 67' L is the house foundation/culvert (15' W x 4'H), 44' L is the culvert under the road.
151	0003.00	Structures: Retaining wall on right bank
292	0004.00	Structures: Culvert #2: L50 W5.5 H3.6, Down cutting: 0.9, Not retaining gravel.
342	0005.00	General Comment: Trail across creek at Club
342	0005.00	Structures: Culvert on left bank at 226' into unit, footbridge at 357' into unit, 5.9' high.
1,017	0006.00	Structures: Culvert #3: L56 W14.5 H5.2, No down cutting, Retaining gravel: 0.8 ft.
1,073	0007.00	Structures: Retaining wall on left bank.
1,367	0008.00	Structures: Culvert #4: L50 W4 H4, No down cutting, Not retaining gravel.
1,417	0009.00	Structures: Culvert on right bank at 10' into unit. Footbridge at 60' into unit, 3' high. Culvert on right bank at 338' into unit, dripping water
2,063	0016.00	Structures: One 12" diameter culvert one 24" culvert on right bank.
2,078	0017.00	General Comment: Fish observed- Steelhead young of the year (yoy).
2,078	0017.00	Structures: 2.5' jump at end of unit – Dam which is a possible barrier

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Position (ft.)	Habitat Unit #	Comments
2,140	0019.00	General Comment: Erosion on left bank
2,168	0020.00	General Comment: Channel type change from B4 to A3. Reach 1 to Reach 2.
2,168	0020.00	Tributaries: Tributary on left bank at end of unit.
2,278	0024.00	General Comment: Redwoods, Erosion on right bank
2,471	0025.00	General Comment: Dam. 2' jump at end of unit.
2,480	0026.00	General Comment: Erosion on right bank
2,596	0029.00	General Comment: One fish observed., 2' jumps
2,620	0030.00	General Comment: Trail to creek on right bank. Fish observed 1+, yoy and 2+
2,620	0030.00	Tributaries: Wet tributary at 91' into unit, culvert at end of tributary.
2,870	0034.00	Tributaries: Dry tributary on left bank at 20' into unit
2,986	0037.00	General Comment: Gully on left bank, - 6' jump
3,254	0042.00	General Comment: Pacific Giant salamander larvae observed
3,288	0044.00	Structures: Culvert #5: L19 W3 H3, No down cutting, Not retaining gravel.
3,342	0047.00	Tributaries: Wet tributary at 70' into unit,
3,423	0048.00	General Comment: Fence crosses creek.
3,577	0049.00	Structures: Culvert #6: Redwood Dr. L65 W3.3 H3.3, No down cutting, Not retaining gravel.
3,577	0049.00	End of Survey at Redwood drive culvert.

Woodacre Creek Tributary 2006



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Prepared by: Shane Feirer, June 2007

Woodacre Creek Tributary 2006

Table 1 - Summary of Riffle, Flatwater, and Pool Habitat Parameters

Stream Name: Woodacre Creek Tributary.

LLID: 1226369380063

Drainage: Tomales Bay

Survey Dates: 9/25/2006 to 9/25/2006

Confluence Location: Quad: SAN GERONIMO

Legal Description: T02N R16W S16

Latitude: 38:00:23.0N

Longitude: 122:38:13.0W

Habitat Units	Units Fully Measured	Habitat Type	Habitat Occurrence (%)	Mean Length (ft.)	Total Length (ft.)	Total Length (%)	Mean Width (ft.)	Mean Depth (ft.)	Mean Max Depth (ft.)	Mean Area (sq.ft.)	Estimated Total Area (sq.ft.)	Mean Volume (cu.ft.)	Estimated Total Volume (cu.ft.)	Mean Residual Pool Vol (cu.ft.)	Mean Shelter Rating
6	0	CULVERT	12.0	58	351	9.7									0
8	0	DRY	16.0	217	1734	47.8									0
19	7	FLATWATER	38.0	65	1231	33.9	3.7	0.4	0.8	64	1212	31	592		16
10	10	POOL	20.0	14	144	4.0	5.7	0.9	1.7	76	759	80	799	70	23
7	3	RIFFLE	14.0	24	171	4.7	3.3	0.2	0.3	22	154	3	24		0
Total Units	Total Units Fully Measured				Total Length (ft.)						Total Area (sq.ft.)		Total Volume (cu.ft.)		
50	20				3631						2125		1415		

Woodacre Creek Tributary 2006

Table 2 - Summary of Habitat Types and Measured Parameters

Stream Name: Woodacre Creek Tributary.

LLID: 1226369380063

Drainage: Tomales Bay

Survey Dates: 9/25/2006 to 9/25/2006

Confluence Location: Quad: SAN GERONIMO

Legal Description: T02N R16W S16

Latitude: 38:00:23.0N

Longitude: 122:38:13.0W

Habitat Units	Units Fully Measured	Habitat Type	Habitat Occurrence (%)	Mean Length (ft.)	Total Length (ft.)	Total Length (%)	Mean Width (ft.)	Mean Depth (ft.)	Mean Max Depth (ft.)	Mean Area (sq.ft.)	Estimated Total Area (sq.ft.)	Mean Volume (cu.ft.)	Estimated Total Volume (cu.ft.)	Mean Residual Pool Vol (cu.ft.)	Mean Shelter Rating	Mean Canopy (%)
7	3	LGR	14.0	24	171	4.7	3.0	0.2	0.4	22	154	3	24		0	80
4	3	GLD	8.0	24	97	2.7	4.0	0.6	1.3	88	351	56	225		42	68
7	3	RUN	14.0	50	353	9.7	3.0	0.3	0.6	54	376	16	110		2	82
8	1	SRN	16.0	98	781	21.5	3.0	0.1	0.3	23	180	2	18		0	84
7	7	MCP	14.0	12	84	2.3	6.0	1.0	2.7	63	444	66	464	61	19	84
1	1	STP	2.0	24	24	0.7	8.0	0.9	1.5	192	192	211	211	173	40	95
1	1	LSBk	2.0	21	21	0.6	4.0	0.9	1.8	63	63	69	69	57	50	95
1	1	LSBo	2.0	15	15	0.4	4.0	0.7	1.5	60	60	54	54	42	10	70
8	0	DRY	16.0	217	1734	47.8									0	81
6	0	CUL	12.0	58	351	9.7									0	
Total Units	Total Units Fully Measured				Total Length (ft.)					Total Area (sq.ft.)		Total Volume (cu.ft.)				
50	20				3631					1820		1176				

Table 3 - Summary of Pools

Stream Name: Woodacre Creek Tributary

LLID: 1226369380063

Drainage: Tomales Bay

Survey Dates: 9/25/2006 to 9/25/2006

Confluence Location: Quad: SAN GERONIMO

Legal Description: T02N R16W S16

Latitude: 38:00:23.0N

Longitude: 122:38:13.0W

Habitat Units	Units Fully Measured	Habitat Type	Habitat Occurrence (%)	Mean Length (ft.)	Total Length (ft.)	Total Length (%)	Mean Width (ft.)	Mean Residual Depth (ft.)	Mean Area (sq.ft.)	Estimated Total Area (sq.ft.)	Mean Residual Pool Vol (cu.ft.)	Estimated Total Resid. Vol (cu.ft.)	Mean Shelter Rating
8	8	MAIN	80	14	108	75	6.1	1.0	79	636	75	597	21
2	2	SCOUR	20	18	36	25	4.0	0.8	62	123	49	99	30
Total Units	Total Units Fully Measured				Total Length (ft.)					Total Area (sq.ft.)		Total Volume (cu.ft.)	
10	10				144					759		696	

Table 4 - Summary of Maximum Residual Pool Depths By Habitat Type

Stream Name: Woodacre Creek Tributary

LLID: 1226369380063

Drainage: Tomales Bay

Survey Dates: 9/25/2006 to 9/25/2006

Confluence Location: Quad: SAN GERONIMO

Legal Description: T02N R16W S16

Latitude: 38:00:23.0N

Longitude: 122:38:13.0W

Habitat Units	Habitat Type	Habitat Occurrence (%)	< 1 Foot Maximum Residual Depth	< 1 Foot Percent Occurrence	1 < 2 Feet Maximum Residual Depth	1 < 2 Feet Percent Occurrence	2 < 3 Feet Maximum Residual Depth	2 < 3 Feet Percent Occurrence	3 < 4 Feet Maximum Residual Depth	3 < 4 Feet Percent Occurrence	>= 4 Feet Maximum Residual Depth	>= 4 Feet Percent Occurrence
7	MCP	70	0	0	6	86	1	14	0	0	0	0
1	STP	10	0	0	1	100	0	0	0	0	0	0
1	LSBk	10	0	0	1	100	0	0	0	0	0	0
1	LSBo	10	0	0	1	100	0	0	0	0	0	0
Total Units			Total < 1 Foot Max Resid. Depth	Total < 1 Foot % Occurrence	Total 1< 2 Feet Max Resid. Depth	Total 1< 2 Feet % Occurrence	Total 2< 3 Feet Max Resid. Depth	Total 2< 3 Feet % Occurrence	Total 3< 4 Feet Max Resid. Depth	Total 3< 4 Feet % Occurrence	Total >= 4 Feet Max Resid. Depth	Total >= 4 Feet % Occurrence
10			0	0	9	90	1	10	0	0	0	0
Mean Maximum Residual Pool Depth (ft.):			2									

Woodacre Creek Tributary 2006

Table 5 - Summary of Mean Percent Cover By Habitat

Stream Name:		Woodacre Creek Trib.		Dry Units:		8		LLID:		1226369380063		Drainage:		Tomales Bay	
Survey Dates:		9/25/2006 to 9/25/2006		Confluence Location: Quad:		SAN GERONIMO		Legal Description:		T02N R16W S16		Latitude:		38:00:23.0N	
Longitude:		122:38:13.0W		Habitat Units		Units Fully Measured		Habitat Type		Mean % Undercut Banks		Mean % SWD		Mean % LWD	
Mean % Root Mass		Mean % Terr. Vegetation		Mean % Aquatic Vegetation		Mean % White Water		Mean % Boulders		Mean % Bedrock Ledges					
7	3	LGR	0	0	0	0	0	0	0	0	0	0	0	0	0
7	3	TOTAL RIFFLE	0	0	0	0	0	0	0	0	0	0	0	0	0
4	3	GLD	23	0	7	3	0	0	0	0	0	0	0	0	33
7	3	RUN	0	0	33	0	0	0	0	0	0	0	0	0	0
8	2	SRN	0	0	0	0	0	0	0	0	0	0	0	0	0
19	8	TOTAL FLAT	9	0	15	1	0	0	0	0	0	0	0	0	13
7	7	MCP	10	0	14	0	0	0	0	1	61	14			
1	1	STP	0	30	0	70	0	0	0	0	0	0			
1	1	LSBk	60	0	0	0	0	0	0	0	30	10			
1	1	LSBo	0	0	0	0	0	0	0	0	100	0			
10	10	TOTAL POOL	13	3	10	7	0	0	0	1	56	11			
6	1	CUL	0	0	0	0	0	0	0	0	0	0			
50	25	TOTAL	8	1	9	3	0	0	0	0	22	8			

Table 6 - Summary of Dominant Substrates By Habitat Type

Stream Name: Woodacre Creek Tributary

LLID: 1226369380063

Drainage: Tomales Bay

Survey Dates: 9/25/2006 to 9/25/2006

Confluence Location: Quad: SAN GERONIMO **Legal Description:** T02N R16W S16 **Latitude:** 38:00:23.0N **Longitude:** 122:38:13.0W

Habitat Units	Units Fully Measured	Habitat Type	% Total Silt/Clay Dominant	% Total Sand Dominant	% Total Gravel Dominant	% Total Small Cobble Dominant	% Total Large Cobble Dominant	% Total Boulder Dominant	% Total Bedrock Dominant
7	3	LGR	0	0	67	33	0	0	0
4	3	GLD	0	67	33	0	0	0	0
7	3	RUN	0	0	67	33	0	0	0
8	1	SRN	0	0	100	0	0	0	0
7	7	MCP	14	29	14	0	0	14	29
1	1	STP	0	100	0	0	0	0	0
1	1	LSBk	0	0	100	0	0	0	0
1	1	LSBo	0	0	100	0	0	0	0
6	0	CUL	0	0	0	0	0	0	0

Table 7 - Summary of Mean Percent Canopy for Entire Stream

Stream Name: Woodacre Creek Tributary

LLID: 1226369380063

Drainage: Tomales Bay

Survey Dates: 9/25/2006 to 9/25/2006

Confluence Location: Quad: SAN GERONIMO

Legal Description: T02N R16W S16

Latitude: 38:00:23.0N

Longitude: 122:38:13.0W

Mean Percent Canopy	Mean Percent Conifer	Mean Percent Hardwood	Mean Percent Open Units	Mean Right Bank % Cover	Mean Left Bank % Cover
81	8	92	0	49	37

Note: Mean percent conifer and hardwood for the entire reach are means of canopy components from units with canopy values greater than zero.

Open units represent habitat units with zero canopy cover.

Table 8 - Fish Habitat Inventory Data Summary

Stream Name: Woodacre Creek Tributary. LLID: 1226369380063 Drainage: Tomales Bay
 Survey Dates: 9/25/2006 to 9/25/2006 Survey Length (ft.): 3631 Main Channel (ft.): 3577 Side Channel (ft.): 54
 Confluence Location: Quad: SAN GERONIMO Legal Description: T02N R16W S16 Latitude: 38:00:23.0N Longitude: 122:38:13.0W

Summary of Fish Habitat Elements By Stream Reach

STREAM REACH: 1

Channel Type: B4	Canopy Density (%): 82.7	Pools by Stream Length (%): 0.9
Reach Length (ft.): 2168	Coniferous Component (%): 0.0	Pool Frequency (%): 5.3
Riffle/Flatwater Mean Width (ft.): 4.0	Hardwood Component (%): 100.0	Residual Pool Depth (%):
BFW:	Dominant Bank Vegetation: Hardwood Trees	< 2 Feet Deep: 100.0
Range (ft.): 8 to 15	Vegetative Cover (%): 49.7	2 to 2.9 Feet Deep: 0.0
Mean (ft.): 11.32	Dominant Shelter: Large Woody Debris	3 to 3.9 Feet Deep: 0.0
Std. Dev.: 3.50	Dominant Bank Substrate Type: Sand/Silt/Clay	>= 4 Feet Deep: 0.0
Base Flow (cfs):	Occurrence of LWD (%): 23.9	Mean Max Residual Pool Depth (ft.): 1.7
Water (F): 0 - 53 Air (F): 59 - 64	LWD per 100 ft.:	Mean Pool Shelter Rating: 5
Dry Channel (ft.): 1585	Riffles: 0	
	Pools: 5	
	Flat: 1	
Pool Tail Substrate (%): Silt/Clay: 0.0 Sand: 0.0 Gravel: 0.0 Sm Cobble: 100.0 Lg Cobble: 0.0 Boulder: 0.0 Bedrock: 0.0		
Embeddedness Values (%): 1. 0.0 2. 0.0 3. 0.0 4. 100.0 5. 0.0		

STREAM REACH: 2

Channel Type: A2	Canopy Density (%): 81.0	Pools by Stream Length (%): 8.5
Reach Length (ft.): 1409	Coniferous Component (%): 11.4	Pool Frequency (%): 29.0
Riffle/Flatwater Mean Width (ft.): 3.3	Hardwood Component (%): 88.6	Residual Pool Depth (%):
BFW:	Dominant Bank Vegetation: Hardwood Trees	< 2 Feet Deep: 88.9
Range (ft.): 10 to 15	Vegetative Cover (%): 39.1	2 to 2.9 Feet Deep: 11.1
Mean (ft.): 10.24	Dominant Shelter: Boulders	3 to 3.9 Feet Deep: 0.0
Std. Dev.: 1.06	Dominant Bank Substrate Type: Sand/Silt/Clay	>= 4 Feet Deep: 0.0
Base Flow (cfs): 0.004	Occurrence of LWD (%): 0.0	Mean Max Residual Pool Depth (ft.): 1.71
Water (F): 53 - 57 Air (F): 64 - 74	LWD per 100 ft.:	Mean Pool Shelter Rating: 25
Dry Channel (ft.): 149	Riffles: 0	
	Pools: 0	
	Flat: 0	
Pool Tail Substrate (%): Silt/Clay: 0.0 Sand: 0.0 Gravel: 0.0 Sm Cobble: 55.6 Lg Cobble: 11.1 Boulder: 33.3 Bedrock: 0.0		
Embeddedness Values (%): 1. 0.0 2. 22.2 3. 44.4 4. 0.0 5. 33.3		

Table 9 -Mean Percentage of Dominant Substrate and Vegetation

Stream Name: Woodacre Creek Tributary **LLID:** 1226369380063 **Drainage:** Tomales Bay
Survey Dates: 9/25/2006 to 9/25/2006
Confluence Location: Quad: SAN GERONIMO **Legal Description:** T02N R16W S16 **Latitude:** 38:00:23.0N **Longitude:** 122:38:13.0W

Mean Percentage of Dominant Stream Bank

Dominant Class of Substrate	Number of Units Right Bank	Number of Units Left Bank	Total Mean Percentage (%)
Bedrock	3	3	12.5
Boulder	3	3	12.5
Cobble/Gravel	6	7	27.1
Sand/Silt/Clay	12	11	47.9

Mean Percentage of Dominant Stream Bank

Dominant Class of Vegetation	Number of Units Right Bank	Number of Units Left Bank	Total Mean Percentage (%)
Grass	1	0	2.1
Brush	5	6	22.9
Hardwood Trees	15	17	66.7
Coniferous Trees	1	0	2.1
No Vegetation	2	1	6.3

Total Stream Cobble Embeddedness 4

Table 10 - Mean Percent of Shelter Cover Types For Entire Stream

Stream Name: Woodacre Creek Tributary

LLID: 1226369380063

Drainage: Tomales Bay

Survey Dates: 9/25/2006 to 9/25/2006

Confluence Location: Quad: SAN GERONIMO

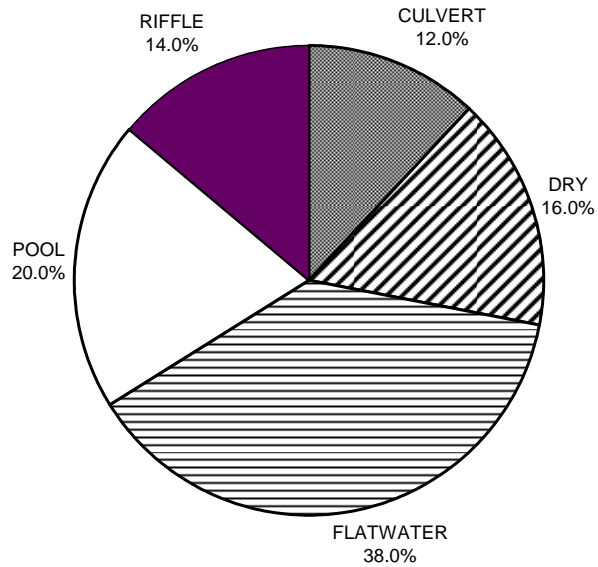
Legal Description: T02N R16W S16

Latitude: 38:00:23.0N

Longitude: 122:38:13.0W

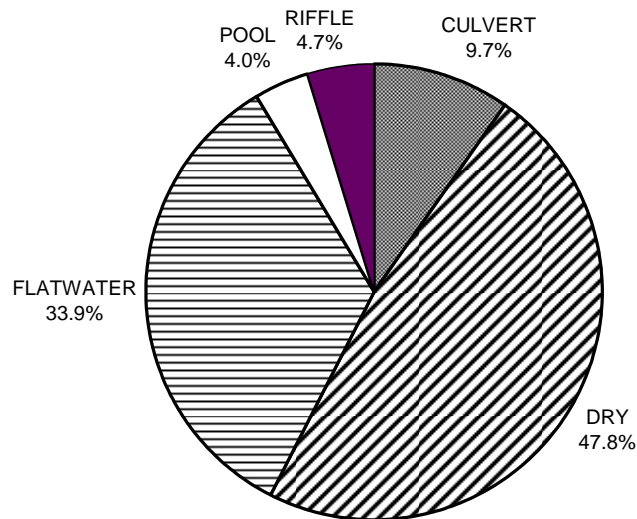
	Riffles	Flatwater	Pools
UNDERCUT BANKS (%)	0	9	13
SMALL WOODY DEBRIS (%)	0	0	3
LARGE WOODY DEBRIS (%)	0	15	10
ROOT MASS (%)	0	1	7
TERRESTRIAL VEGETATION (%)	0	0	0
AQUATIC VEGETATION (%)	0	0	0
WHITEWATER (%)	0	0	1
BOULDERS (%)	0	0	56
BEDROCK LEDGES (%)	0	13	11

**WOODACRE CREEK TRIB. 2006
HABITAT TYPES BY PERCENT OCCURRENCE**



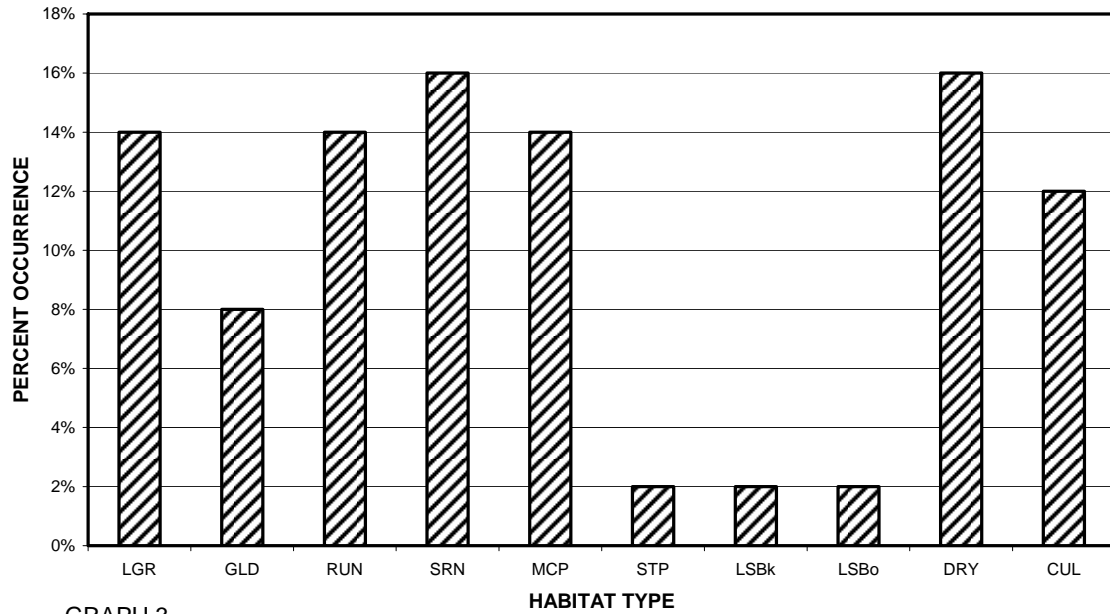
GRAPH 1

**WOODACRE CREEK TRIB. 2006
HABITAT TYPES BY PERCENT TOTAL LENGTH**



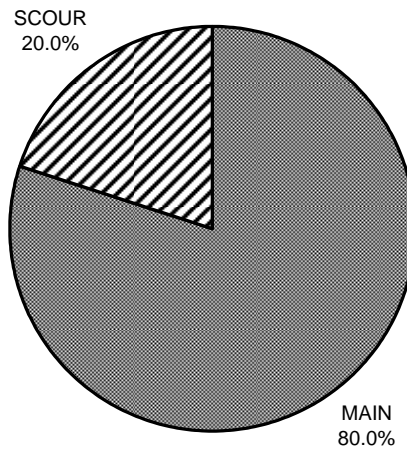
GRAPH 2

**WOODACRE CREEK TRIB. 2006
HABITAT TYPES BY PERCENT OCCURRENCE**



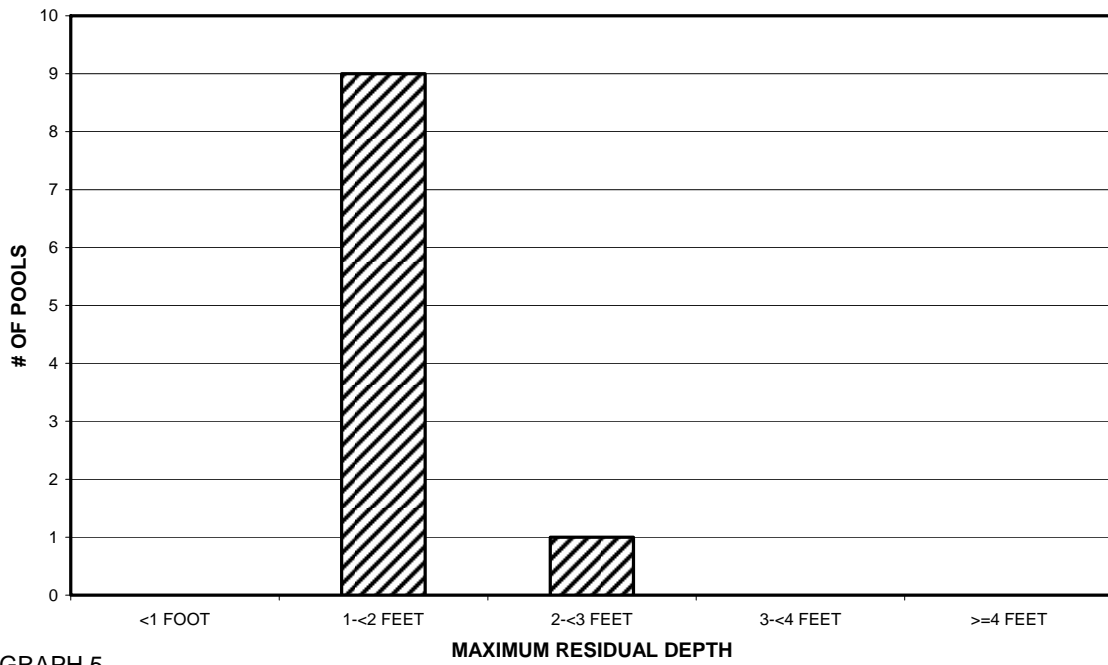
GRAPH 3

**WOODACRE CREEK TRIB. 2006
POOL TYPES BY PERCENT OCCURRENCE**



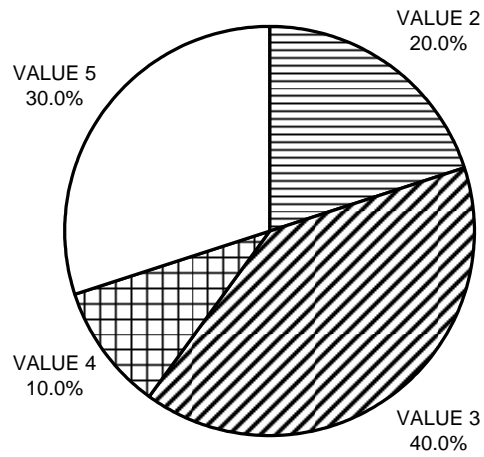
GRAPH 4

WOODACRE CREEK TRIB. 2006 MAXIMUM DEPTH IN POOLS



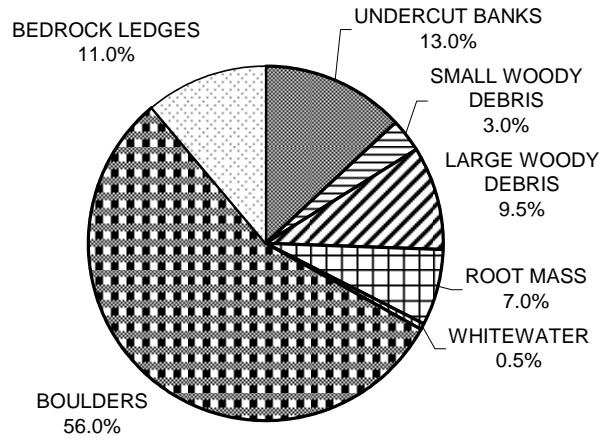
GRAPH 5

WOODACRE CREEK TRIB. 2006 PERCENT EMBEDDEDNESS



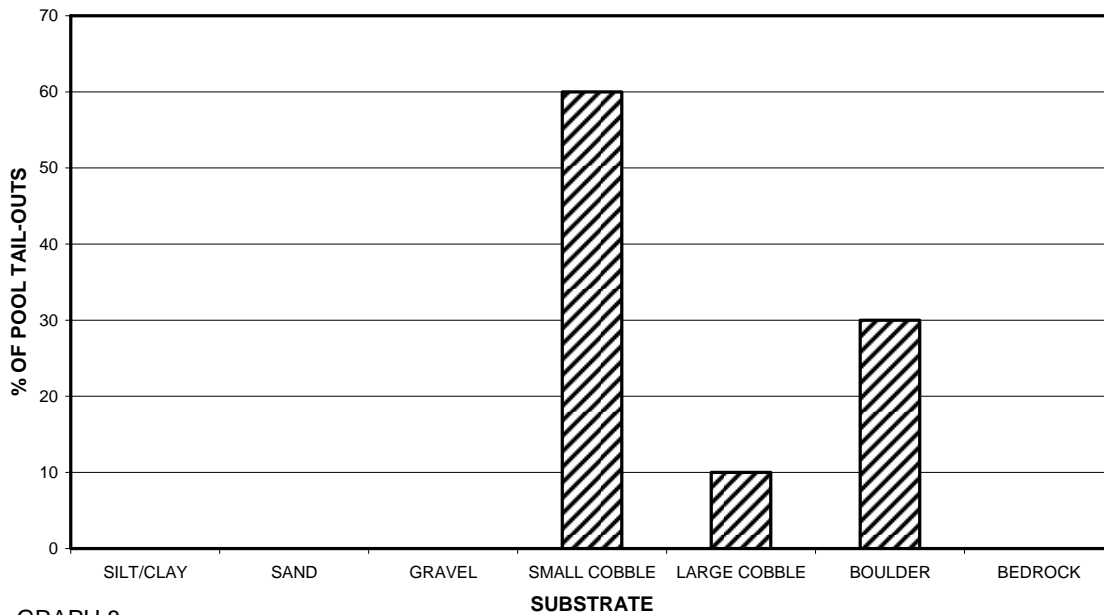
GRAPH 6

**WOODACRE CREEK TRIB. 2006
MEAN PERCENT COVER TYPES IN POOLS**



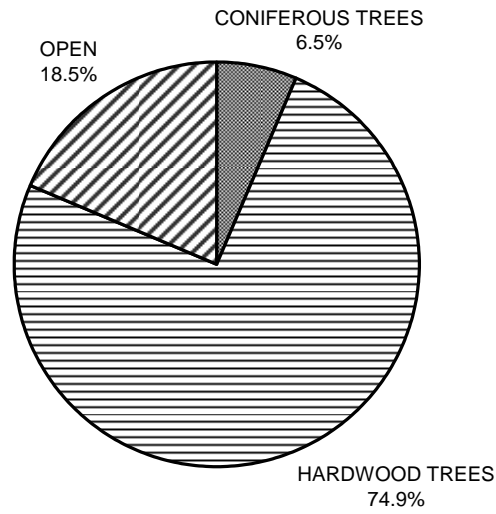
GRAPH 7

**WOODACRE CREEK TRIB. 2006
SUBSTRATE COMPOSITION IN POOL TAIL-OUTS**



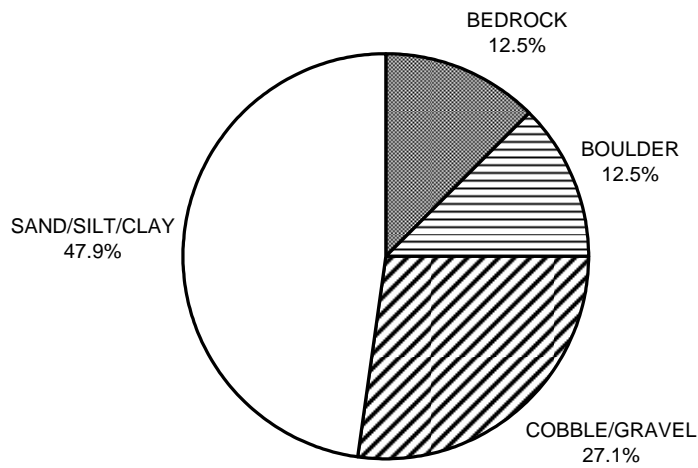
GRAPH 8

**WOODACRE CREEK TRIB. 2006
MEAN PERCENT CANOPY**



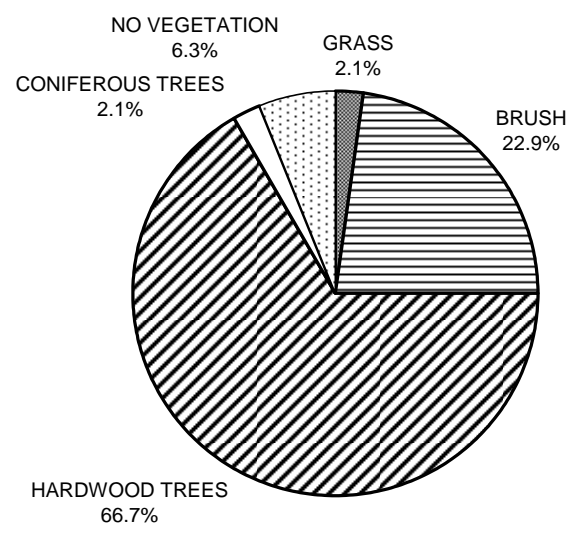
GRAPH 9

**WOODACRE CREEK TRIB. 2006
DOMINANT BANK COMPOSITION IN SURVEY REACH**



GRAPH 10

**WOODACRE CREEK TRIB. 2006
DOMINANT BANK VEGETATION IN SURVEY REACH**



GRAPH 11