

STREAM INVENTORY REPORT

Unnamed Tributary Bridge Creek

WATERSHED OVERVIEW

Refer to the map of Bridge Creek for the location of the unnamed tributary.

The unnamed tributary is a tributary to Bridge Creek, tributary to South Fork Eel River, tributary to Eel River which drains to the Pacific Ocean, located in Humboldt County, California. This unnamed tributary's legal description at the confluence with Bridge Creek is T2S R3E S17. Its location is 40.2894 north latitude and 123.8575 west longitude, LLID number 1238576402894. This unnamed tributary is a first order stream according to the USGS Myers Flat 7.5 minute quadrangle. Its blue line length is 3,755 feet. The unnamed tributary drains a watershed of approximately 0.46 square miles. Elevations range from about 315 feet at the mouth of the creek to 900 feet in the headwater areas. Mixed conifer forest dominates the watershed. The watershed is primarily state park and is managed for recreation. Vehicle access exists via Myers Flat exit to the Avenue of the Giants, take the Avenue north (upstream) to the Bridge Creek crossing.

HABITAT INVENTORY RESULTS AND DISCUSSION

The habitat inventory of June 27, 2007 was conducted by R. Marsh and L. Lee (WSP). The total length of the stream surveyed was 625 feet.

Stream flow was not measured on this unnamed tributary.

This unnamed tributary is an A3 channel type for the entire 625 feet of the stream surveyed. The A3 channel types are generally unsuitable for fish habitat improvement structures.

The water temperatures recorded on the survey days June 27, 2007, ranged from 54 to 55 degrees Fahrenheit. Air temperatures ranged from 54 to 56 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 45% flatwater units, 33% riffle units, 15% pool units, and 7% dry units. The pools are relatively shallow, with none of the 5 pools having a maximum residual depth greater than 2 feet.

Two of the 5 pool tail-outs measured had embeddedness ratings of 1 or 2. Three 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 this unnamed 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 46. The shelter rating in the flatwater habitats was 3. A pool shelter rating of approximately 100 is desirable. Large woody debris is the dominant cover type in pools followed by small woody debris.

Two of the 3 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 90%. In general, revegetation projects are considered when canopy density is less than 80. The percentage of right and left bank covered with vegetation was 75% and 86%, respectively.

BIOLOGICAL INVENTORY RESULTS

Young-of-the-year salmonids were observed during the 2007 stream survey. No other biological sampling was conducted in the tributary to Bridge Creek during the 2007 survey.

RECOMMENDATIONS

- 1) Unnamed tributary should be managed as an anadromous, natural production stream.
- 2) Increase woody cover in the pools and flatwater habitat units. Most of the existing cover is from large woody debris. Adding high quality complexity with woody cover is desirable and in some areas the material is at hand.
- 3) 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.

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 at the confluence with Bridge Creek.
17	0002.00	Two young-of-the-year salmonids were observed in this unit.
250	0012.00	Log debris accumulation (LDA#001) was 9' high x 20.5' wide x 39.5' long. Water did not flow through and there were no visible gaps. The sediment that was being retained measured 11' wide x 26' long x 7' high and consisted of substrate ranging from silt to small cobble. No fish were observed above the accumulation. It was a probable barrier to juvenile and adult salmonids due to a 5' plunge. The flow was subsurface above the accumulation.
459	0021.00	A log debris accumulation (LDA#002) began in this unit. It measured 10' high x 31' wide x 191' long and contained 49 pieces of large woody debris (LWD). Water flowed through, though there were no visible gaps. Stored sediment measured 56' wide x 11' long x 8.8' deep and ranged in size from silt to large cobble. It was a possible barrier to both adults and juveniles; no fish were seen above the accumulation. This was the first of a series of log debris accumulations; many had plunges without jump pools.
486	0024.00	There was a 2.2' plunge at the top of this unit and it is impaired by debris.
579	0029.00	There was a 4.6' plunge at the top of this unit. The jump was impaired by woody debris and the stream was dry above this unit.
625	0030.00	End of survey due to extensive log debris accumulations as well as plunges, ranging 3' to 5', having little to no pools.

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

Stream Name: 1238576402894

LLID: 1238576402894 Drainage: Eel River - South Fork

Survey Dates: 6/27/2007 to 6/27/2007

Confluence Location: Quad: MYERS FLAT Legal Description: T02SR03ES17 Latitude: 40:17:22.0N Longitude: 123:51:27.0

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
2	0	DRY	6.7	22	43	6.9									
11	3	FLATWATER	36.7	26	282	45.1	5.8	0.3	0.6	78	862	26	288		3
5	5	POOL	16.7	19	96	15.4	7.5	0.5	1.3	135	673	97	485	75	46
12	5	RIFFLE	40.0	17	204	32.6	6.3	0.3	0.5	56	671	19	224		9
Total Units	Total Units Fully Measured				Total Length (ft.)					Total Area (sq.ft.)			Total Volume (cu.ft.)		
30	13				625					2207			997		

Table 2 - Summary of Habitat Types and Measured Parameters

Stream Name: 1238576402894

LLID: 1238576402894

Drainage: Eel River - South Fork

Survey Dates: 6/27/2007 to 6/27/2007

Confluence Location: Quad: MYERS FLAT

Legal Description: T02SR03ES17

Latitude: 40:17:22.0N

Longitude: 123:51:27.0W

Habitat Units	Units Fully Measured	Habitat Type	Habitat Occurrence (%)	Mean Length (ft.)	Total Length (ft.)	Total Length (%)	Mean Width (ft.)	Mean Depth (ft.)	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	23.3	13	94	15.0	7	0.2	0.5	36	251	8	58		10	85
4	1	HGR	13.3	21	85	13.6	5	0.4	0.6	82	328	33	131		10	99
1	1	CAS	3.3	25	25	4.0	6	0.4	0.9	90	90	36	36		5	85
10	2	RUN	33.3	25	250	40.0	7	0.4	0.8	70	700	25	250		5	94
1	1	SRN	3.3	32	32	5.1	4	0.3	0.5	95	95	29	29		0	96
5	5	MCP	16.7	19	96	15.4	8	0.5	1.5	135	673	97	485	75	46	90
2	0	DRY	6.7	22	43	6.9										

Total Units
30

Total Units Fully Measured
13

Total Length (ft.)
625

Total Area (sq.ft.)
2137

Total Volume (cu.ft.)
988

Table 3 - Summary of Pool Types

Stream Name: 1238576402894

LLID: 1238576402894

Drainage: Eel River - South Fork

Survey Dates: 6/27/2007 to 6/27/2007

Confluence Location: Quad: MYERS FLAT

Legal Description: T02SR03ES17

Latitude: 40:17:22.0N

Longitude: 123:51:27.0W

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
5	5	MAIN	100	19	96	100	7.5	0.5	135	673	75	375	46

Total Units	Total Units Fully Measured	Total Length (ft.)	Total Area (sq.ft.)	Total Volume (cu.ft.)
5	5	96	673	375

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

Stream Name: 1238576402894 LLID: 1238576402894 Drainage: Eel River - South Fork

Survey Dates: 6/27/2007 to 6/27/2007

Confluence Location: Quad: MYERS FLAT Legal Description: T02SR03ES17 Latitude: 40:17:22.0N Longitude: 123:51:27.0W

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
5	MCP	100	0	0	5	100	0	0	0	0	0	0

Total Units	Total < 1 Foot Max Resid. Depth	Total < 1 Foot % Occurrence	Total 1< 2 Foot Max Resid. Depth	Total 1< 2 Foot % Occurrence	Total 2< 3 Foot Max Resid. Depth	Total 2< 3 Foot % Occurrence	Total 3< 4 Foot Max Resid. Depth	Total 3< 4 Foot % Occurrence	Total >= 4 Foot Max Resid. Depth	Total >= 4 Foot % Occurrence
5	0	0	5	100	0	0	0	0	0	0

Mean Maximum Residual Pool Depth (ft.): 1.3

Table 5 - Summary of Mean Percent Cover By Habitat Type

Stream Name: 1238576402894

LLID: 1238576402894

Drainage: Eel River - South Fork

Survey Dates: 6/27/2007 to 6/27/2007

Dry Units: 2

Confluence Location: Quad: MYERS FLAT

Legal Description: T02SR03ES17

Latitude: 40:17:22.0N

Longitude: 123:51:27.0W

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	15	0	0	0	0	0	85	0
4	1	HGR	0	0	0	0	0	0	0	100	0
1	1	CAS	0	5	0	0	0	0	0	95	0
12	5	TOTAL RIFFLE	0	0	0	0	0	0	0	100	0
10	2	RUN									
1	1	SRN	0	0	0	0	0	0	0	100	0
11	3	TOTAL FLAT	16	29	33	0	0	0	0	22	0
5	5	MCP	16	29	33	0	0	0	0	22	0
5	5	TOTAL POOL									
30	13	TOTAL	6	12	13	0	0	0	0	38	0

Table 6 - Summary of Dominant Substrates By Habitat Type

Stream Name: 1238576402894

LLID: 1238576402894

Drainage: Eel River - South Fork

Survey Dates: 6/27/2007 to 6/27/2007

Dry Units: 2

Confluence Location: Quad: MYERS FLAT

Legal Description: T02SR03ES17

Latitude: 40:17:22.0N

Longitude: 123:51:27.0W

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	33	33	0	33	0
4	1	HGR	0	0	0	0	0	100	0
1	1	CAS	0	0	0	0	0	100	0
10	2	RUN	50	0	0	0	0	50	0
1	1	SRN	0	0	100	0	0	0	0
5	5	MCP	60	0	0	0	20	20	0

Table 7 - Summary of Mean Percent Canopy for Entire Stream

Stream Name: 1238576402894

LLID: 1238576402894

Drainage: Eel River - South Fork

Survey Dates: 6/27/2007 to 6/27/2007

Confluence Location: Quad: MYERS FLAT

Legal Description: T02SR03ES17

Latitude: 40:17:22.0N

Longitude: 123:51:27.0W

Mean Percent Canopy	Mean Percent Conifer	Mean Percent Hardwood	Mean Percent Open Units	Mean Right Bank % Cover	Mean Left Bank % Cover
90	51	49	0	75	86

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: 1238576402894

LLID: 1238576402894

Drainage: Eel River - South Fork

Survey Dates: 6/27/2007 to 6/27/2007

Survey Length (ft.): 625

Main Channel (ft.): 625

Side Channel (ft.): 0

Confluence Location: Quad: MYERS FLAT

Legal Description: T02SR03ES17

Latitude: 40:17:22.0N

Longitude: 123:51:27.0W

Summary of Fish Habitat Elements By Stream Reach**STREAM REACH: 1**

Channel Type: A3

Canopy Density (%): 90.2

Pools by Stream Length (%): 15.4

Reach Length (ft.): 625

Coniferous Component (%): 51.2

Pool Frequency (%): 16.7

Riffle/Flatwater Mean Width (ft.): 6.1

Hardwood Component (%): 48.8

Residual Pool Depth (%):

BFW:

Dominant Bank Vegetation: Brush

< 2 Feet Deep: 100

Range (ft.): 6 to 10

Vegetative Cover (%): 80.8

2 to 2.9 Feet Deep: 0

Mean (ft.): 8

Dominant Shelter: Boulders

3 to 3.9 Feet Deep: 0

Std. Dev.: 2

Dominant Bank Substrate Type: Sand/Silt/Clay

>= 4 Feet Deep: 0

Base Flow (cfs.): 0.0

Occurrence of LWD (%): 13

Mean Max Residual Pool Depth (ft.): 1.3

Water (F): 54 - 55 Air (F): 54 - 56

LWD per 100 ft.:

Mean Pool Shelter Rating: 46

Dry Channel (ft): 43

Riffles: 4

Pools: 19

Flat: 9

Pool Tail Substrate (%): Silt/Clay: 20 Sand: 0 Gravel: 20 Sm Cobble: 40 Lg Cobble: 20 Boulder: 0 Bedrock: 0

Embeddedness Values (%): 1. 20.0 2. 20.0 3. 60.0 4. 0.0 5. 0.0

Table 9 - Mean Percentage of Dominant Substrate and Vegetation

Stream Name: 1238576402894

LLID: 1238576402894

Drainage: Eel River - South Fork

Survey Dates: 6/27/2007 to 6/27/2007

Confluence Location: Quad: MYERS FLAT

Legal Description: T02SR03ES17

Latitude: 40:17:22.0N

Longitude: 123:51:27.0W

Mean Percentage of Dominant Stream Bank Substrate

Dominant Class of Substrate	Number of Units Right Bank	Number of Units Left Bank	Total Mean Percent (%)
Bedrock	0	1	3.8
Boulder	2	2	15.4
Cobble / Gravel	2	1	11.5
Sand / Silt / Clay	9	9	69.2

Mean Percentage of Dominant Stream Bank Vegetation

Dominant Class of Vegetation	Number of Units Right Bank	Number of Units Left Bank	Total Mean Percent (%)
Grass	1	0	3.8
Brush	6	8	53.8
Hardwood Trees	1	4	19.2
Coniferous Trees	5	1	23.1
No Vegetation	0	0	0.0

Total Stream Cobble Embeddedness Values: 2

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

StreamName: 1238576402894

LLID: 1238576402894

Drainage: Eel River - South Fork

Survey Dates: 6/27/2007 to 6/27/2007

Confluence Location: Quad: MYERS FLAT

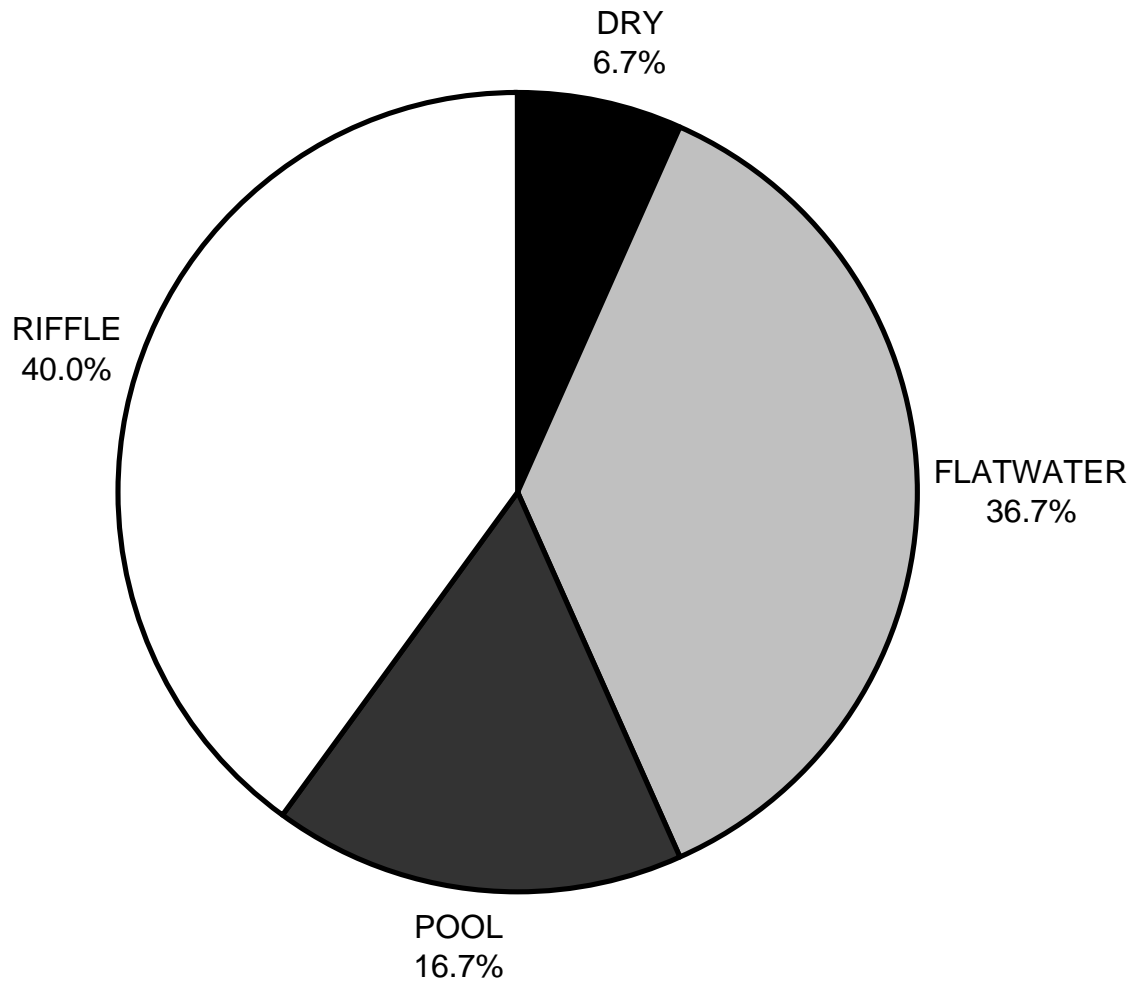
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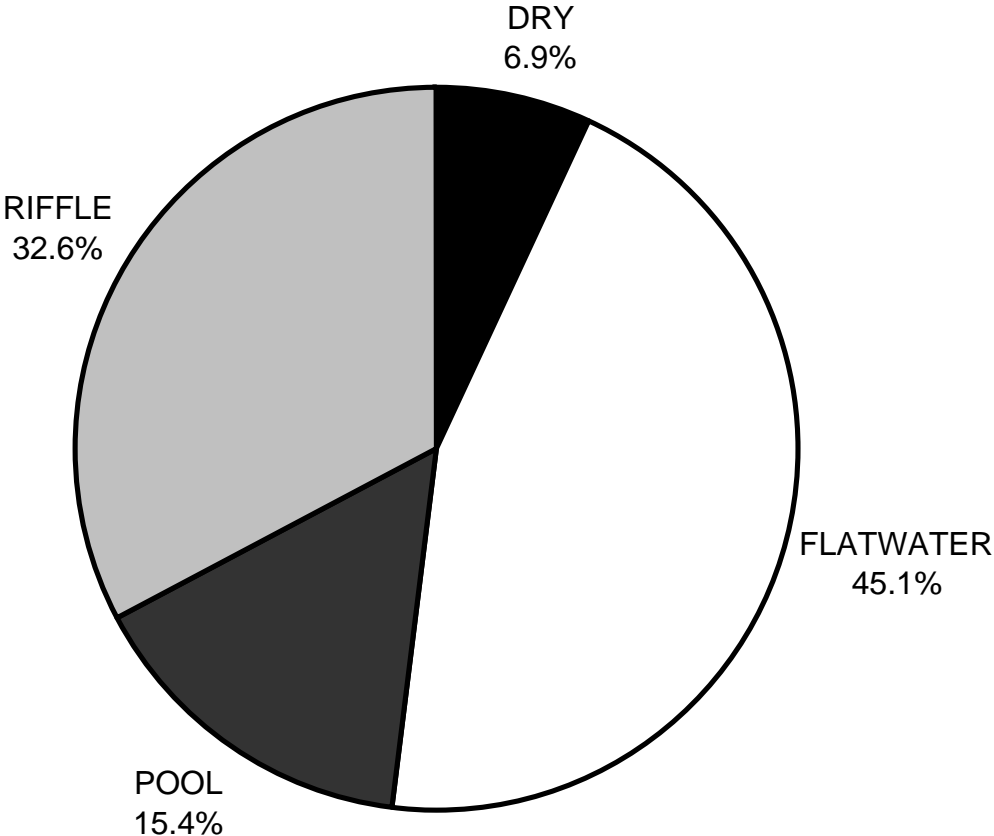
	Riffles	Flatwater	Pools
UNDERCUT BANKS (%)	0	0	16
SMALL WOODY DEBRIS (%)	5	0	29
LARGE WOODY DEBRIS (%)	0	0	33
ROOT MASS (%)	0	0	0
TERRESTRIAL VEGETATION (%)	0	0	0
AQUATIC VEGETATION (%)	0	0	0
WHITEWATER (%)	0	0	0
BOULDERS (%)	95	100	22
BEDROCK LEDGES (%)	0	0	0

1238576402894 2007
HABITAT TYPES BY PERCENT OCCURRENCE



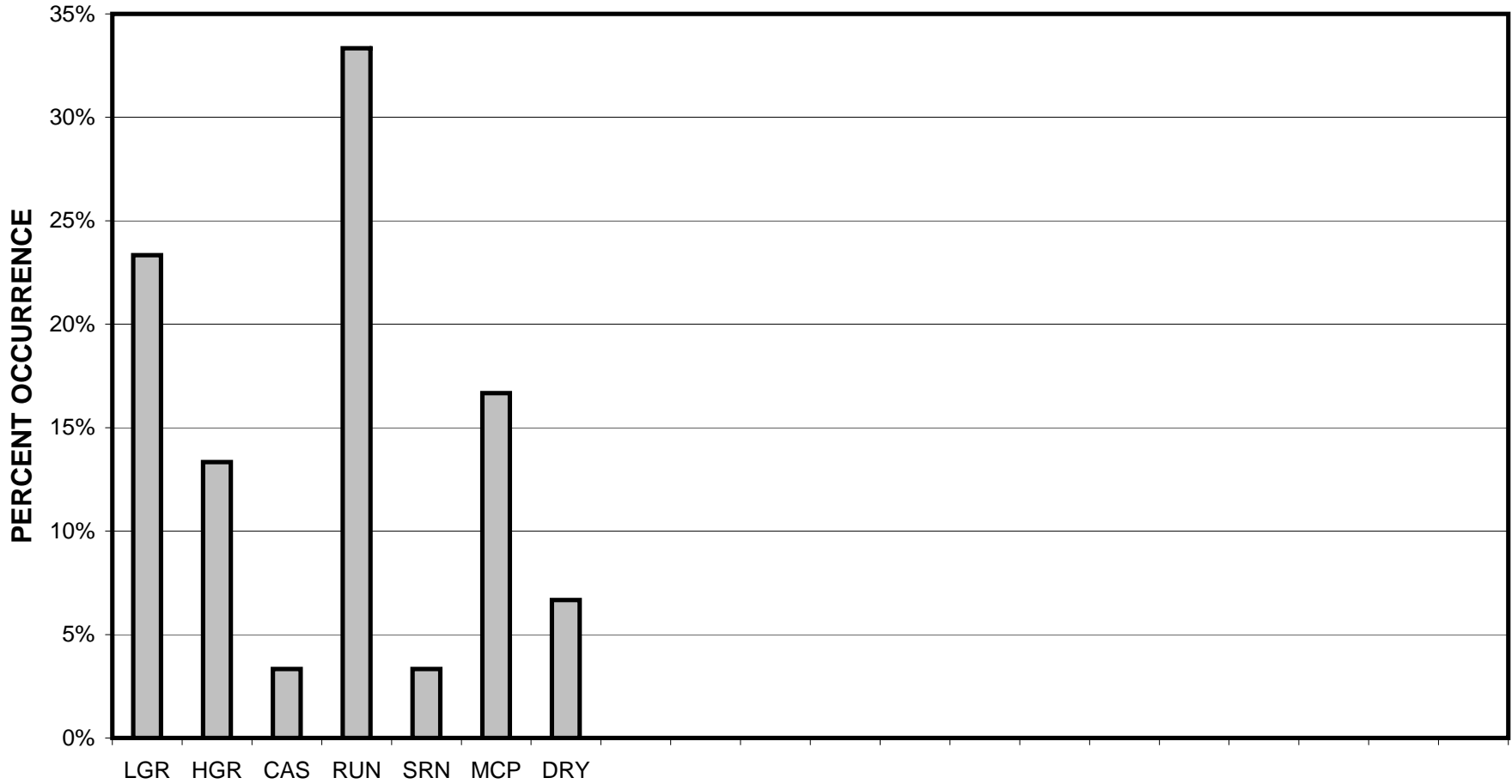
GRAPH 1

1238576402894 2007
HABITAT TYPES BY PERCENT TOTAL LENGTH



GRAPH 2

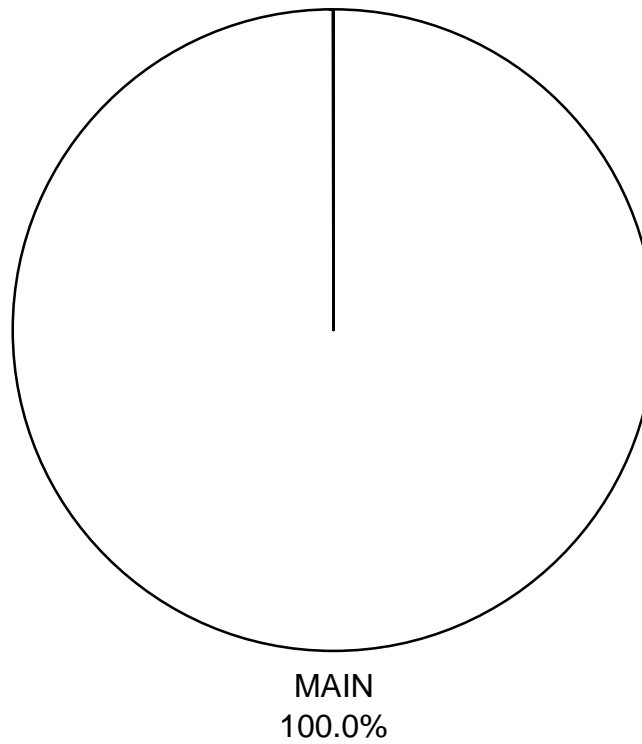
1238576402894 2007
HABITAT TYPES BY PERCENT OCCURRENCE



GRAPH 3

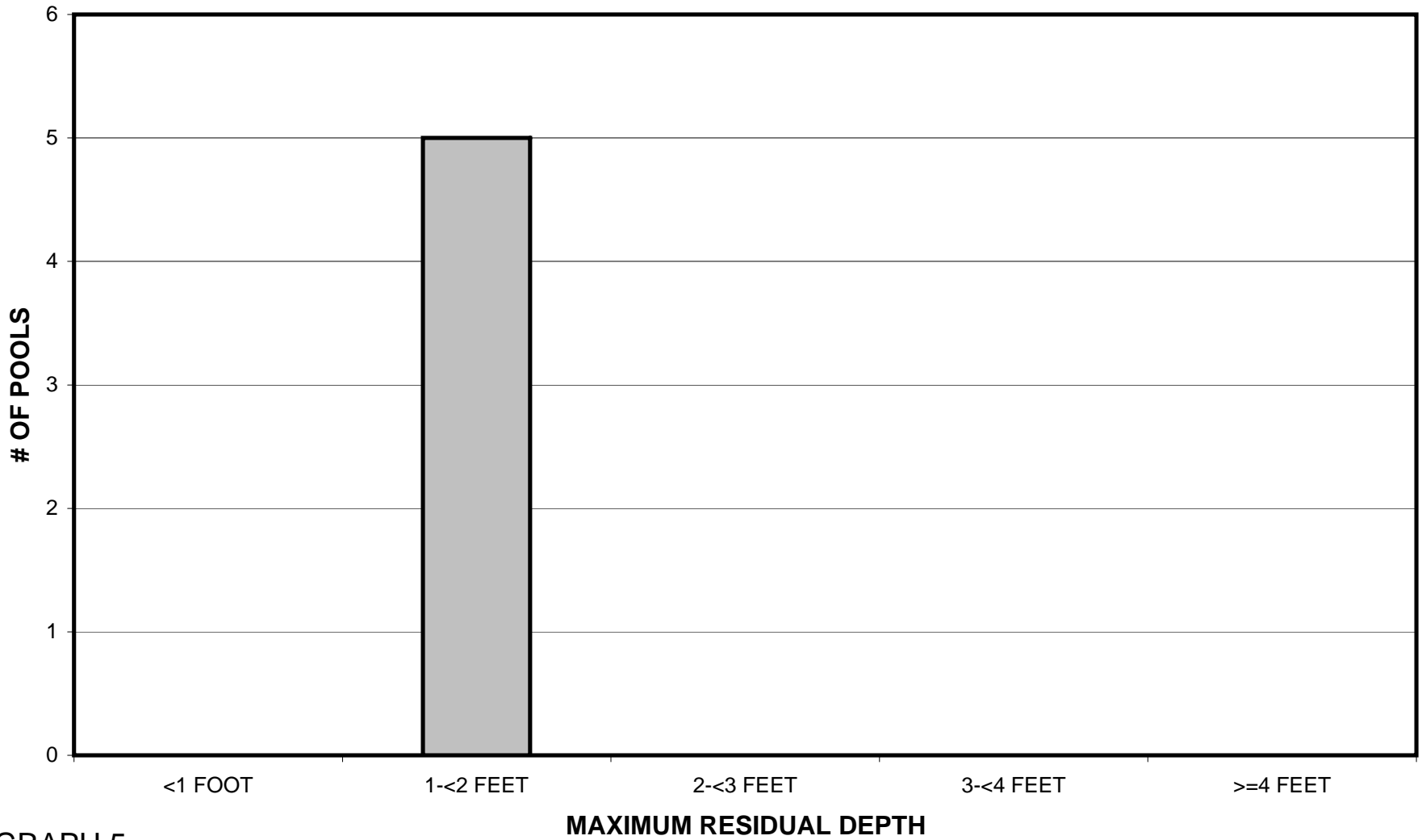
HABITAT TYPE

1238576402894 2007
POOL TYPES BY PERCENT OCCURRENCE



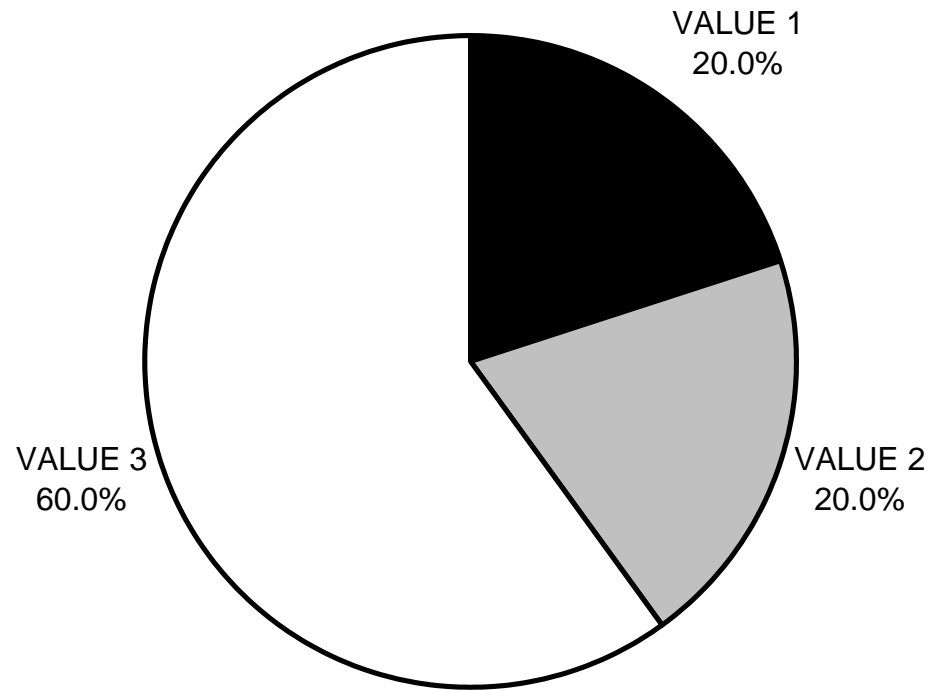
GRAPH 4

1238576402894 2007
MAXIMUM DEPTH IN POOLS



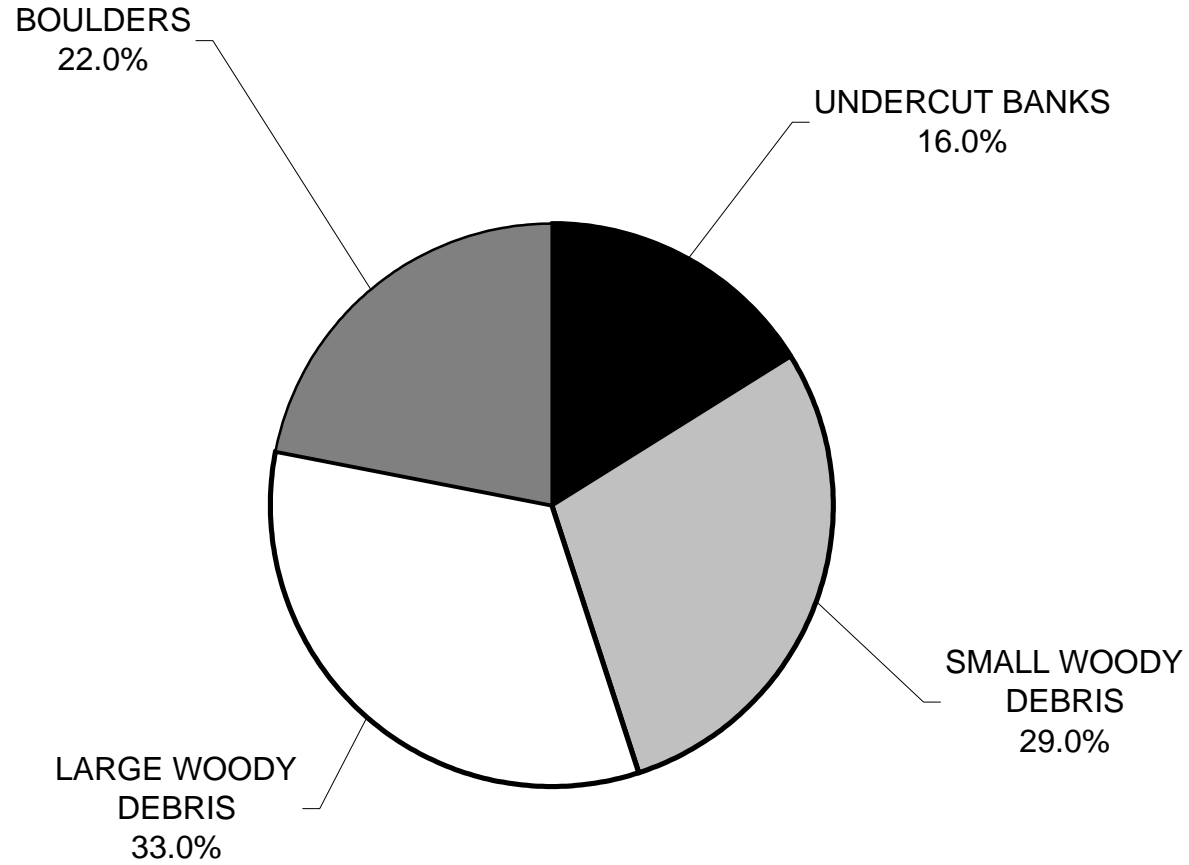
GRAPH 5

1238576402894 2007
PERCENT EMBEDDEDNESS



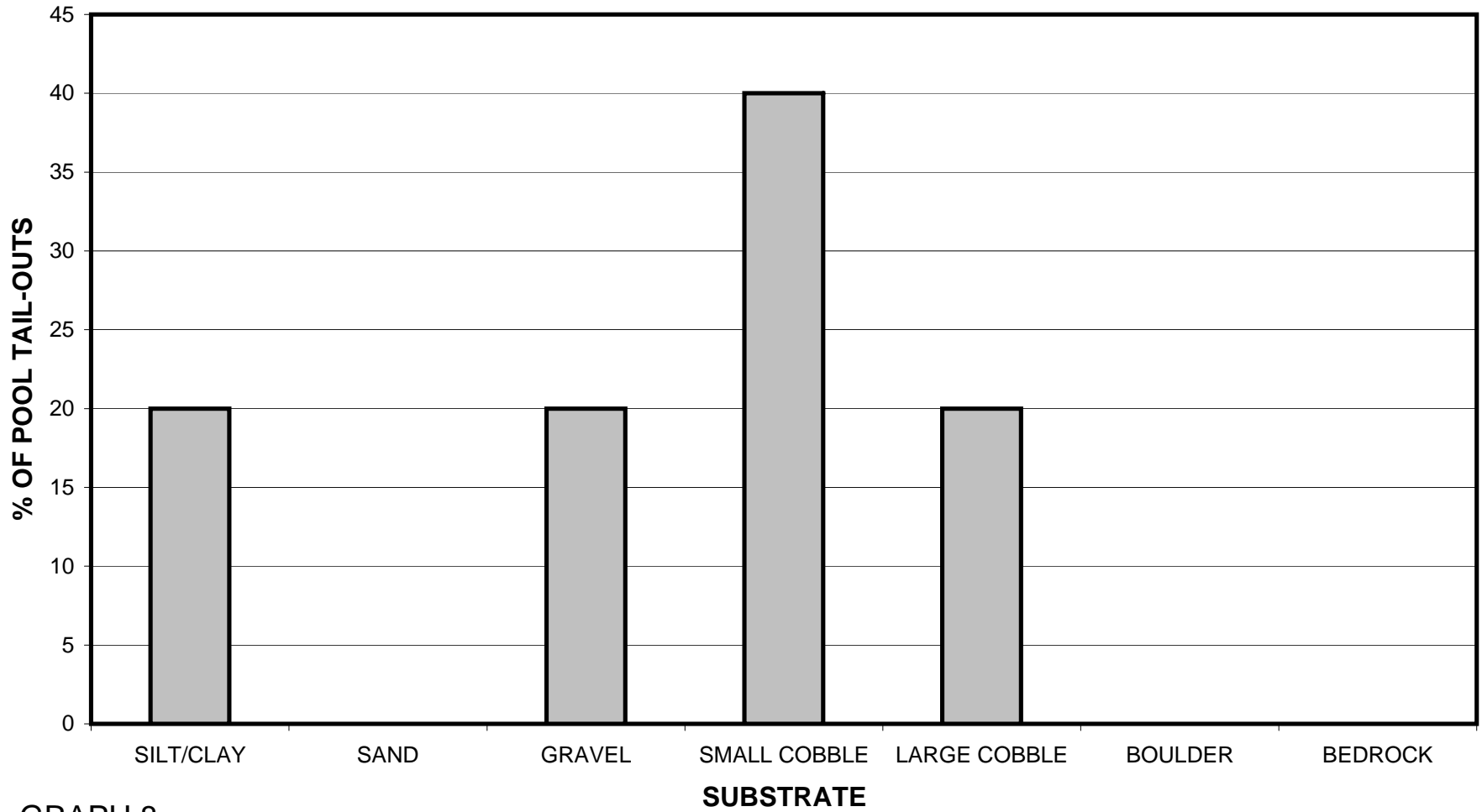
GRAPH 6

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MEAN PERCENT COVER TYPES IN POOLS



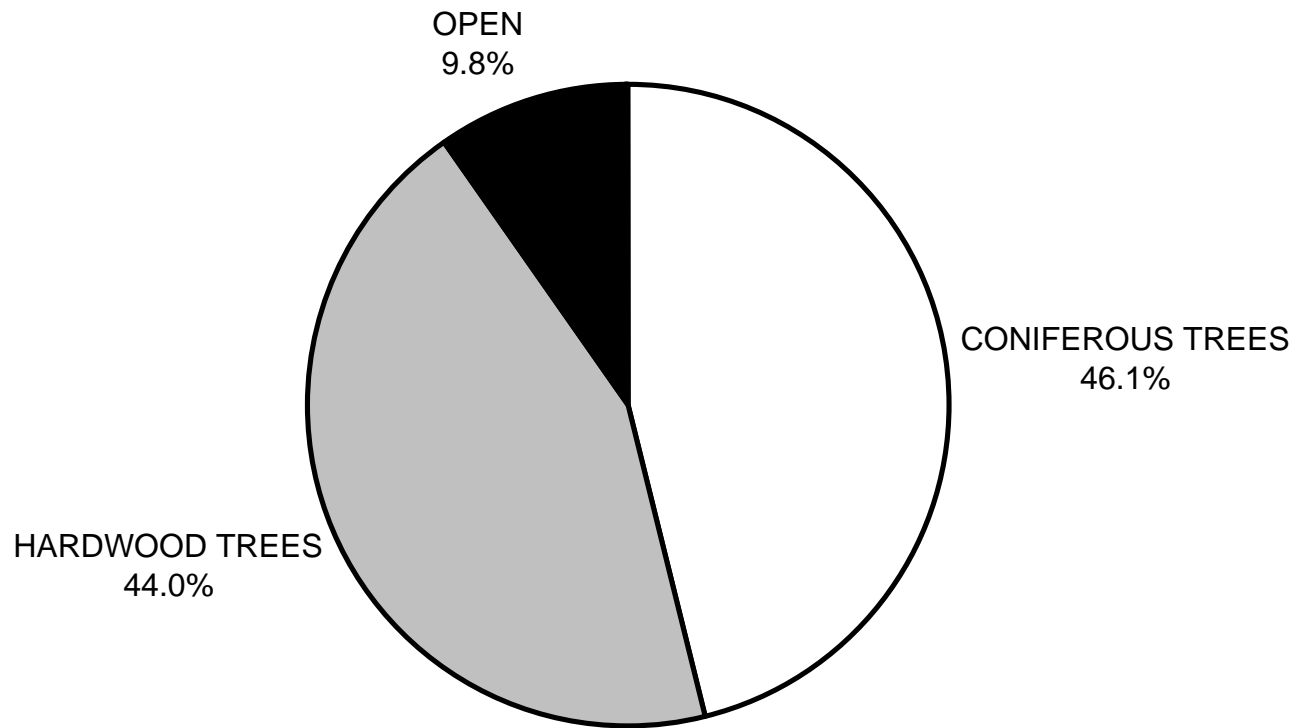
GRAPH 7

1238576402894 2007
SUBSTRATE COMPOSITION IN POOL TAIL-OUTS



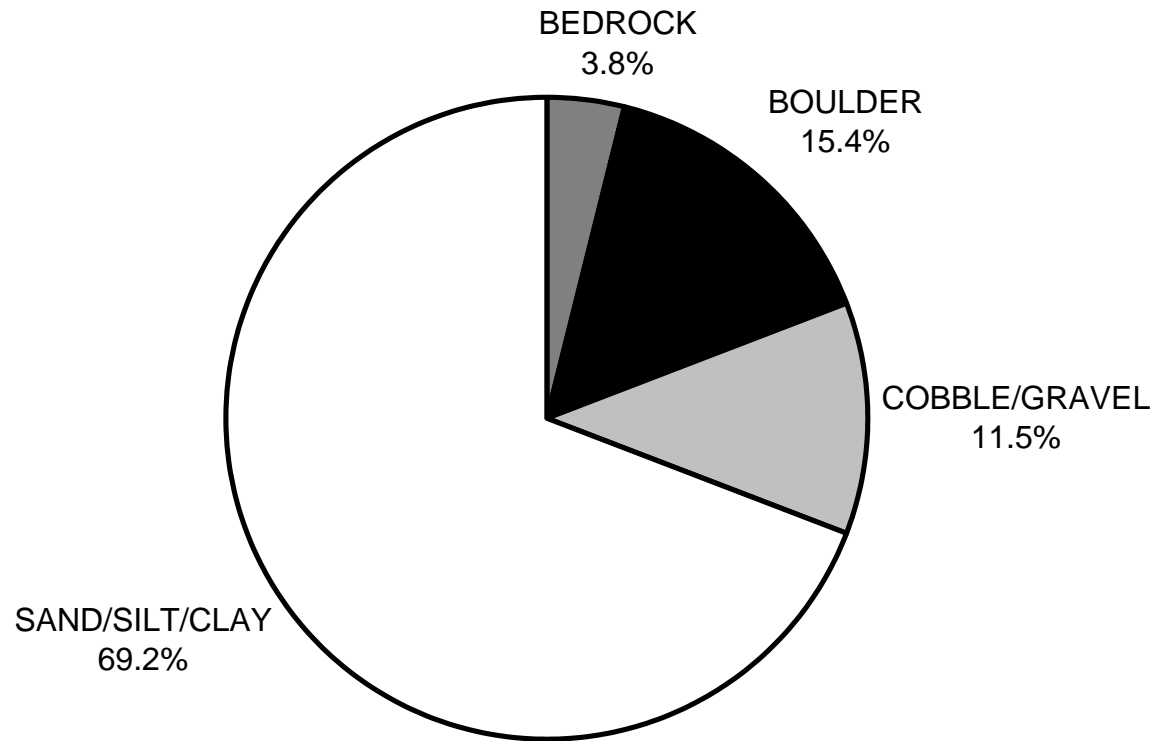
GRAPH 8

**1238576402894 2007
MEAN PERCENT CANOPY**



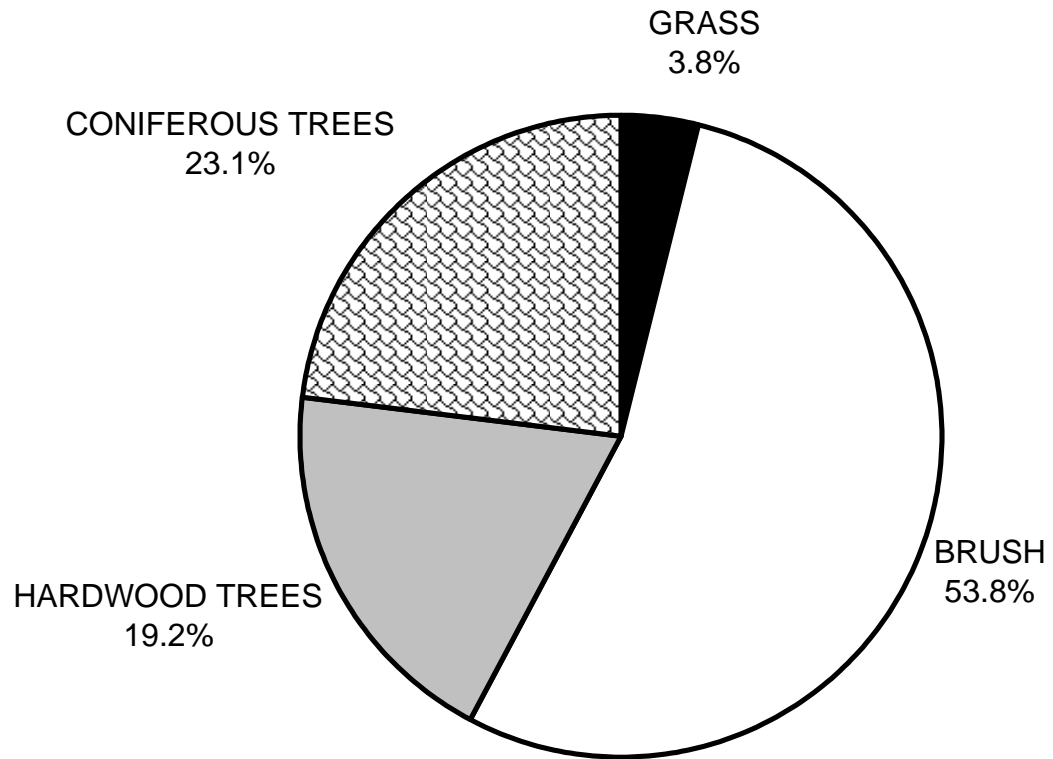
GRAPH 9

1238576402894 2007
DOMINANT BANK COMPOSITION IN SURVEY REACH



GRAPH 10

1238576402894 2007
DOMINANT BANK VEGETATION IN SURVEY REACH



GRAPH 11