

# STREAM INVENTORY REPORT

## East Fork Scott River

### INTRODUCTION

A stream inventory was conducted from August 18 to August 19, 2008 on East Fork Scott River. The survey began at the Highway 3 overpass and extended upstream 2.3 miles.

The objective of the habitat inventory was to document the habitat available to anadromous salmonids in East Fork Scott River.

The objective of this report is to document the current habitat conditions and recommend options for the potential enhancement of habitat for 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

East Fork Scott River is a tributary to the Scott River, a tributary to the Klamath River, which drains to the Pacific Ocean. It is located in Siskiyou County, California (Map 1). East Fork Scott River's legal description at the confluence with the Scott River is T40N R08W S17. Its location is 41.3128 degrees north latitude and 122.8017 degrees west longitude, LLID number 1228018413127. East Fork Scott River is a third order stream and has approximately 16.5 miles of blue line stream according to the USGS Callahan 7.5 minute quadrangles. East Fork Scott River drains a watershed of approximately 115 square miles. Elevations range from about 3,200 feet at the mouth of the creek to 7,600 feet in the headwater areas. Mixed conifer forest dominates the watershed. The watershed is primarily privately owned and is managed for rangeland. Vehicle access exists via Highway 3 or Gazelle Mountain Road.

### METHODS

The habitat inventory conducted in East Fork Scott River follows the methodology presented in the *California Salmonid Stream Habitat Restoration Manual* (Flosi et al, 1998). The Pacific States Marine Fisheries Commission (PSMFC) staff that conducted the inventory were trained in standardized habitat inventory methods by the California Department of Fish and Game (DFG). This inventory was conducted by a two-person team.

### SAMPLING STRATEGY

The inventory uses a method that samples approximately 10% of the habitat units within the survey reach. All habitat units included in the survey are classified according to habitat type and their lengths are measured. All pool units are measured for maximum depth, depth of pool tail crest (measured in the thalweg), dominant substrate composing the pool tail crest, and embeddedness. Habitat unit types encountered for the first time are measured for all the

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parameters and characteristics on the field form. Additionally, from the ten habitat units on each field form page, one is randomly selected for complete measurement.

### HABITAT INVENTORY COMPONENTS

A standardized habitat inventory form has been developed for use in California stream surveys and can be found in the *California Salmonid Stream Habitat Restoration Manual*. This form was used in East Fork Scott River to record measurements and observations. There are eleven components to the inventory form.

#### 1. Flow:

Flow is measured in cubic feet per second (cfs) near the bottom of the stream survey reach using a Marsh-McBirney Model 2000 flow meter.

#### 2. Channel Type:

Channel typing is conducted according to the classification system developed and revised by David Rosgen (1994). This methodology is described in the *California Salmonid Stream Habitat Restoration Manual*. Channel typing is conducted simultaneously with habitat typing and follows a standard form to record measurements and observations. There are five measured parameters used to determine channel type: 1) water slope gradient, 2) entrenchment, 3) width/depth ratio, 4) substrate composition, and 5) sinuosity. Channel characteristics are measured using a clinometer, hand level, hip chain, tape measure, and a stadia rod.

#### 3. Temperatures:

Both water and air temperatures are measured and recorded at every tenth habitat unit. The time of the measurement is also recorded. Both temperatures are taken in degrees Fahrenheit at the middle of the habitat unit and within one foot of the water surface.

#### 4. Habitat Type:

Habitat typing uses the 24 habitat classification types defined by McCain and others (1990). Habitat units are numbered sequentially and assigned a type identification number selected from a standard list of 24 habitat types. Dewatered units are labeled "dry". East Fork Scott River habitat typing used standard basin level measurement criteria. These parameters require that the minimum length of a described habitat unit must be equal to or greater than the stream's mean wetted width. All measurements are in feet to the nearest tenth. Habitat characteristics are measured using a clinometer, hip chain, and stadia rod.

#### 5. Embeddedness:

The depth of embeddedness of the cobbles in pool tail-out areas is measured by the percent of the cobble that is surrounded or buried by fine sediment. In East Fork Scott River, embeddedness was ocularly estimated. The values were recorded using the following ranges: 0

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- 25% (value 1), 26 - 50% (value 2), 51 - 75% (value 3) and 76 - 100% (value 4). Additionally, a value of 5 was assigned to tail-outs deemed not suitable for spawning due to inappropriate substrate like bedrock, log sills, boulders or other considerations.

### 6. Shelter Rating:

Instream shelter is composed of those elements within a stream channel that provide juvenile salmonids protection from predation, reduce water velocities so fish can rest and conserve energy, and allow separation of territorial units to reduce density related competition for prey. The shelter rating is calculated for each fully-described habitat unit by multiplying shelter value and percent cover. Using an overhead view, a quantitative estimate of the percentage of the habitat unit covered is made. All cover is then classified according to a list of nine cover types. In East Fork Scott River, a standard qualitative shelter value of 0 (none), 1 (low), 2 (medium), or 3 (high) was assigned according to the complexity of the cover. Thus, shelter ratings can range from 0-300 and are expressed as mean values by habitat types within a stream.

### 7. Substrate Composition:

Substrate composition ranges from silt/clay sized particles to boulders and bedrock elements. In all fully-described habitat units, dominant and sub-dominant substrate elements were ocularly estimated using a list of seven size classes and recorded as a one and two, respectively. In addition, the dominant substrate composing the pool tail-outs is recorded for each pool.

### 8. Canopy:

Stream canopy density was estimated using modified handheld spherical densimeters as described in the *California Salmonid Stream Habitat Restoration Manual*. Canopy density relates to the amount of stream shaded from the sun. In East Fork Scott River, an estimate of the percentage of the habitat unit covered by canopy was made from the center of approximately every third unit in addition to every fully-described unit, giving an approximate 30% sub-sample. In addition, the area of canopy was estimated ocularly into percentages of coniferous or hardwood trees.

### 9. Bank Composition and Vegetation:

Bank composition elements range from bedrock to bare soil. However, the stream banks are usually covered with grass, brush, or trees. These factors influence the ability of stream banks to withstand winter flows. In East Fork Scott River, the dominant composition type and the dominant vegetation type of both the right and left banks for each fully-described unit were selected from the habitat inventory form. Additionally, the percent of each bank covered by vegetation (including downed trees, logs, and rootwads) was estimated and recorded.

### 10. Large Woody Debris Count:

Large woody debris (LWD) is an important component of fish habitat and an element in channel forming processes. In each habitat unit all pieces of LWD partially or entirely below the elevation of bankfull discharge are counted and recorded. The minimum size to be considered is

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twelve inches in diameter and six feet in length. The LWD count is presented by reach and is expressed as an average per 100 feet.

### 11. Average Bankfull Width:

Bankfull width can vary greatly in the course of a channel type stream reach. This is especially true in very long reaches. Bankfull width can be a factor in habitat components like canopy density, water temperature, and pool depths. Frequent measurements taken at riffle crests (velocity crossovers) are needed to accurately describe reach widths. At the first appropriate velocity crossover that occurs after the beginning of a new stream survey page (ten habitat units), bankfull width is measured and recorded in the appropriate header block of the page. These widths are presented as an average for the channel type reach.

## DATA ANALYSIS

Data from the habitat inventory form are entered into Stream Habitat 2.0.19, a Visual Basic data entry program developed by Karen Wilson, Pacific States Marine Fisheries Commission in conjunction with the California Department of Fish and Game. This program processes and summarizes the data, and produces the following ten tables:

- Riffle, Flatwater, and Pool Habitat Types
- Habitat Types and Measured Parameters
- Pool Types
- Maximum Residual Pool Depths by Habitat Types
- Mean Percent Cover by Habitat Type
- Dominant Substrates by Habitat Type
- Mean Percent Vegetative Cover for Entire Stream
- Fish Habitat Inventory Data Summary by Stream Reach (Table 8)
- Mean Percent Dominant Substrate / Dominant Vegetation Type for Entire Stream
- Mean Percent Shelter Cover Types for Entire Stream

Graphics are produced from the tables using Microsoft Excel. Graphics developed for East Fork Scott River include:

- Riffle, Flatwater, Pool Habitat Types by Percent Occurrence
- Riffle, Flatwater, Pool Habitat Types by Total Length
- Total Habitat Types by Percent Occurrence
- Pool Types by Percent Occurrence
- Maximum Residual Depth in Pools
- Percent Embeddedness
- Mean Percent Cover Types in Pools
- Substrate Composition in Pool Tail-outs
- Mean Percent Canopy
- Dominant Bank Composition by Composition Type
- Dominant Bank Vegetation by Vegetation Type

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### HABITAT INVENTORY RESULTS

\* ALL TABLES AND GRAPHS ARE LOCATED AT THE END OF THE REPORT \*

The habitat inventory of August 18 to August 19, 2008 was conducted by I. Mikus and S. McSmith (PSMFC). The total length of the stream surveyed was 12,236 feet with an additional 387 feet of side channel.

Stream flow was measured near the bottom of the survey reach with a Marsh-McBirney Model 2000 flowmeter at 3.2 cfs on 8/20/2008.

East Fork Scott River is a C3 channel type for 12,623 feet of the stream surveyed.

C3 channels are slightly entrenched, have a gradient of less than 2%, are meandering point-bar riffle/pool alluvial channels with a broad well defined floodplain, and cobble-dominant substrates.

Water temperatures taken during the survey period ranged from 64 to 74 degrees Fahrenheit. Air temperatures ranged from 61 to 77 degrees Fahrenheit.

Table 1 summarizes the Level II riffle, flatwater, and pool habitat types. Based on frequency of occurrence there were 47% riffle units, 37% flatwater units and 17% pool units, (Graph 1). Based on total length of Level II habitat types there were 46% riffle units, 40% flatwater units, and 14% pool units (Graph 2).

Nine Level IV habitat types were identified (Table 2). The most frequent habitat types by percent occurrence were 38% low gradient riffle units, 25% run units, and 12% step run units (Graph 3). Based on percent total length, 40% low gradient riffle units, 22% run units, and 18% step run units.

A total of 18 pools were identified (Table 3). Main channel pools were the most frequently encountered, at 61% (Graph 4), and comprised 58% of the total length of all pools (Table 3).

Table 4 is a summary of maximum residual pool depths by pool habitat types. Pool quality for salmonids increases with depth. Twelve of the 18 pools (67%) had a residual depth of two feet or greater; five of the 18 pools (28%) had a residual depth of three feet or greater (Graph 5).

The depth of cobble embeddedness was estimated at pool tail-outs. Of the 18 pool tail-outs measured, 11 had a value of 1 (61.1%); four had a value of 2 (22.2%); one had a value of 3 (5.6%); one had a value of 4 (5.6%); one had a value of 5 (5.6%); (Graph 6). On this scale, a value of 1 indicates the best spawning conditions and a value of 4 the worst. Additionally, a value of 5 was assigned to tail-outs deemed unsuited for spawning due to inappropriate substrate such as bedrock, log sills, boulders, or other considerations.

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A shelter rating was calculated for each habitat unit and expressed as a mean value for each habitat type within the survey using a scale of 0-300. Riffle habitat types had a mean shelter rating of 8, flatwater habitat types had a mean shelter rating of 6, and pool habitats had a mean shelter rating of 14 (Table 1). Of the pool types, the main channel pools had the highest mean shelter rating at 16. Scour pools had a mean shelter rating of 9 (Table 3).

Table 5 summarizes mean percent cover by habitat type. Boulders are the dominant cover type in East Fork Scott River. Graph 7 describes the pool cover in East Fork Scott River. Boulders are the dominant pool cover type followed by root mass.

Table 6 summarizes the dominant substrate by habitat type. Graph 8 depicts the dominant substrate observed in pool tail-outs. Boulders were observed in 33% of pool tail-outs, and large cobble was observed in 28% of pool tail-outs.

The mean percent canopy density for the surveyed length of East Fork Scott River was 27%. Seventy-three percent of the canopy was open. Of the canopy present, the mean percentages of hardwood and coniferous trees were 30% and 70%, respectively. Graph 9 describes the mean percent canopy in East Fork Scott River.

For the stream reach surveyed, the mean percent right bank vegetated was 95%. The mean percent left bank vegetated was 98%. The dominant elements composing the structure of the stream banks consisted of 48% cobble/gravel, 29% boulders, 16% sand/silt/clay, and 7% bedrock (Graph 10). Hardwood trees were the dominant vegetation type observed in 52% of the units surveyed. Additionally, 40% of the units surveyed had conifer trees as the dominant vegetation type, and 7% had brush as the dominant vegetation (Graph 11).

## **DISCUSSION**

East Fork Scott River is a C3 channel type for the entire 12,623 feet of stream surveyed. The suitability of C3 channel types for fish habitat improvement structures is as follows: C3 channel types are excellent for bank-placed boulders. They are good for plunge weirs; boulder clusters; single and opposing wing deflectors; and log cover.

The water temperatures recorded on the survey days August 18 to August 19, 2008 ranged from 64 to 74 degrees Fahrenheit. Air temperatures ranged from 61 to 77 degrees Fahrenheit. Water temperatures in this range if sustained are unsuitable for juvenile coho salmon. 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.

Flatwater habitat types comprised 40% of the total length of this survey, riffles 46%, and pools 14%. The pools are relatively shallow, with only five of the 18 (28%) pools having a maximum residual depth greater than 3 feet. In general, pool enhancement projects are considered when primary pools comprise less than 40% of the length of total stream habitat. In third and fourth order streams, a primary pool is defined to have a maximum residual depth of at least three feet, occupy at least half the width of the low flow channel, and be as long as the low flow channel width. Installing structures that will increase or deepen pool habitat is recommended.

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Fifteen of the 18 pool tail-outs measured had embeddedness ratings of 1 or 2. Two of the pool tail-outs had embeddedness ratings of 3 or 4. One of the pool tail-outs had a rating of 5, which is considered not suitable for spawning. Cobble embeddedness measured to be 25% or less, a rating of 1, is considered to indicate good quality spawning substrate for salmon and steelhead.

Twelve of the 18 pool tail-outs had silt, sand, large cobble, boulders or bedrock as the dominant substrate. This is generally considered unsuitable for spawning salmonids.

The mean shelter rating for pools was 14. The shelter rating in the flatwater habitats was 6. A pool shelter rating of approximately 100 is desirable. The amount of cover that now exists is being provided primarily by boulders in East Fork Scott River. Boulders are the dominant cover type in pools followed by root mass. Log and root wad cover structures in the pool and flatwater habitats would enhance both summer and winter salmonid habitat. Log cover structure provides rearing fry with protection from predation, rest from water velocity, and also divides territorial units to reduce density related competition.

The mean percent canopy density for the stream was 27%. In general, revegetation projects are considered when canopy density is less than 80%.

The percentage of right and left bank covered with vegetation was 95% and 98%, respectively. In areas of stream bank erosion or where bank vegetation is sparse, planting endemic species of coniferous and hardwood trees, in conjunction with bank stabilization, is recommended.

## RECOMMENDATIONS

- 1) East Fork Scott River should be managed as an anadromous, natural production stream.
- 2) The limited water temperature data available suggest that maximum temperatures are above the acceptable range for juvenile coho salmon rearing. 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) Increase the canopy on East Fork Scott River by planting appropriate native vegetation along the stream where shade canopy is not at acceptable
- 4) Where feasible, design and engineer pool enhancement structures to increase the number of pools.
- 5) Increase woody cover in the pools and flatwater habitat units. Most of the existing cover in the pools is from boulders. Adding high quality complexity with woody cover in the pools is desirable.
- 6) Suitable size spawning substrate on East Fork Scott River is limited to relatively few reaches. Projects should be designed at suitable sites to trap and sort spawning gravel.

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### 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 (ft):	Habitat unit #:	Comments:
0	0001.00	Start of survey at the Highway 3 bridge at a concrete support that has a monitoring station on it.
1151	0010.00	There is a water diversion at the bottom of this unit. There is a rock and tarp dam used to divert an estimated 20-30% of the flow. A possible barrier to juvenile salmonids.
1151	0010.00	In the middle of this unit there is a large metal private bridge.
1589	0014.00	There is a left bank seep entering this unit.
2295	0020.00	Noyes Valley Creek (tributary #01) enters from the right bank and has an estimated flow of 0.1 cfs. It is contributing to an estimated 3% of East Fork Scott River's flow. The temperature of the tributary was 62 degrees Fahrenheit. The temperature of East Fork Scott River downstream and upstream of the tributary was 70 and 73 degrees Fahrenheit, respectively. The tributary is accessible to fish and salmonids were observed in the tributary. Its slope is an estimated 2%. The tributary has a hand-made rock dam 10' upstream of its mouth. The dam was approximately 2' high and is probably a juvenile barrier.
2484	0021.04	Big Mill Creek (tributary #02) enters from the left bank and has an estimated flow of 0.4 cfs. It is contributing to an estimated 10% of East Fork Scott River's flow. The temperature of the tributary was 72 degrees Fahrenheit. The temperature of East Fork Scott River upstream and downstream of the tributary is 73 degrees Fahrenheit. The tributary is accessible to fish and salmonids were observed in the tributary. Its slope is an estimated 4%.
3061	0022.00	There are multiple small seeps on the right bank.
3171	0023.00	Tributary #3 enters from the left bank and has an estimated flow of 0.05 cfs. It is contributing to an estimated 1% of East Fork Scott River's flow. The temperature of the tributary was 64 degrees Fahrenheit. The temperature of East Fork Scott River upstream and downstream of the tributary was 74 and 73 degrees Fahrenheit, respectively. The tributary is accessible to fish, but no fish were observed. The slope is estimated at 2%. The tributary enters a dry side channel of East Fork Scott River, and then enters the main stem.

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- 7181 0054.00 Mule Creek (tributary #04) enters from the left bank. It has an estimated flow of 0.4 cfs and is contributing to an estimated 15% of East Fork Scott River's flow. The temperature of the tributary was 60 degrees Fahrenheit; the temperature of the East Fork Scott River upstream and downstream of the tributary was 65 and 64 degrees Fahrenheit, respectively. The tributary is accessible to fish and salmonids were observed in the tributary. The slope of the tributary is estimated at 9%. The bottom 150' of the tributary has numerous pools between riffle steps.
- 7975 0061.00 There is a right bank dirt road 10' upslope of bankfull.
- 8020 0062.00 There is a right bank seep entering this unit
- 8817 0071.00 There is a road on right bank, 15' from bankfull. This road has been near the creek since habitat unit #61.
- 9679 0080.00 There is a handmade rock dam at the bottom of this unit. It is approximately 1.5' high, and is probably a barrier to juvenile salmonids.
- 10380 0086.00 Tributary #5 enters from the left bank. It has an estimated flow of 0.1 cfs and is contributing to approximately 15% of East Fork Scott River's flow. The temperature of the tributary was 60 degrees Fahrenheit. The temperature of East Fork Scott River upstream and downstream of the tributary was 72 degrees Fahrenheit. The tributary is not accessible to fish due to its estimated 25% slope. No fish were observed in this tributary. East Fork Scott River salmonid young of the year were concentrated at the mouth of the tributary.
- 12129 0102.00 There is a right bank water diversion at this habitat unit.
- 12236 0102.00 End of survey: The survey ended at a water diversion made of rock and tarp. It appears that more water is being diverted then released downstream.  
Young of the year salmonids were observed in nearly all of the habitat units.

## REFERENCES

Flosi, G., Downie, S., Hopelain, J., Bird, M., Coey, R., and Collins, B. 1998. *California Salmonid Stream Habitat Restoration Manual*, 3rd edition. California Department of Fish and Game, Sacramento, California.

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### LEVEL III and LEVEL IV HABITAT TYPES

#### RIFFLE

Low Gradient Riffle	(LGR)	[1.1]	{ 1 }
High Gradient Riffle	(HGR)	[1.2]	{ 2 }

#### CASCADE

Cascade	(CAS)	[2.1]	{ 3 }
Bedrock Sheet	(BRS)	[2.2]	{24}

#### FLATWATER

Pocket Water	(POW)	[3.1]	{21}
Glide	(GLD)	[3.2]	{14}
Run	(RUN)	[3.3]	{15}
Step Run	(SRN)	[3.4]	{16}
Edgewater	(EDW)	[3.5]	{18}

#### MAIN CHANNEL POOLS

Trench Pool	(TRP)	[4.1]	{ 8 }
Mid-Channel Pool	(MCP)	[4.2]	{17}
Channel Confluence Pool	(CCP)	[4.3]	{19}
Step Pool	(STP)	[4.4]	{23}

#### SCOUR POOLS

Corner Pool	(CRP)	[5.1]	{22}
Lateral Scour Pool - Log Enhanced	(LSL)	[5.2]	{10}
Lateral Scour Pool - Root Wad Enhanced	(LSR)	[5.3]	{11}
Lateral Scour Pool - Bedrock Formed	(LSBk)	[5.4]	{12}
Lateral Scour Pool - Boulder Formed	(LSBo)	[5.5]	{20}
Plunge Pool	(PLP)	[5.6]	{ 9 }

#### BACKWATER POOLS

Secondary Channel Pool	(SCP)	[6.1]	{ 4 }
Backwater Pool - Boulder Formed	(BPB)	[6.2]	{ 5 }
Backwater Pool - Root Wad Formed	(BPR)	[6.3]	{ 6 }
Backwater Pool - Log Formed	(BPL)	[6.4]	{ 7 }
Dammed Pool	(DPL)	[6.5]	{13}

#### ADDITIONAL UNIT DESIGNATIONS

Dry	(DRY)	[7.0]	
Culvert	(CUL)	[8.0]	
Not Surveyed	(NS)	[9.0]	
Not Surveyed due to a marsh	(MAR)	[9.1]	

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

Stream Name: East Fork Scott River

LLID: 1228018413128 Drainage: Scott River

Survey Dates: 8/18/2008 to 8/19/2008

Confluence Location: Quad: GAZELLE MTN. Legal Description: T40NR08WS17 Latitude: 41:18:46.0N Longitude: 122:48:06.0W

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
40	4	FLATWATER	36.7	126	5032	39.9	23.3	0.7	1.6	3125	125009	2622	104866		6
18	18	POOL	16.5	101	1814	14.4	21.3	0.9	2.5	2170	39055	3355	60398	2181	14
51	7	RIFFLE	46.8	113	5777	45.8	26.4	0.5	0.9	2046	104347	898	45800		8
<b>Total Units</b>	<b>Total Units Fully Measured</b>				<b>Total Length (ft.)</b>					<b>Total Area (sq.ft.)</b>			<b>Total Volume (cu.ft.)</b>		
109	29				12623					268411			211064		

**Table 2 - Summary of Habitat Types and Measured Parameters**

Stream Name: East Fork Scott River

LLID: 1228018413128

Drainage: Scott River

Survey Dates: 8/18/2008 to 8/19/2008

Confluence Location: Quad: GAZELLE MTN.

Legal Description: T40NR08WS17

Latitude: 41:18:46.0N

Longitude: 122:48:06.0W

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 (%)
41	5	LGR	37.6	123	5062	40.1	29	0.5	1.3	2558	104877	1111	45566		9	21
10	2	HGR	9.2	72	715	5.7	20	0.5	0.9	766	7661	365	3647		5	3
27	1	RUN	24.8	104	2820	22.3	29	0.5	2	3196	86287	1598	43143		0	28
13	3	SRN	11.9	170	2212	17.5	21	0.8	2.1	3102	40322	2963	38518		8	34
9	9	MCP	8.3	103	931	7.4	23	1.3	4.3	2361	21250	4368	39313	3213	14	28
1	1	CCP	0.9	45	45	0.4	15	0.6	1.6	641	641	705	705	385	10	17
1	1	STP	0.9	71	71	0.6	19	1.0	2.8	1214	1214	1943	1943	1214	40	23
2	2	LSR	1.8	68	135	1.1	20	0.8	2.4	1414	2827	2034	4067	1204	10	38
5	5	LSBo	4.6	126	632	5.0	21	0.5	3.3	2625	13123	2874	14370	1269	9	32

Total Units  
109

Total Units Fully Measured  
29

Total Length (ft.)  
12623

Total Area (sq.ft.)  
278202

Total Volume (cu.ft.)  
191272

**Table 3 - Summary of Pool Types**

Stream Name: East Fork Scott River

LLID: 1228018413128

Drainage: Scott River

Survey Dates: 8/18/2008 to 8/19/2008

Confluence Location: Quad: GAZELLE MTN.

Legal Description: T40NR08WS17

Latitude: 41:18:46.0N

Longitude: 122:48:06.0W

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
11	11	MAIN	61	95	1047	58	21.5	1.2	2100	23105	2774	30512	16
7	7	SCOUR	39	110	767	42	21.0	0.6	2279	15950	1250	8752	9

Total Units	Total Units Fully Measured	Total Length (ft.)	Total Area (sq.ft.)	Total Volume (cu.ft.)
18	18	1814	39055	39263

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

Stream Name: East Fork Scott River

LLID: 1228018413128

Drainage: Scott River

Survey Dates: 8/18/2008 to 8/19/2008

Confluence Location: Quad: GAZELLE MTN.

Legal Description: T40NR08WS17

Latitude: 41:18:46.0N

Longitude: 122:48:06.0W

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
9	MCP	50	0	0	2	22	3	33	3	33	1	11
1	CCP	6	0	0	1	100	0	0	0	0	0	0
1	STP	6	0	0	0	0	1	100	0	0	0	0
2	LSR	11	0	0	0	0	2	100	0	0	0	0
5	LSBo	28	0	0	3	60	1	20	1	20	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
18	0	0	6	33	7	39	4	22	1	6

Mean Maximum Residual Pool Depth (ft.): 2.5

**Table 5 - Summary of Mean Percent Cover By Habitat Type**

Stream Name: East Fork Scott River

LLID: 1228018413128

Drainage: Scott River

Survey Dates: 8/18/2008 to 8/19/2008

Dry Units: 0

Confluence Location: Quad: GAZELLE MTN.

Legal Description: T40NR08WS17

Latitude: 41:18:46.0N

Longitude: 122:48:06.0W

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
41	5	LGR	1	0	0	0	0	0	0	99	0
10	2	HGR	0	0	0	0	0	0	3	98	0
51	7	TOTAL RIFFLE	1	0	0	0	0	0	1	98	0
27	1	RUN	0	0	0	0	0	0	0	0	0
13	3	SRN	0	0	0	0	0	0	0	100	0
40	4	TOTAL FLAT	0	0	0	0	0	0	0	100	0
9	9	MCP	0	3	0	12	0	0	0	84	1
1	1	CCP	0	0	0	0	0	0	0	100	0
1	1	STP	0	0	0	0	0	0	0	95	5
2	2	LSR	15	0	0	53	0	0	0	33	0
5	5	LSBo	0	0	0	0	0	0	0	100	0
18	18	TOTAL POOL	2	1	0	13	0	0	0	83	1
109	29	TOTAL	1	1	0	9	0	0	0	88	1

**Table 6 - Summary of Dominant Substrates By Habitat Type**

Stream Name: East Fork Scott River

LLID: 1228018413128

Drainage: Scott River

Survey Dates: 8/18/2008 to 8/19/2008

Dry Units: 0

Confluence Location: Quad: GAZELLE MTN.

Legal Description: T40NR08WS17 Latitude: 41:18:46.0N

Longitude: 122:48:06.0W

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
41	5	LGR	0	0	0	20	60	20	0
10	2	HGR	0	0	0	0	100	0	0
27	1	RUN	0	0	0	0	100	0	0
13	3	SRN	0	0	0	0	67	33	0
9	9	MCP	0	0	11	22	22	44	0
1	1	CCP	0	0	0	0	100	0	0
1	1	STP	0	0	0	0	0	100	0
2	2	LSR	0	0	50	0	0	50	0
5	5	LSBo	0	0	20	0	40	40	0

**Table 7 - Summary of Mean Percent Canopy for Entire Stream**

Stream Name: East Fork Scott River

LLID: 1228018413128

Drainage: Scott River

Survey Dates: 8/18/2008 to 8/19/2008

Confluence Location: Quad: GAZELLE MTN.

Legal Description: T40NR08WS17

Latitude: 41:18:46.0N

Longitude: 122:48:06.0W

Mean Percent Canopy	Mean Percent Conifer	Mean Percent Hardwood	Mean Percent Open Units	Mean Right Bank % Cover	Mean Left Bank % Cover
27	70	30	3	95	98

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 9 - Mean Percentage of Dominant Substrate and Vegetation**

Stream Name: East Fork Scott River

LLID: 1228018413128

Drainage: Scott River

Survey Dates: 8/18/2008 to 8/19/2008

Confluence Location: Quad: GAZELLE MTN.

Legal Description: T40NR08WS17

Latitude: 41:18:46.0N

Longitude: 122:48:06.0W

**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	1	3	6.9
Boulder	10	7	29.3
Cobble / Gravel	13	15	48.3
Sand / Silt / Clay	5	4	15.5

**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	0	0	0.0
Brush	3	1	6.9
Hardwood Trees	19	11	51.7
Coniferous Trees	7	16	39.7
No Vegetation	0	1	1.7

**Total Stream Cobble Embeddedness Values:**

2

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

StreamName: East Fork Scott River

LLID: 1228018413128

Drainage: Scott River

Survey Dates: 8/18/2008 to 8/19/2008

Confluence Location: Quad: GAZELLE MTN.

Legal Description: T40NR08WS17

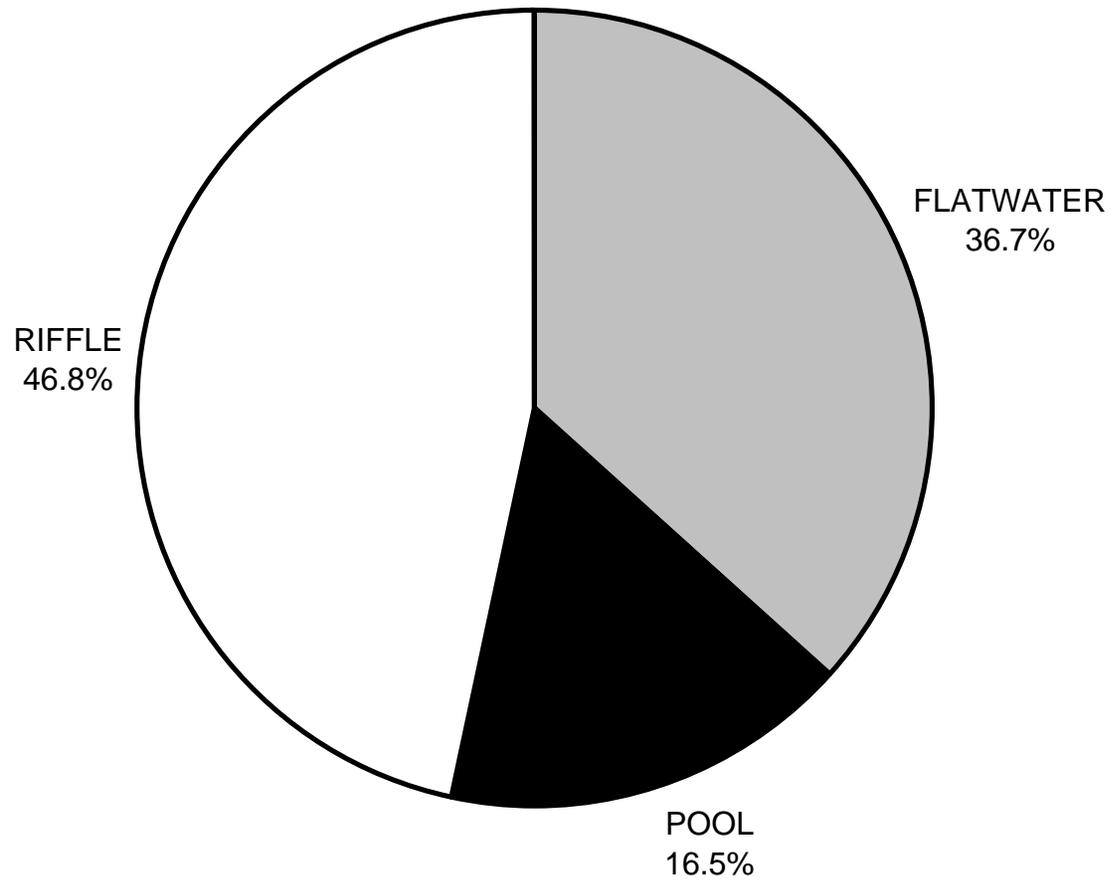
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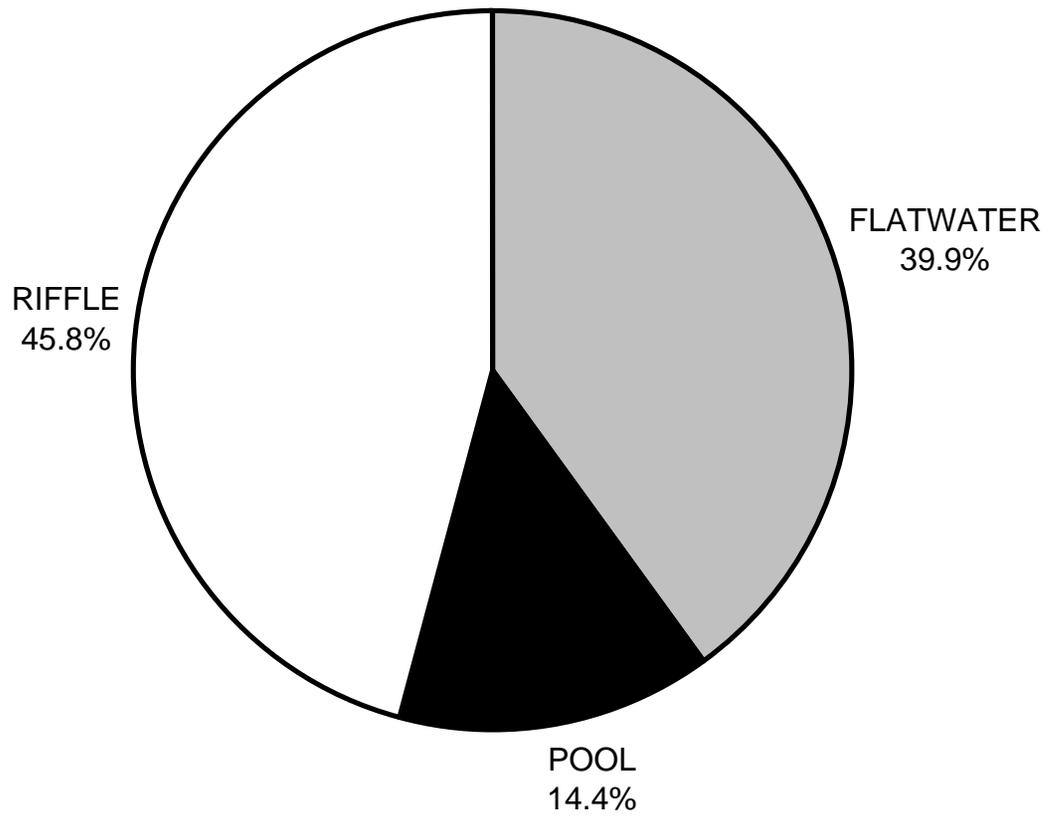
	<b>Riffles</b>	<b>Flatwater</b>	<b>Pools</b>
UNDERCUT BANKS (%)	1	0	2
SMALL WOODY DEBRIS (%)	0	0	1
LARGE WOODY DEBRIS (%)	0	0	0
ROOT MASS (%)	0	0	13
TERRESTRIAL VEGETATION (%)	0	0	0
AQUATIC VEGETATION (%)	0	0	0
WHITEWATER (%)	1	0	0
BOULDERS (%)	98	100	83
BEDROCK LEDGES (%)	0	0	1

**EAST FORK SCOTT RIVER 2008  
HABITAT TYPES BY PERCENT OCCURRENCE**



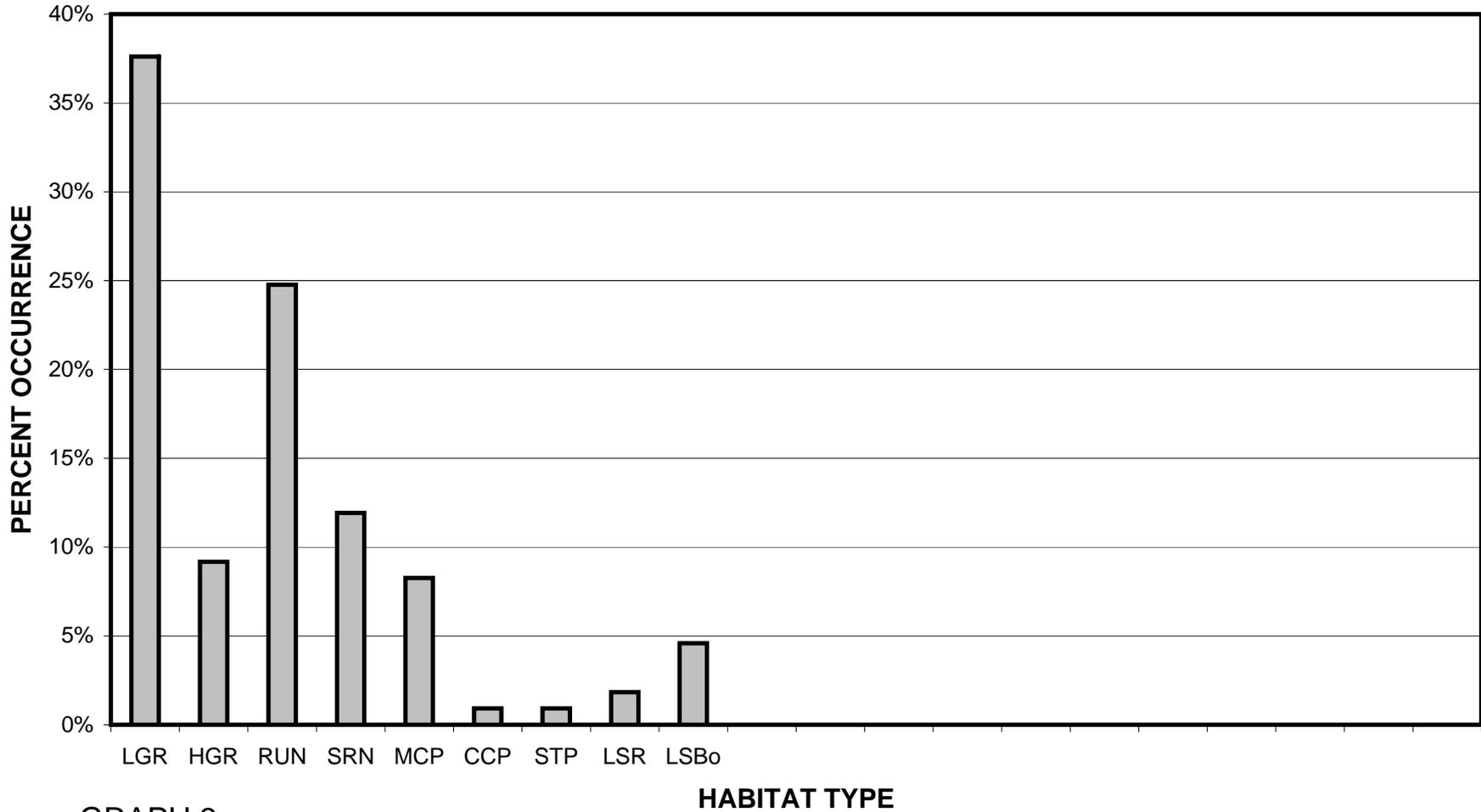
GRAPH 1

**EAST FORK SCOTT RIVER 2008  
HABITAT TYPES BY PERCENT TOTAL LENGTH**



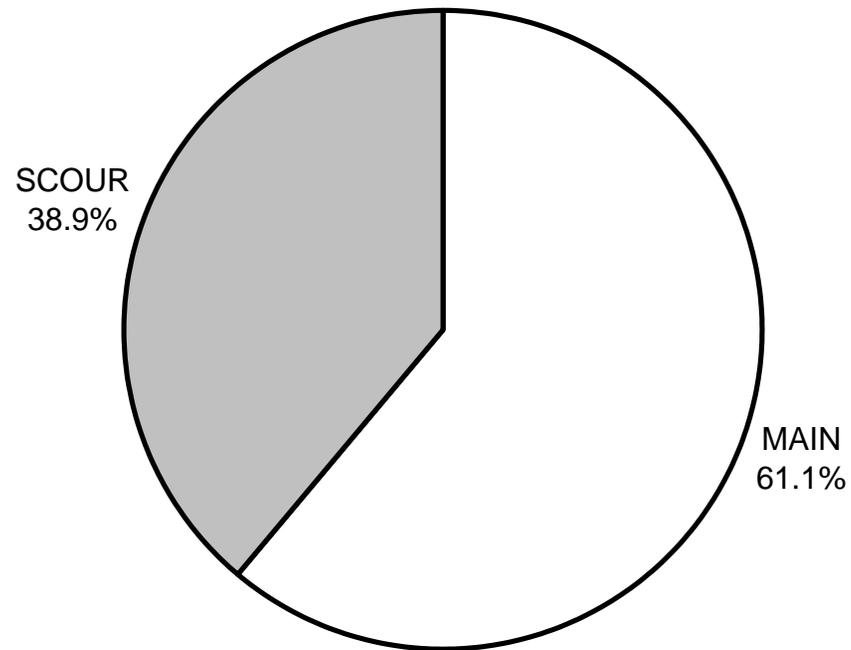
GRAPH 2

# EAST FORK SCOTT RIVER 2008 HABITAT TYPES BY PERCENT OCCURRENCE



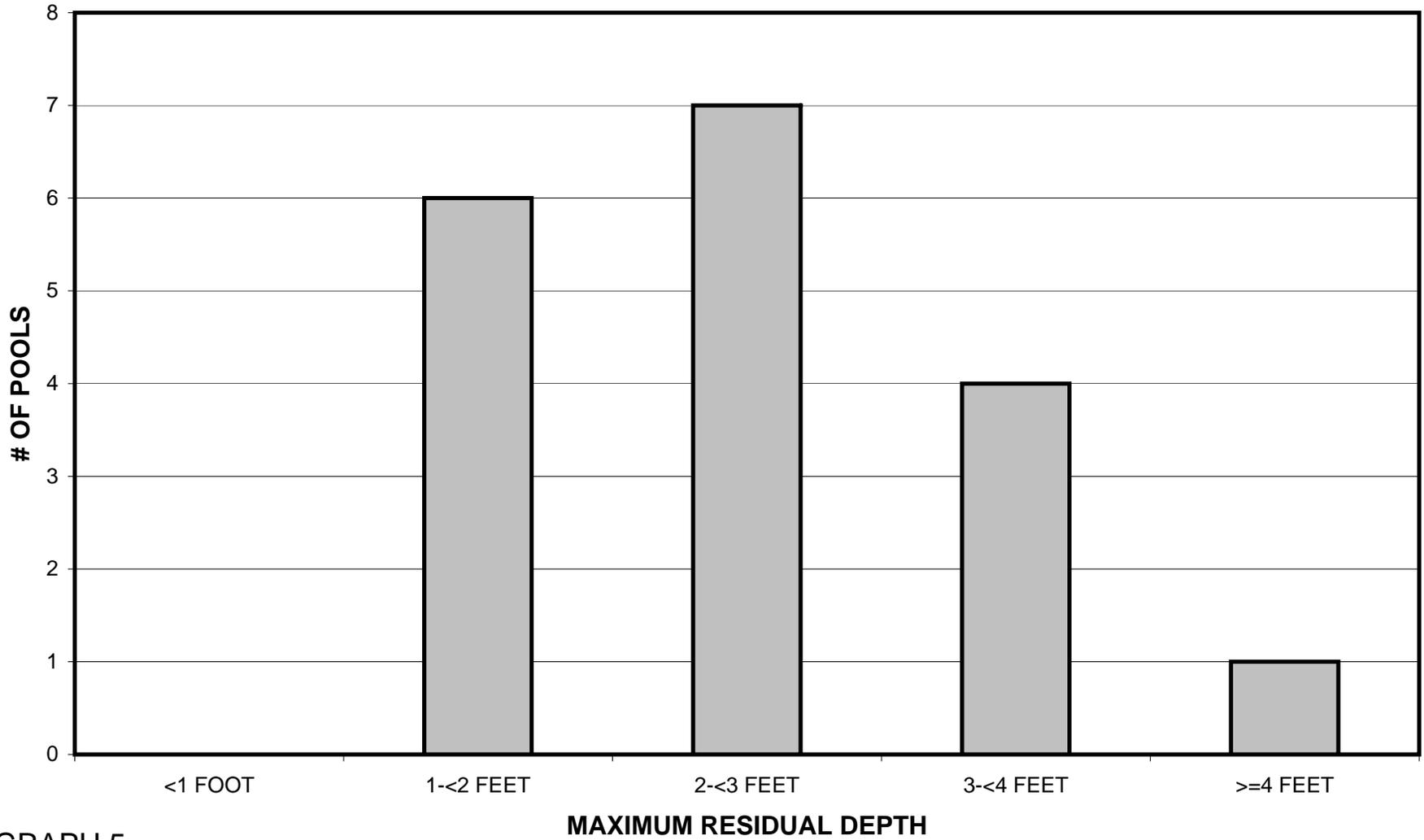
GRAPH 3

**EAST FORK SCOTT RIVER 2008  
POOL TYPES BY PERCENT OCCURRENCE**



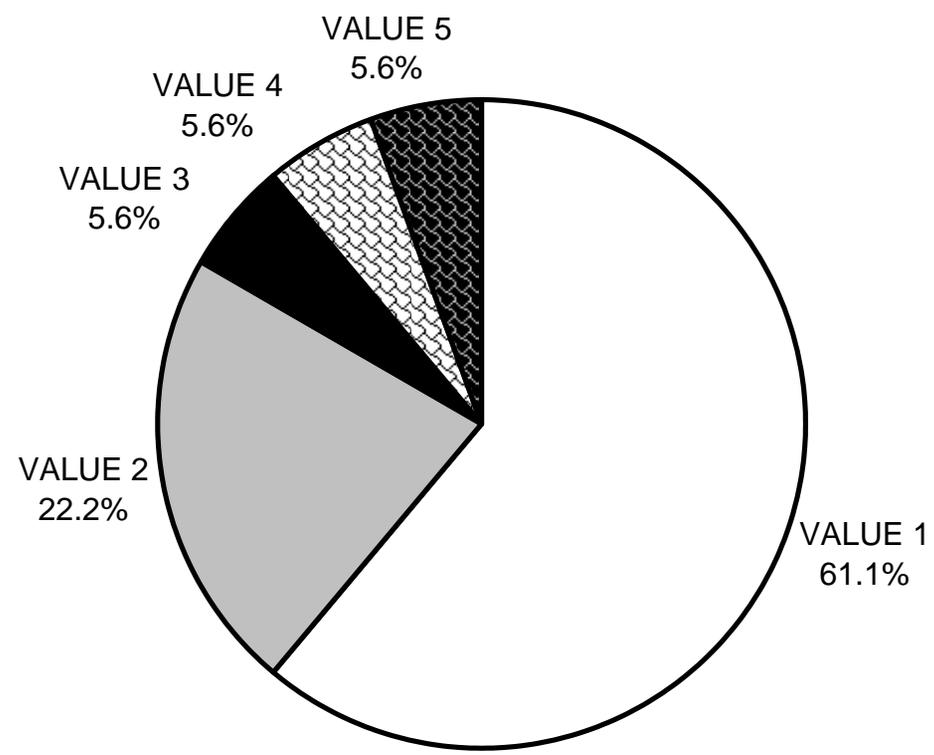
GRAPH 4

# EAST FORK SCOTT RIVER 2008 MAXIMUM DEPTH IN POOLS



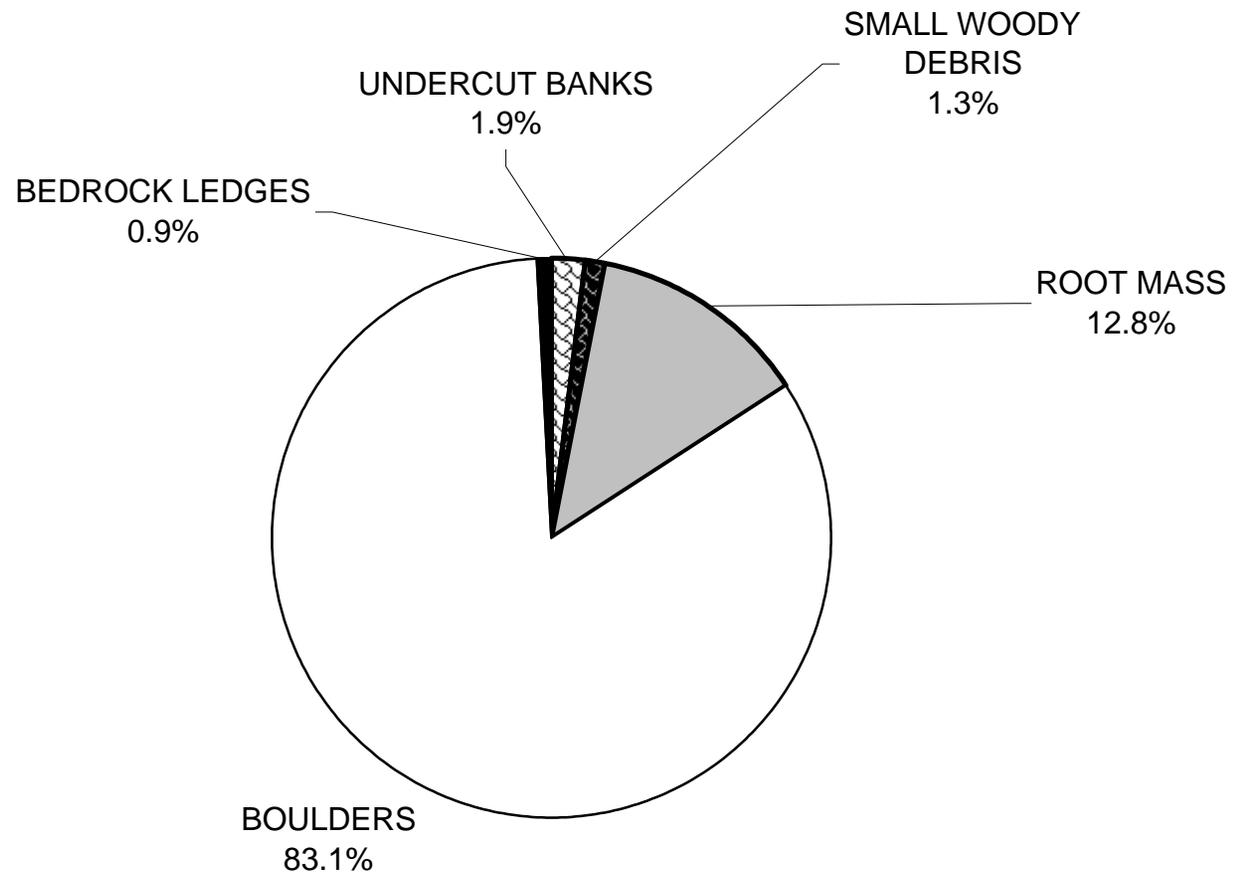
GRAPH 5

# EAST FORK SCOTT RIVER 2008 PERCENT EMBEDDEDNESS



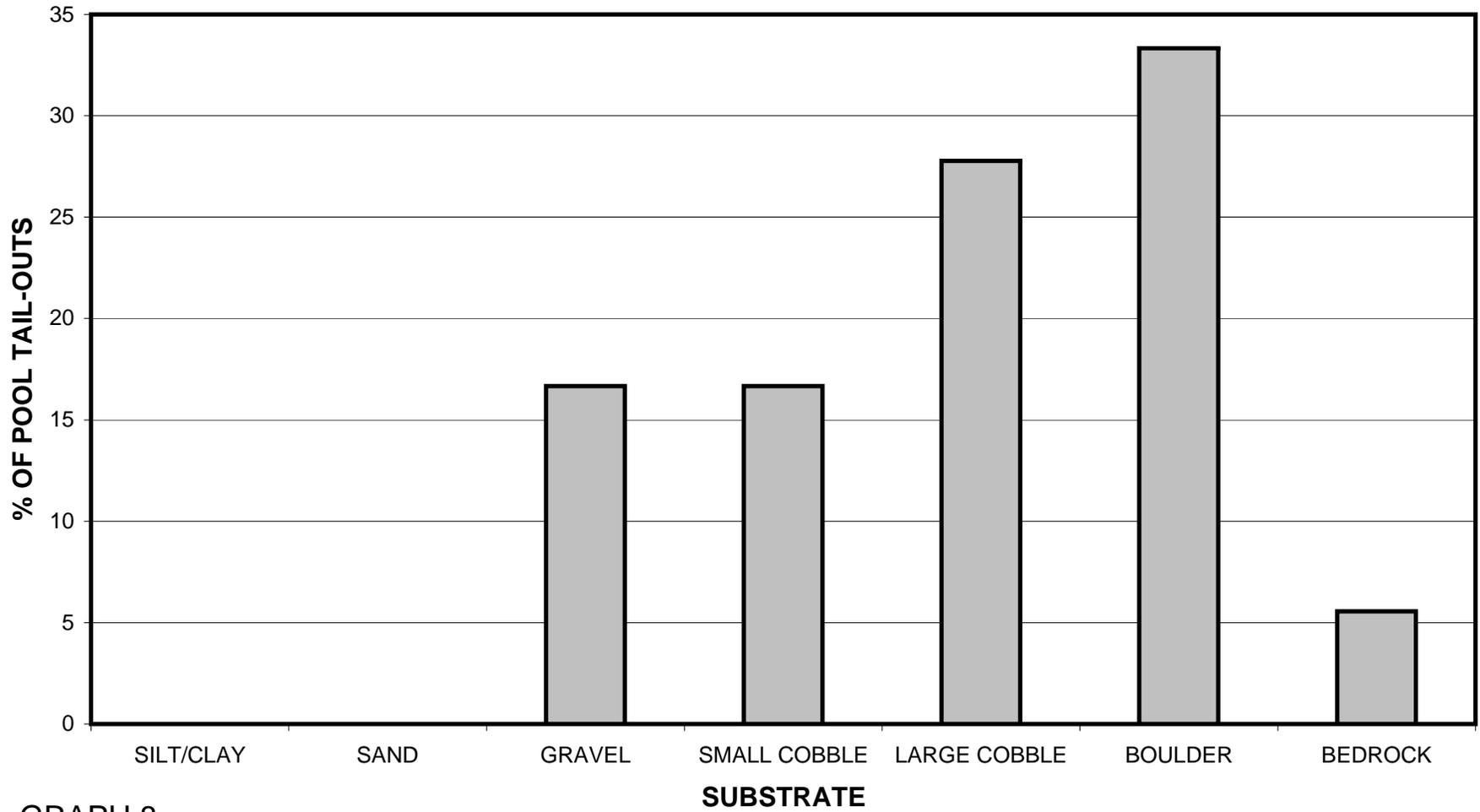
GRAPH 6

# EAST FORK SCOTT RIVER 2008 MEAN PERCENT COVER TYPES IN POOLS



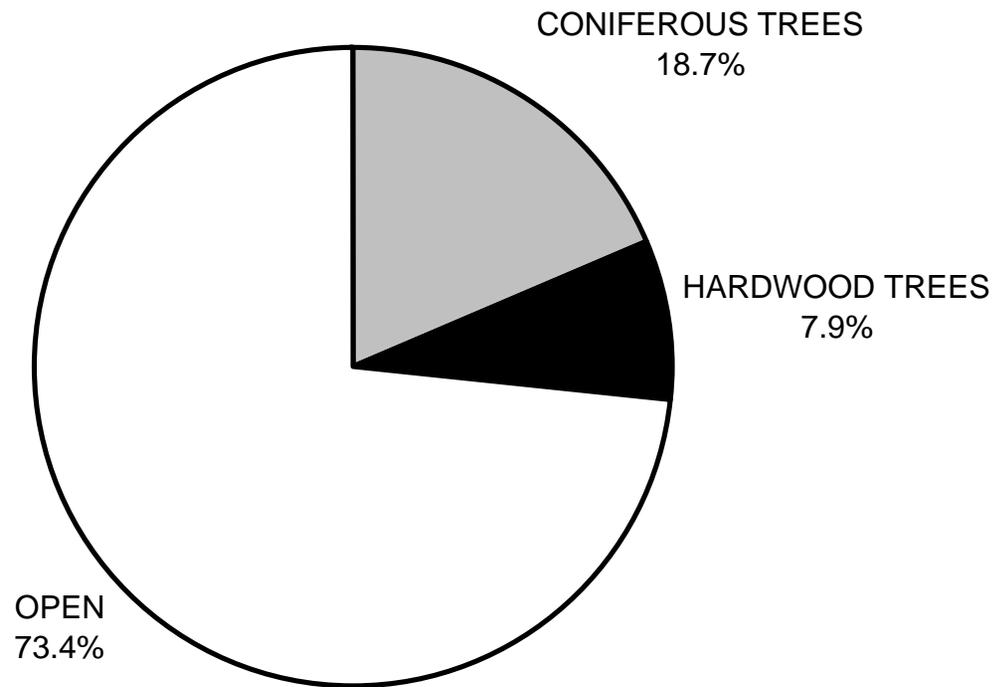
GRAPH 7

# EAST FORK SCOTT RIVER 2008 SUBSTRATE COMPOSITION IN POOL TAIL-OUTS



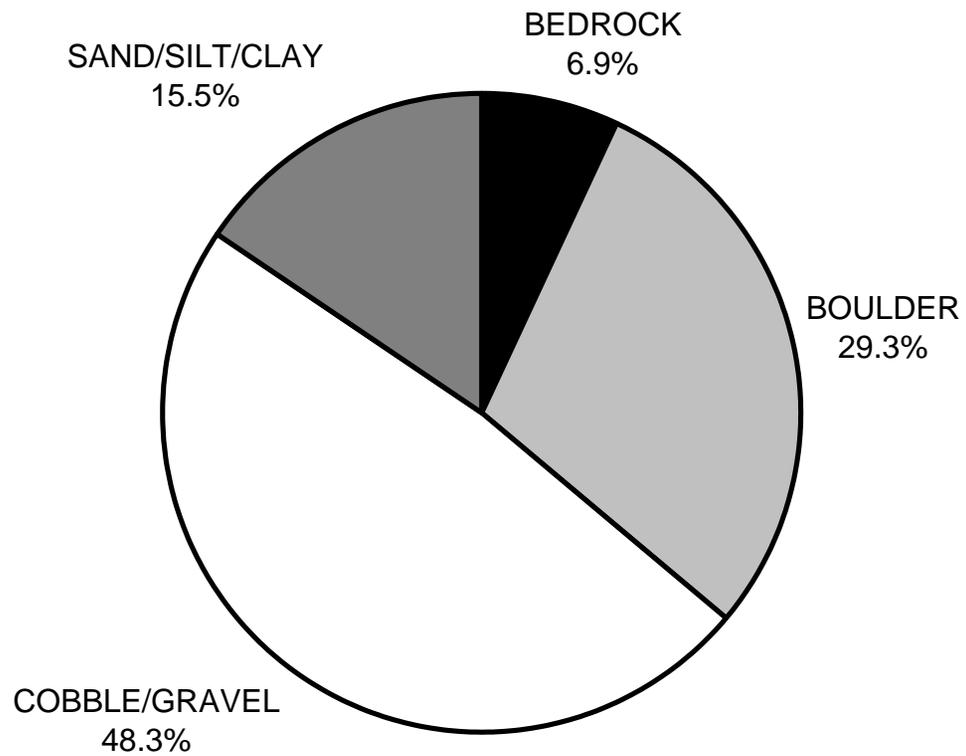
GRAPH 8

**EAST FORK SCOTT RIVER 2008  
MEAN PERCENT CANOPY**



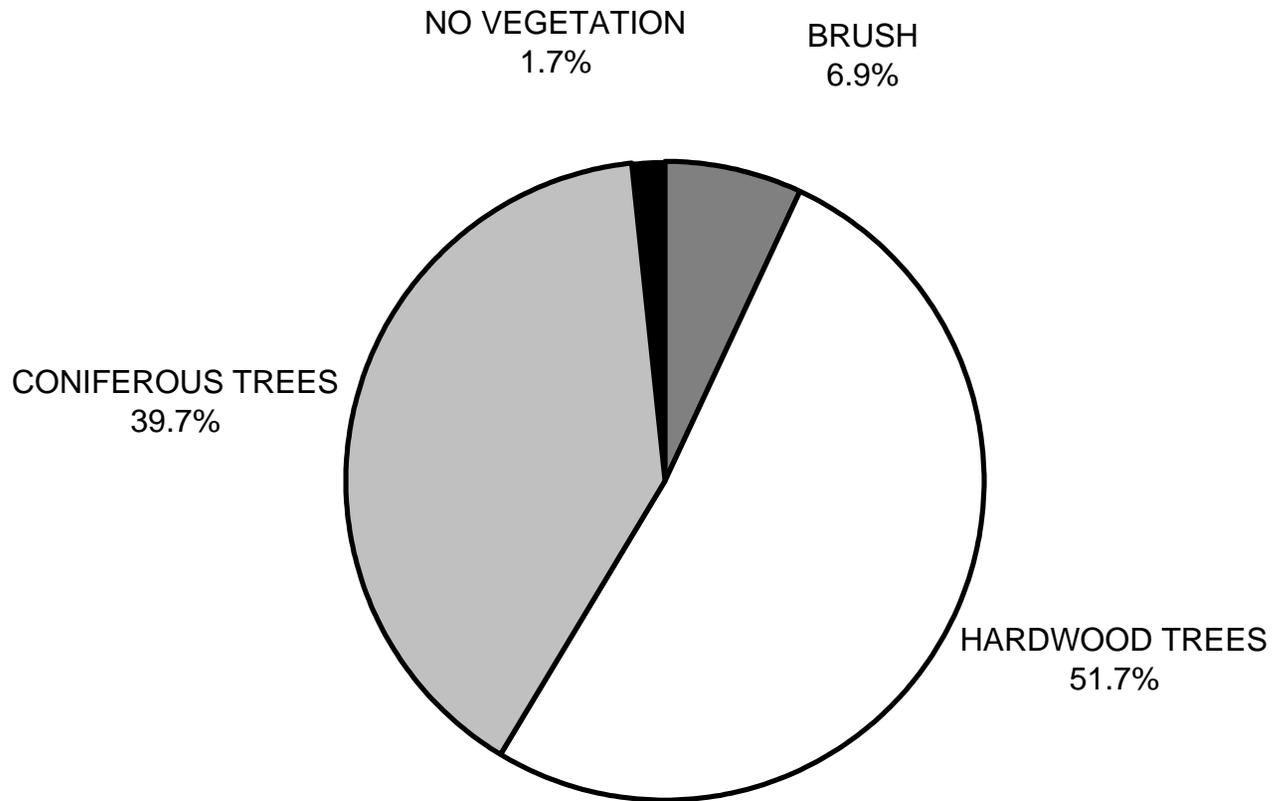
GRAPH 9

**EAST FORK SCOTT RIVER 2008  
DOMINANT BANK COMPOSITION IN SURVEY REACH**



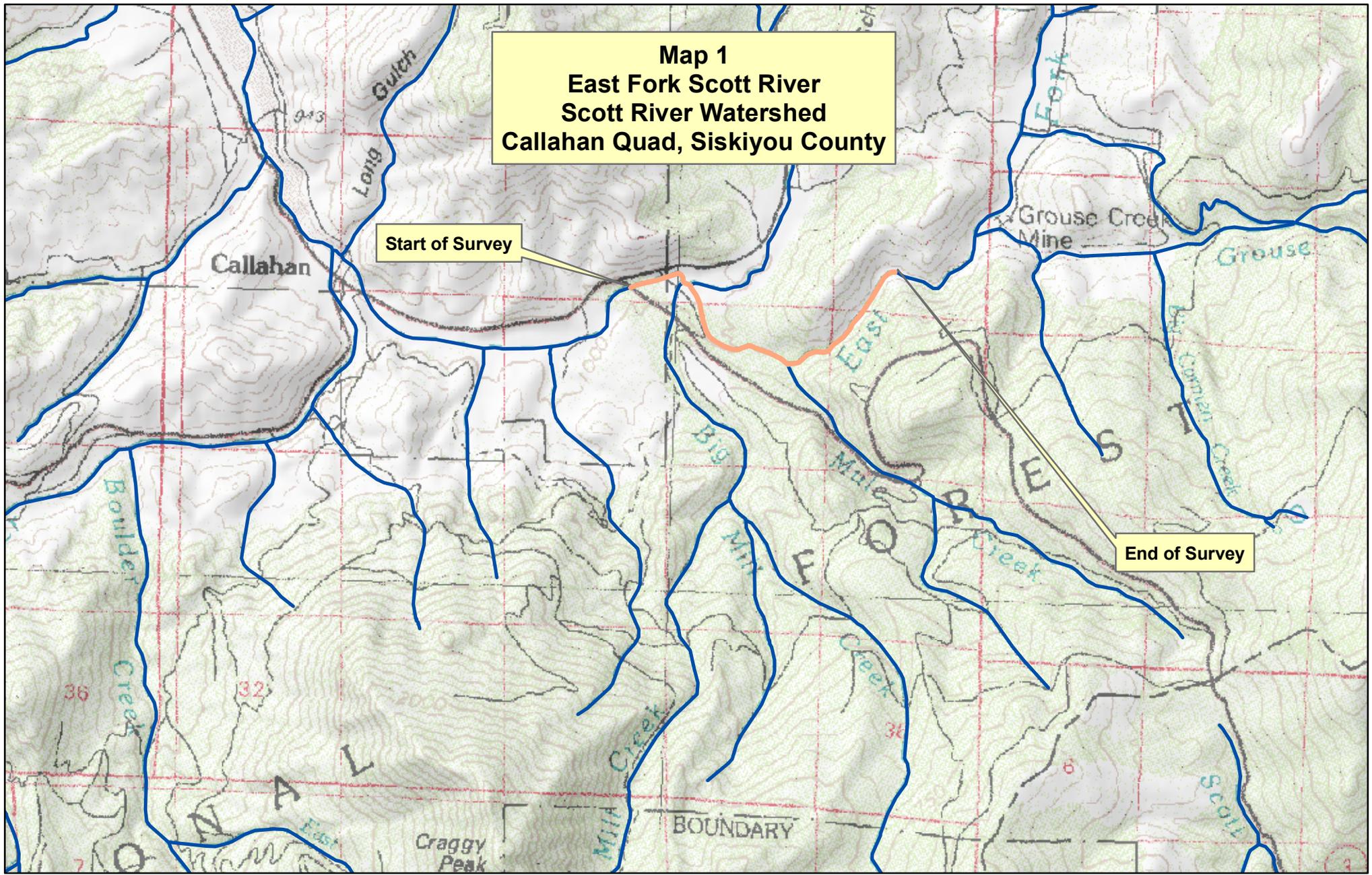
GRAPH 10

# EAST FORK SCOTT RIVER 2008 DOMINANT BANK VEGETATION IN SURVEY REACH



GRAPH 11

**Map 1**  
**East Fork Scott River**  
**Scott River Watershed**  
**Callahan Quad, Siskiyou County**



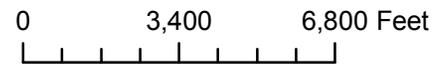
Start of Survey

End of Survey



**Legend**

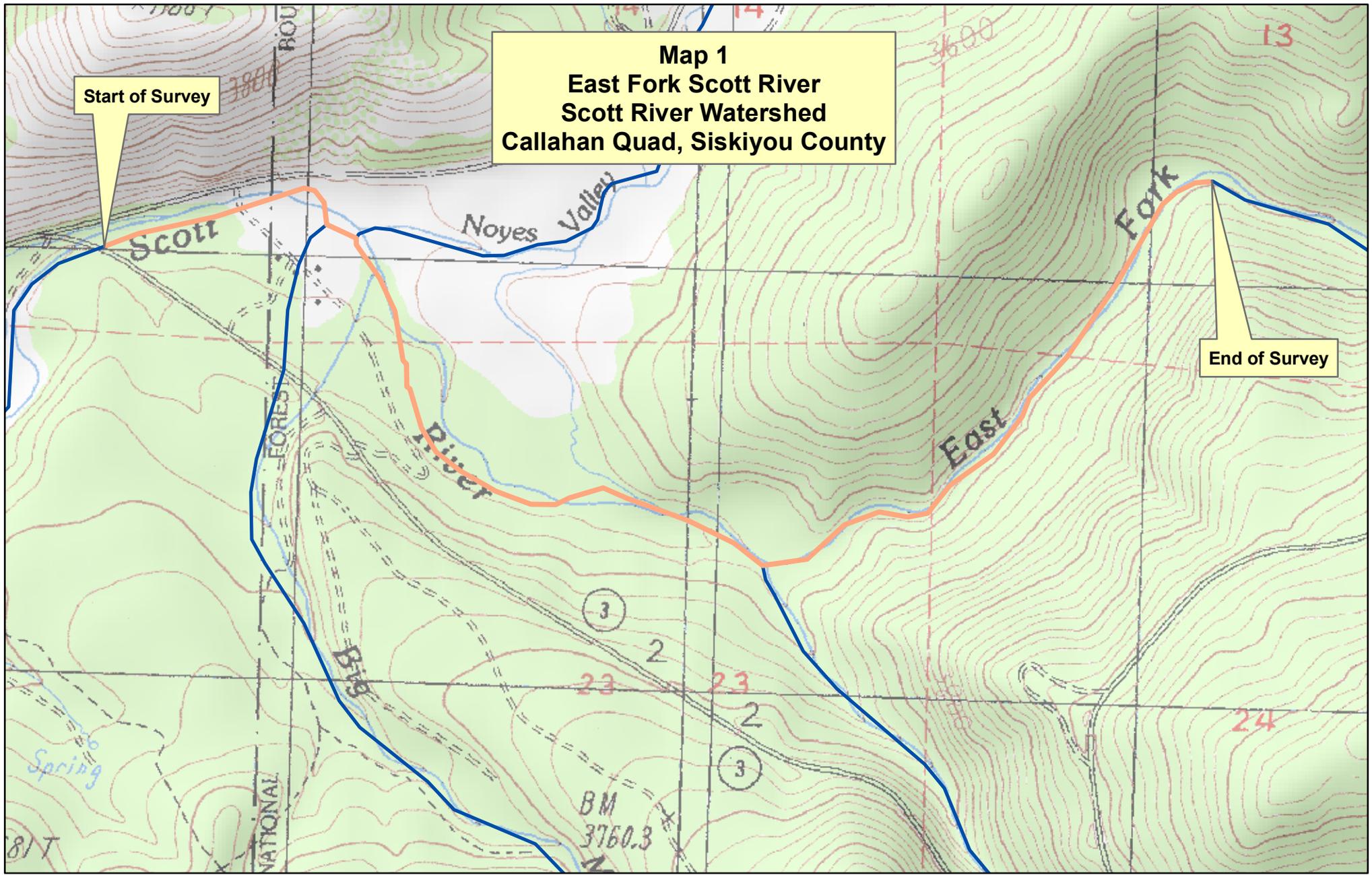
— East For Scott Survey 2008



**Map 1**  
**East Fork Scott River**  
**Scott River Watershed**  
**Callahan Quad, Siskiyou County**

Start of Survey

End of Survey



**Legend**

— East For Scott Survey 2008

