

**STREAM INVENTORY REPORT**

**East Fork Scott River**

**INTRODUCTION**

A stream inventory was conducted during 12/12/2022 to 7/31/2023 on East Fork Scott River. The survey began at the confluence with Highway 3 Bridge and extended upstream 2.6 miles. Stream inventories and reports to this report were also completed for one tributary to East Fork Scott River.

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 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**

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 California Conservation Corps (CCC) Technical Advisors 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 (DFG). This inventory was conducted

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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 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 Son-tek Flow Tracker 1.

#### 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:

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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 - 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 unsuited 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

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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 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.

### **BIOLOGICAL INVENTORY**

Biological sampling was conducted by the Scott River Watershed Council for this project.

### **DATA ANALYSIS**

Data from the habitat inventory form are entered into Stream Habitat 2.0.18, 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

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summarizes the data, and produces the following ten tables:

- Riffle, Flat-water, 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, Flat-water, Pool Habitat Types by Percent Occurrence
- Riffle, Flat-water, 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

## **HABITAT INVENTORY RESULTS**

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

The habitat inventory of 12/12/2022 to 7/31/2023, was conducted by Chris Voigt, Tully Doyle, Emma Morris, Christina Giertz, Emma Souza, Joanna Maloney. The total length of the stream surveyed was 13,471 feet with an additional 3,081 feet of side channel.

Stream flow was measured near the bottom of the survey reach with a Son-tek Flow tracker at between 163.343 and 105.122 during the month of April 2022.

East Fork Scott River is a B3 channel type for 2,616.00 feet of the stream surveyed, a B4 channel

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type for 13,936.30 feet of the stream surveyed. B4 channels are moderately entrenched riffle dominated channels with infrequently spaced pools, very stable plan and profile, stable banks on moderate gradients with low width /depth ratios and gravel dominant substrates.

Water temperatures taken during the survey period ranged from 32 to 65 degrees Fahrenheit. Air temperatures ranged from 25 to 95 degrees Fahrenheit.

Table 1 summarizes the Level II riffle, flatwater, and pool habitat types. Based on frequency of occurrence there were 42% riffle units, 42% flat-water units, 16% pool units, (Graph 1). Based on total length of Level II habitat types there were 51% riffle units, 43% flat-water units, 7% pool units, (Graph 2).

13 Level IV habitat types were identified (Table 2). The most frequent habitat types by percent occurrence were 9% High Gradient Riffle units, 24% Glide units, 32% Low Gradient Riffle units, (Graph 3).

A total of 15 pools were identified (Table 3). Main Channel pools were the most frequently encountered, at 60%, and comprised 65% of the total length of all pools (Graph 4).

Table 4 is a summary of maximum residual pool depths by pool habitat types. Pool quality for salmonids increases with depth. 6 of the 15 pools ( 40% ) had a residual depth of two feet or greater (Graph 5). 2 of the 15 pools (13%) had a residual depth of three feet or greater (Graph 5).

The depth of cobble embeddedness was estimated at pool tail-outs. Of the 14 pool tail-outs measured, 8 had a value of 1 (57.1%); 4 had a value of 2 (28.6%); 1 had a value of 4 (7.1%); 1 had a value of 5 (7.1%); (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.

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 39, flat-water habitat types had a mean shelter rating of 31, and pool habitats had a mean shelter rating of 37 (Table 1). Of the pool types, the Scour pools had a mean shelter rating of 19, Main Channel pools had a mean shelter rating of 51, Backwater pools had a mean shelter rating of 10, (Table 3).

Table 5 summarizes mean percent cover by habitat type. Terrestrial Vegetation is the dominant cover types 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 terrestrial vegetation.

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Table 6 summarizes the dominant substrate by habitat type. Graph 8 depicts the dominant substrate observed in pool tail-outs. Sand observed in 43% of pool tail-outs, gravel observed in 43% of pool tail-outs, small Cobble observed in 14% of pool tail-outs.

The mean percent canopy density for the surveyed length of East Fork Scott River was 24%. The mean percentages of hardwood and coniferous trees were 62% and 38%, respectively. 76 percent of the canopy was open. Graph 9 describes the mean percent canopy in East Fork Scott River.

For the stream reach surveyed, the mean percent right bank vegetated was 70%. The mean percent left bank vegetated was 60%. The dominant elements composing the structure of the stream banks consisted of 12% bedrock, 28% boulder, 27% cobble/gravel, 34% sand/silt/clay, (Graph 10). Brush was the dominant vegetation type observed in 65% of the units surveyed. Additionally, 21% of the units surveyed had grass as the dominant vegetation type, and 13% had deciduous trees as the dominant vegetation (Graph 11).

## **BIOLOGICAL INVENTORY RESULTS**

Biological surveys were conducted by the Scott River Watershed Council for this project.

## **DISCUSSION**

East Fork Scott River is a B3 channel type for 2,616 feet of stream surveyed, and a B4 channel type for 13,936.30 feet of the stream surveyed. The suitability of B3, B4 channel types for fish habitat improvement structures is as follows: Excellent for plunge weirs; boulder clusters and bank placed boulder; single and opposing wing-deflectors; log cover.

The water temperatures recorded on the survey days 12/12/2022 to 7/31/2023, ranged from 32 to 65 degrees Fahrenheit. Air temperatures ranged from 25 to 95 degrees Fahrenheit. 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 43% of the total length of this survey, riffles 51%, and pools 7%. The pools are relatively shallow, with only 6 of the 15 ( 40% ) pools having a maximum residual depth greater than 2 feet. In general, pool enhancement projects are considered when primary pools comprise less than 40% of the length of total stream habitat. In first and second order streams, a primary pool is defined to have a maximum residual depth of at least two feet, occupy at least half the width of the low flow channel, and be as long as the low flow channels width. Installing structures that will increase or deepen pool habitat is recommended for locations where their installation will not be threatened by high stream energy, or where their installation will not conflict with the modification of the numerous log debris accumulations (LDA's) in the stream.

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12 of the 14 pool tail-outs measured had embeddedness ratings of 1 or 2. 1 of the pool tail-outs had embeddedness ratings of 3 or 4. 1 of the pool tail-outs had a rating of 5, which is considered unsuitable 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. Sediment sources in East Fork Scott River should be mapped and rated according to their potential sediment yields, and control measures should be taken.

8 of the 14 pool tail-outs measured had gravel or small cobble as the dominant substrate. This is generally considered good for spawning salmonids.

6 of the 14 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 37. The shelter rating in the flatwater habitats was 31. A pool shelter rating of approximately 100 is desirable. The amount of cover that now exists is being provided primarily by Terrestrial Vegetation in East Fork Scott River. Boulders are the dominant cover type in pools followed by terrestrial vegetation. 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 24%. Reach 1 had a canopy density of 21.54545%, Reach 2 had a canopy density of 24.18518%. In general, revegetation projects are considered when canopy density is less than 80%.

The percentage of right and left bank covered with vegetation was HIGH/MODERATE at 70% and 60%, 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 within/above 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.
- 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



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bank armor to prevent erosion.

- 4) 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.
- 5) Inventory and map sources of stream bank erosion and prioritize them according to present and potential sediment yield. Identified sites should then be treated to reduce the amount of fine sediments entering the stream.
- 6) 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.
- 7) Increase the canopy on East Fork Scott River by planting appropriate native vegetation like 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 affected from upstream. In many cases, planting will need to be coordinated to follow bank stabilization or upslope erosion control projects.
- 8) 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.
- 9) There are several log debris accumulations present on East Fork Scott River that are retaining large quantities of fine sediment. The modification of these debris accumulations is desirable, but must be done carefully, over time, to avoid excessive sediment loading in downstream reaches.
- 10) There are sections where the stream is being impacted from cattle trampling the riparian zone. Alternatives should be explored with the grazer and developed if possible.
- 11) Due to the high gradient of the stream, access for migrating salmonids is an ongoing potential problem. Good water temperature and flow regimes exist in the stream and it offers good conditions for rearing fish. Fish passage should be monitored and improved where possible.

## **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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**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.

McCain, M., D. Fuller, L. Decker and K. Overton. 1990. Stream habitat classification and inventory procedures for northern California. FHC Currents. No.1. U.S. Department of Agriculture. Forest Service, Pacific Southwest Region.

Rosgen, D.L., 1994. A Classification of Natural Rivers. *Catena*, Vol 22: 169-199, Elsevier Science, B. V. Amsterdam.

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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}

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**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]

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			{ 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}
<u>ADDITIONAL UNIT DESIGNATIONS</u>				
Dry	(DRY)	[7.0]		
Culvert	(CUL)	[8.0]		
Not Surveyed	(NS)	[9.0]		
Not Surveyed due to a marsh			(MAR)	[9.1]



## Table 2 - Summary of Habitat Types and Measured

**Stream Name:** East Fork Scott River

**LLID:** 1228018413127

**Drainage:** Scott River

**Survey Dates:** 12/12/2022 to 7/31/2023

**Confluence Location: Quad:** GAZELLE MTN.

**Legal Description:** T40NR08WS17

**Latitude:** 41:18:46.0N

**Longitude:** 122:48:06.0W

Habitat Estimated Units Total Volume	Units Fully Mean Measured Residual	Habitat Mean Type Shelter	Habitat Mean Occurrence Canopy (%) (cu.ft.)	Mean Length (ft.) Pool Vol	Total Length (ft.) Rating	Total Length (%) (%)	Mean Width (ft.)	Mean Depth (ft.)	Mean Max Depth (ft.) (cu.ft.)	Mean Area (sq.ft.)	Estimated Total Area (sq.ft.)	Mean Volume (cu.ft.)
30 98863	30 35	LGR 24	32.3	244	7321	44.2	28.0	0.9	2.0	6372	191148	4298
8 10204	8 56	HGR 21	8.6	112	892	5.4	22.0	0.7	2.5	2089	16711	1701
1 6066	1 40	CAS 67	1.1	177	177	1.1	15.0	2.8	3.0	2166	2166	6066
1 3862	1 150	POW 10	1.1	99	99	0.6	26.0	1.8	4.0	2146	2146	3862
22 143108	21 16	GLD 21	23.7	205	4514	27.3	31.0	1.4	3.3	5393	118651	9757
4 12313	4 31	RUN 33	4.3	98	390	2.4	22.0	1.5	2.6	2097	8390	3078
6 21039	6 74	SRN 23	6.5	210	1263	7.6	17.0	1.4	3.8	2833	16996	3506
6 4692	6 25	EDW 32	6.5	134	804	4.9	10.0	0.8	1.7	1296	7774	1173
7 36120	7 3103	MCP 48	7.5 26	75	526	3.2	28.0	1.1	5.2	2082	14573	5160
2 5260	2 1019	CCP 60	2.2 19	90	180	1.1	18.0	0.7	1.4	1456	2912	2630
3 3489	3 718	LSBk 15	3.2 19	38	114	0.7	20.0	1.0	2.1	725	2174	1163
2 17418	2 5972	LSBo 25	2.2 27	118	237	1.4	29.0	1.6	3.2	3702	7405	8709
1 76	1 76	BPB 10	1.1 23	35	35	0.2	3.0	1.2	1.6	63	63	76
Total Total Volume	Total Units				Total Length					Total Area		

Units (cu.ft.)	Fully Measured	(ft.)	(sq.ft.)
93	92	16552	391109
362511			



### Table 3 - Summary of Pools

**Stream Name:** East Fork Scott River

**LLID:** 1228018413127

**Drainage:** Scott River

**Survey Dates:** 12/12/2022 to 7/31/2023

**Confluence Location: Quad:** GAZELLE MTN.

**Legal Description:** T40NR08WS17

**Latitude:** 41:18:46.0N

**Longitude:** 122:48:06.0W

Habitat	Units	Habitat	Habitat	Mean	Total	Total	Mean	Mean	Mean	Estimated
Mean	Estimated	Mean								
Units	Fully	Type	Occurrence	Length	Length	Length	Width	Residual	Area	Total Area
Residual	Total	Shelter								
	Measured		(%)	(ft.)	(ft.)	(%)	(ft.)	Depth (ft.)	(sq.ft.)	(sq.ft.)
	Pool Vol		Resid. Vol	Rating						

(cu.ft.)

(cu.ft.)

9	9	MAIN	60	78	706	65	25.8	1.0	1943	17486
2640	23757	51								
5	5	SCOUR	33	70	351	32	23.7	1.2	1916	9578
2820	14098	19								
1	1	BACKWATER	7	35	35	3	3.0	1.2	63	63
76	76	10								

Total	Total Units		Total	Total Area
Total Volume	Units	Fully	Length	(sq.ft.)
(cu.ft.)	Measured		(ft.)	
15	15		1092	27127
37930				

# Table 4 - Summary of Maximum Residual Pool Depths By

Stream Name: East Fork Scott River

LLID: 1228018413127

Drainage: Scott River

Survey Dates: 12/12/2022 to 7/31/2023

Confluence Location: Quad: GAZELLE MTN.

Legal Description: T40NR08WS17

Latitude: 41:18:46.0N

Longitude: 122:48:06.0W

Habitat	Habitat	Habitat	< 1 Foot	< 1 Foot	1 < 2 Feet	1 < 2 Feet	2 < 3 Feet	2 < 3 Feet	3 < 4 Feet	
3 < 4 Feet	>= 4 Feet	>= 4 Feet	Units	Type	Occurrence	Maximum	Percent	Maximum	Percent	Maximum
Percent	Maximum	Percent	Occurrence	Residual	Occurrence	Residual	Occurrence	Residual	Occurrence	Residual
Occurrence	Residual	Occurrence	Residual	Occurrence	Residual	Occurrence	Residual	Occurrence	Residual	
2	LSBo	13	0	0	0	0	1	50	1	
50	0	0								
7	MCP	47	1	14	3	43	2	29	0	
0	1	14								
2	CCP	13	0	0	2	100	0	0	0	
0	0	0								
3	LSBk	20	0	0	2	67	1	33	0	
0	0	0								
1	BPB	7	0	0	1	100	0	0	0	
0	0	0								

Total	Total < 1 Foot	Total	Total 1 < 2 Feet	Total	Total 2 < 3 Feet	Total			
Total	Total >= 4 Feet	< 1 Foot	% Occurrence	1 < 2 Feet	% Occurrence	2 < 3 Feet	% Occurrence	3 < 4 Feet	
% Occurrence	% Occurrence	% Occurrence	% Occurrence	% Occurrence	% Occurrence	% Occurrence	% Occurrence	% Occurrence	
Units	Max Resid.	Units	Max Resid.	Units	Max Resid.	Units	Max Resid.	Units	Max Resid.
Max Resid.	Depth	Max Resid.	Depth	Max Resid.	Depth	Max Resid.	Depth	Max Resid.	Depth
15	1	7	7	8	53	4	27	1	1
7	1	7	7	7	7	7	7	7	7

Mean Maximum Residual Pool Depth 2 (ft.):



## Table 6 - Summary of Dominant Substrates By Habitat

**Stream Name:** East Fork Scott River

**LLID:** 1228018413127

**Drainage:** Scott River

**Survey Dates:** 12/12/2022 to 7/31/2023

**Confluence Location: Quad:** GAZELLE MTN.

**Legal Description:** T40NR08WS17

**Latitude:** 41:18:46.0N

**Longitude:** 122:48:06.0W

Habitat	Units Fully Measured	Habitat Type	% Total Silt/Clay	% Total Sand	% Total Gravel	% Total Small Cobble	% Total Large Cobble
% Total	% Total		Dominant	Dominant	Dominant	Dominant	Dominant
30	30	LGR	0	0	0	10	60
30	0						
8	8	HGR	0	0	0	0	25
50	25						
1	1	CAS	0	0	0	0	0
100	0						
1	1	POW	0	0	0	0	100
0	0						
22	22	GLD	0	0	5	41	41
14	0						
4	4	RUN	0	0	0	0	0
100	0						
6	6	SRN	0	0	0	0	50
50	0						
6	5	EDW	0	0	0	0	100
0	0						
7	7	MCP	14	0	14	0	29
29	14						
2	2	CCP	0	0	0	0	50
50	0						
3	3	LSBk	0	0	0	0	67
33	0						
2	2	LSBo	0	0	0	0	50
50	0						
1	1	BPB	0	0	0	0	0
100	0						

## Table 7 - Summary of Mean Percent Canopy for Entire

**Stream Name:** East Fork Scott River **LLID:** 1228018413127  
**Drainage:** Scott River  
**Survey Dates:** 12/12/2022 to 7/31/2023  
**Confluence Location: Quad:** GAZELLE MTN. **Legal Description:** T40NR08WS17 **Latitude:** 41:18:46.0N  
**Longitude:** 122:48:06.0W

Habitat Units	Mean Percent Conifer	Mean Percent Hardwood	Mean Percent Open Units	Mean Right Bank % Cover	Mean Left Bank % Cover
24	38	62	1	70	60

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: East Fork Scott River LLID: 1228018413127 Drainage: Scott River  
 Survey Dates: 12/12/2022 to 7/31/2023 Survey Length (ft.): 16552. Main Channel (ft.): 13471. Side Channel (ft.): 3081  
 Confluence Location: Quad: GAZELLE MTN. Legal Description: T40NR08WS17 Latitude: 41:18:46.0N Longitude: 122:48:06.0W

**Summary of Fish Habitat Elements By Stream Reach**

**STREAM REACH: 1**

Channel Type: B3	Canopy Density (%): 21.5	Pools by Stream Length (%): 0.0
Reach Length (ft.): 2273	Coniferous Component (%): 9.1	Pool Frequency (%): 0.0
Riffle/Flatwater Mean Width (ft.): 30.1	Hardwood Component (%): 90.9	Residual Pool Depth (%):
BFW:	Dominant Bank Vegetation: Brush	< 2 Feet Deep:
Range (ft.): 9 to 100	Vegetative Cover (%): 84.3	2 to 2.9 Feet Deep:
Mean (ft.): 84.83333333333333	Dominant Shelter: Terrestrial Veg.	3 to 3.9 Feet Deep:
Std. Dev.: 33.9136976587468	Dominant Bank Substrate Type: Sand/Silt/Clay	>= 4 Feet Deep:
Base Flow (cfs): 0	Occurrence of LWD (%): 0.0	Mean Max Residual Pool Depth (ft.):
Water (F): 33 - 33 Air (F): 33 - 33	LWD per 100 ft.:	Mean Pool Shelter Rating:
Dry Channel (ft.): 0	Riffles: 0	
	Pools:	
	Flat: 0	
Pool Tail Substrate (%): Silt/Clay: Sand: Gravel: Sm Cobble: Lg Cobble: Boulder: Bedrock:		
Embeddedness Values (%): 1. 2. 3. 4. 5. 0.0		

**STREAM REACH: 2**

Channel Type: NA	Canopy Density (%): 24.2	Pools by Stream Length (%): 7.8
Reach Length (ft.): 11198.3	Coniferous Component (%): 41.5	Pool Frequency (%): 18.5
Riffle/Flatwater Mean Width (ft.): 24.6	Hardwood Component (%): 58.5	Residual Pool Depth (%):
BFW:	Dominant Bank Vegetation: Brush	< 2 Feet Deep: 60.0
Range (ft.): to	Vegetative Cover (%): 62.2	2 to 2.9 Feet Deep: 26.7
Mean (ft.):	Dominant Shelter: Terrestrial Veg.	3 to 3.9 Feet Deep: 6.7
Std. Dev.:	Dominant Bank Substrate Type: Sand/Silt/Clay	>= 4 Feet Deep: 6.7
Base Flow (cfs): 0	Occurrence of LWD (%): 0.7	Mean Max Residual Pool Depth (ft.): 2.04
Water (F): 32 - 65 Air (F): 25 - 95	LWD per 100 ft.:	Mean Pool Shelter Rating: 37
Dry Channel (ft.): 0	Riffles: 0	
	Pools: 0	
	Flat: 0	
Pool Tail Substrate (%): Silt/Clay: 0.0 Sand: 42.9 Gravel: 42.9 Sm Cobble: 14.3 Lg Cobble: 0.0 Boulder: 0.0 Bedrock: 0.0		
Embeddedness Values (%): 1. 57.1 2. 28.6 3. 0.0 4. 7.1 5. 7.1		

### Table 9 -Mean Percentage of Dominant Substrate and Vegetation

**Stream Name:** East Fork Scott River **LLID:** 1228018413127  
**Drainage:** Scott River  
**Survey Dates:** 12/12/2022 to 7/31/2023  
**Confluence Location: Quad:** GAZELLE MTN. **Legal Description:** T40NR08WS17 **Latitude:** 41:18:46.0N  
**Longitude:** 122:48:06.0W

#### Mean Percentage of Dominant Stream Bank

Dominant Class of Substrate	Number of Units Right Bank	Number of Units Left Bank	Total Mean Percentage (%)
Bedrock	11	11	12.1
Boulder	19	32	28.0
Cobble/Gravel	26	23	26.9
Sand/Silt/Clay	35	26	33.5

#### Mean Percentage of Dominant Stream Bank

Dominant Class of Vegetation	Number of Units Right Bank	Number of Units Left Bank	Total Mean Percentage (%)
Grass	11	27	20.9
Brush	72	47	65.4
Hardwood Trees	7	17	13.2
Coniferous Trees	1	0	0.5
No Vegetation	0	1	0.5

**Total Stream Cobble Embeddedness** 2

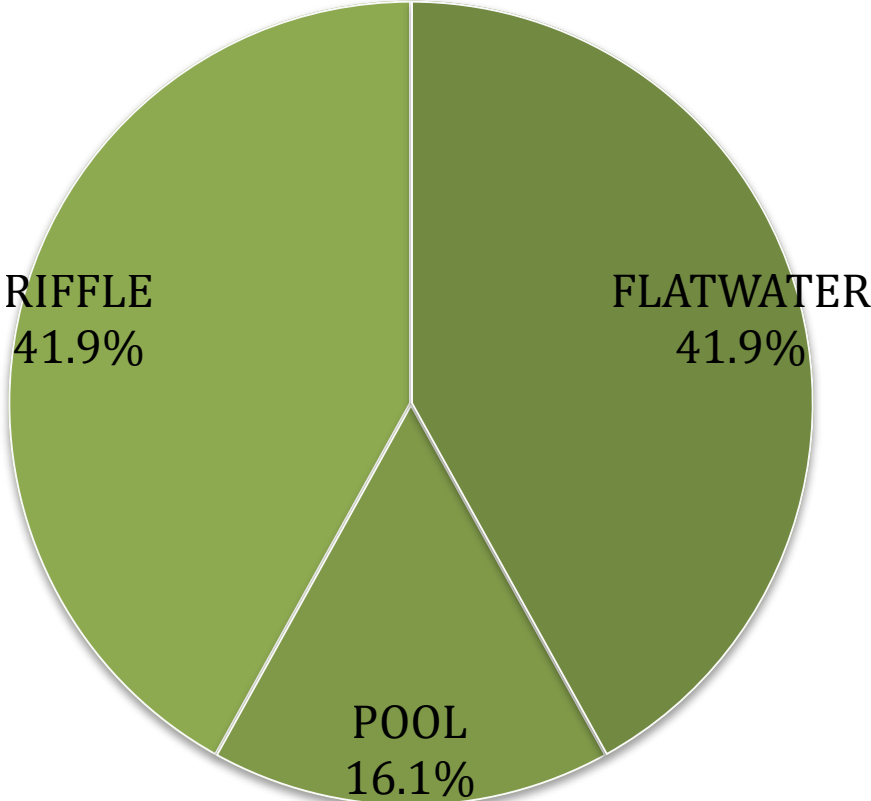
## Table 10 - Mean Percent of Shelter Cover Types For Entire

**Stream Name:** East Fork Scott River **LLID:** 1228018413127  
**Drainage:** Scott River  
**Survey Dates:** 12/12/2022 to 7/31/2023  
**Confluence Location: Quad:** GAZELLE MTN. **Legal Description:** T40NR08WS17 **Latitude:** 41:18:46.0N  
**Longitude:** 122:48:06.0W

	Riffles	Flatwater	Pools
UNDERCUT BANKS (%)	3	4	5
SMALL WOODY DEBRIS (%)	2	7	2
LARGE WOODY DEBRIS (%)	0	1	2
ROOT MASS (%)	1	3	2
TERRESTRIAL VEGETATION (%)	44	53	27
AQUATIC VEGETATION (%)	0	1	0
WHITewater (%)	13	4	7
BOULDERS (%)	34	25	33
BEDROCK LEDGES (%)	3	3	21

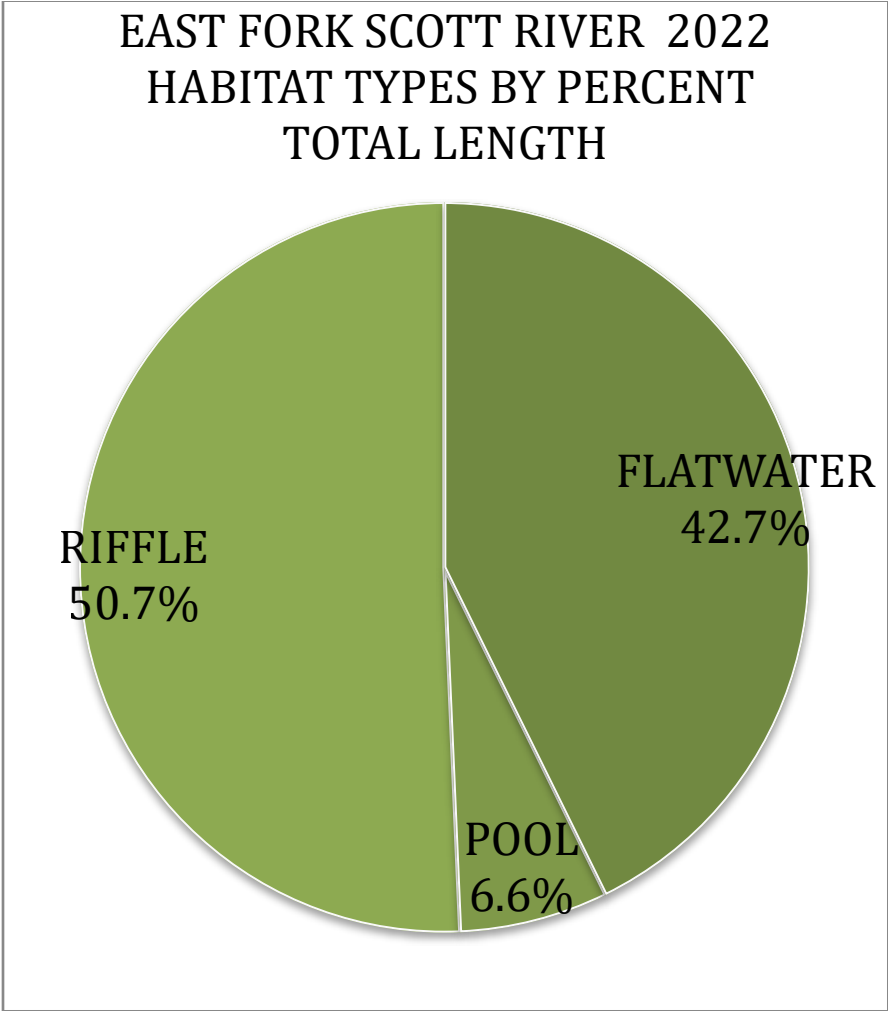


**EAST FORK SCOTT RIVER 2022  
HABITAT TYPES BY PERCENT  
OCCURRENCE**



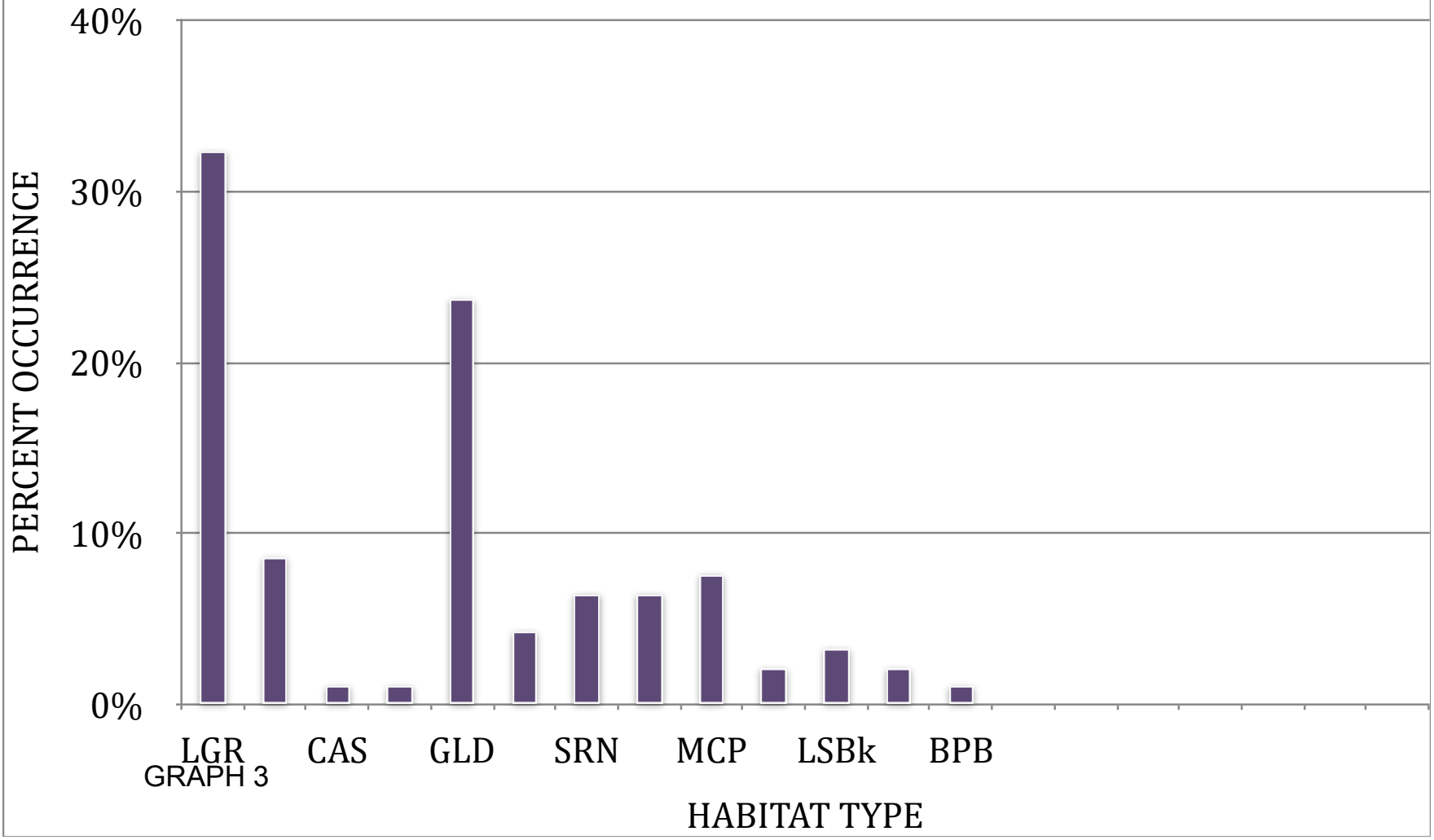
GRAPH 1

EAST FORK SCOTT RIVER 2022  
HABITAT TYPES BY PERCENT  
TOTAL LENGTH

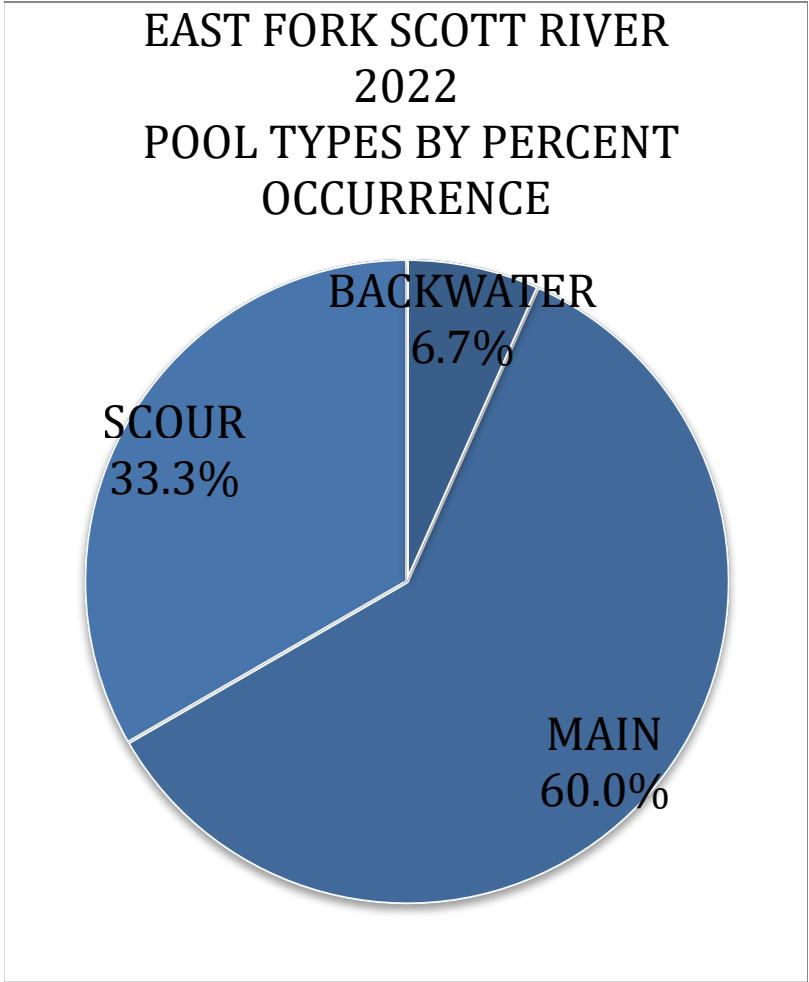


GRAPH 2

EAST FORK SCOTT RIVER 2022  
HABITAT TYPES BY PERCENT OCCURRENCE

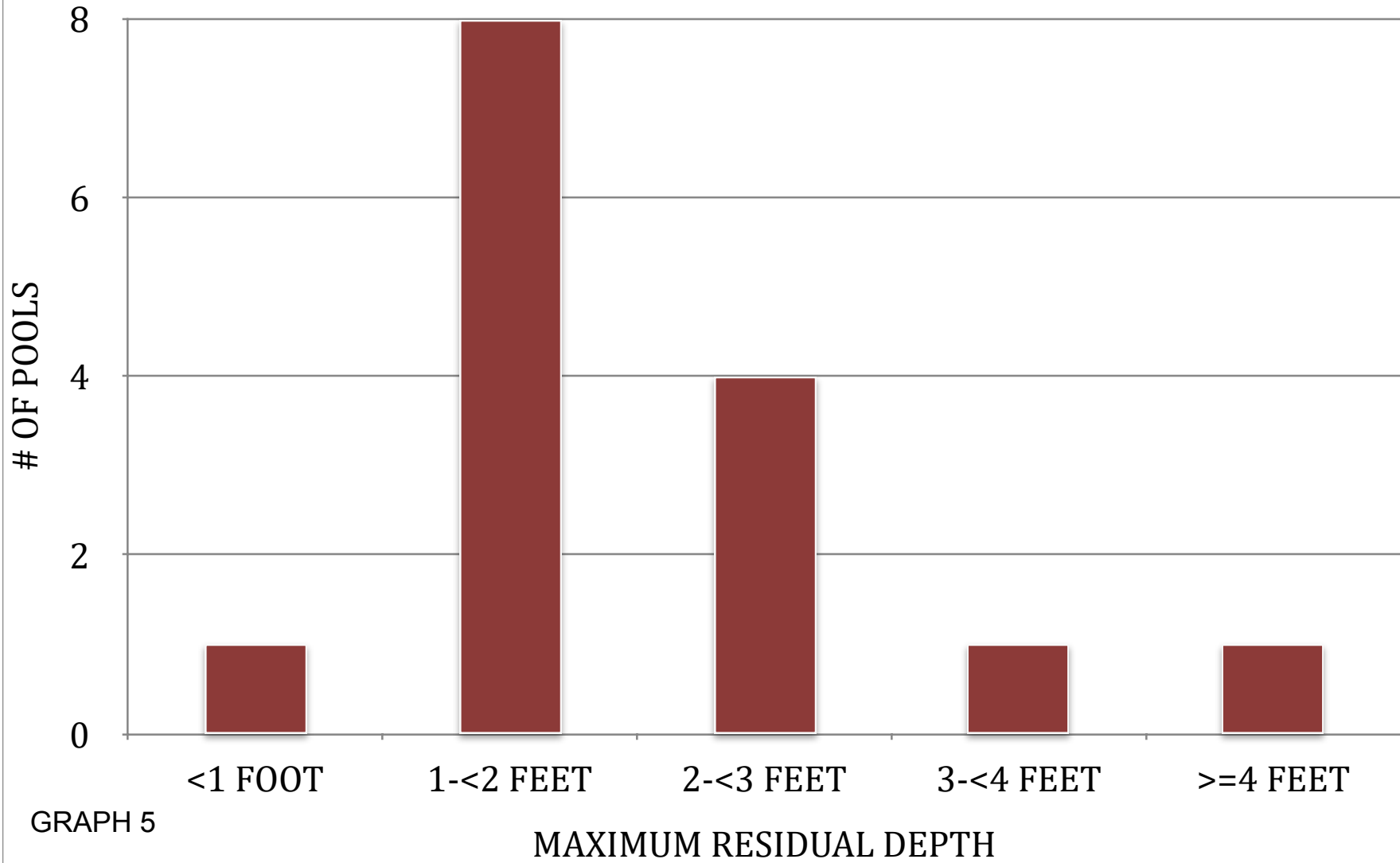


LGR  
GRAPH 3

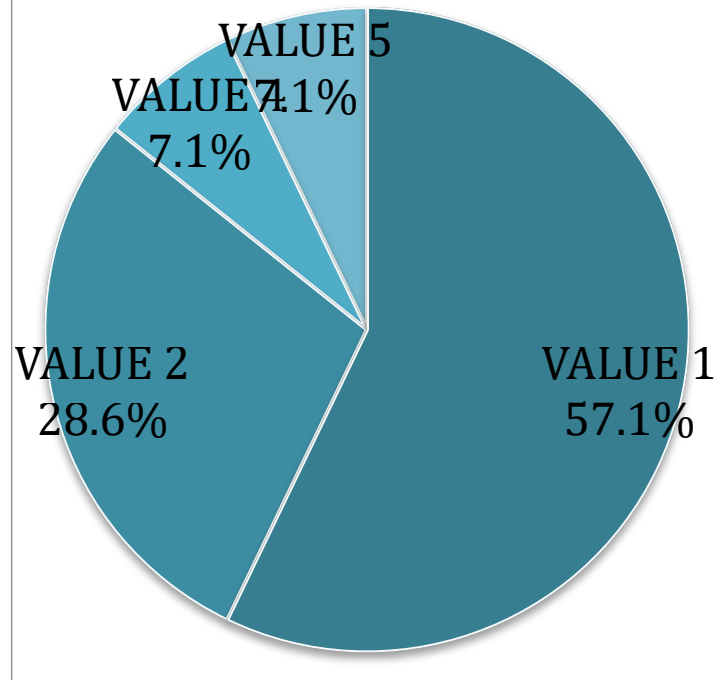


GRAPH 4

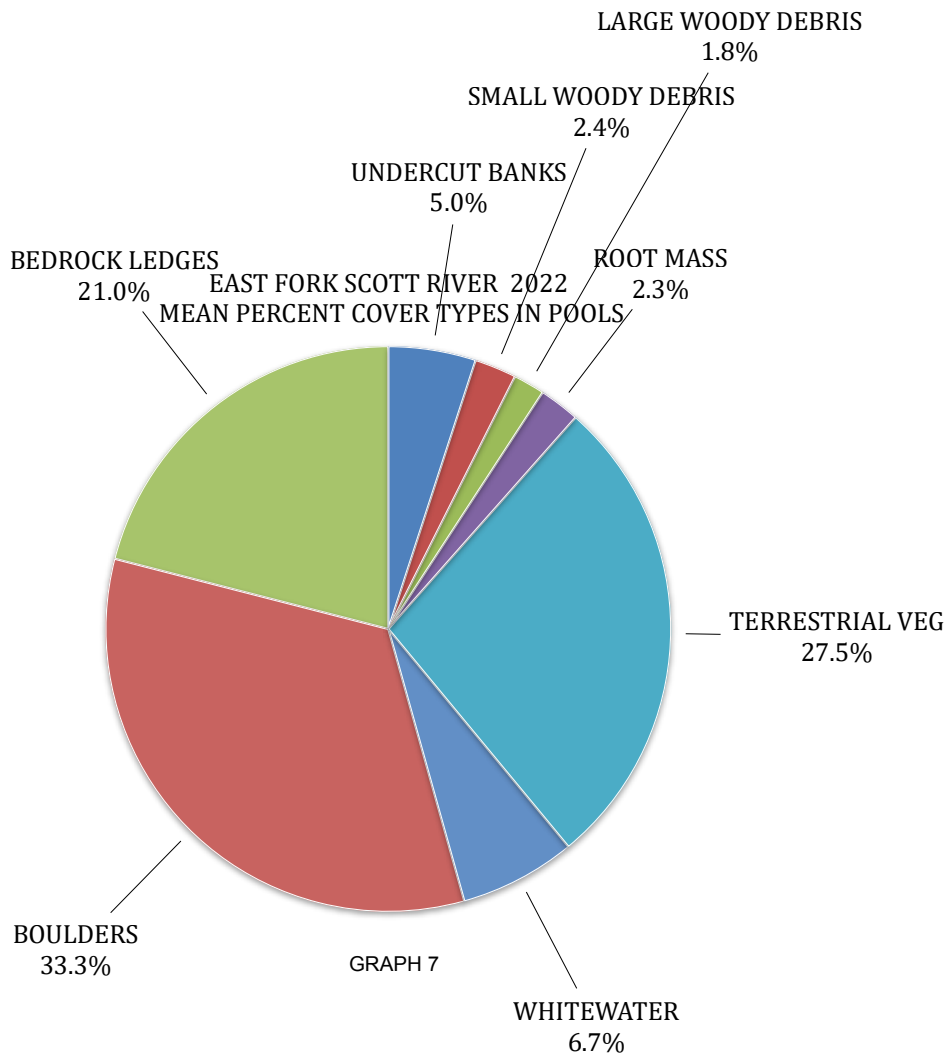
EAST FORK SCOTT RIVER 2022  
MAXIMUM DEPTH IN POOLS



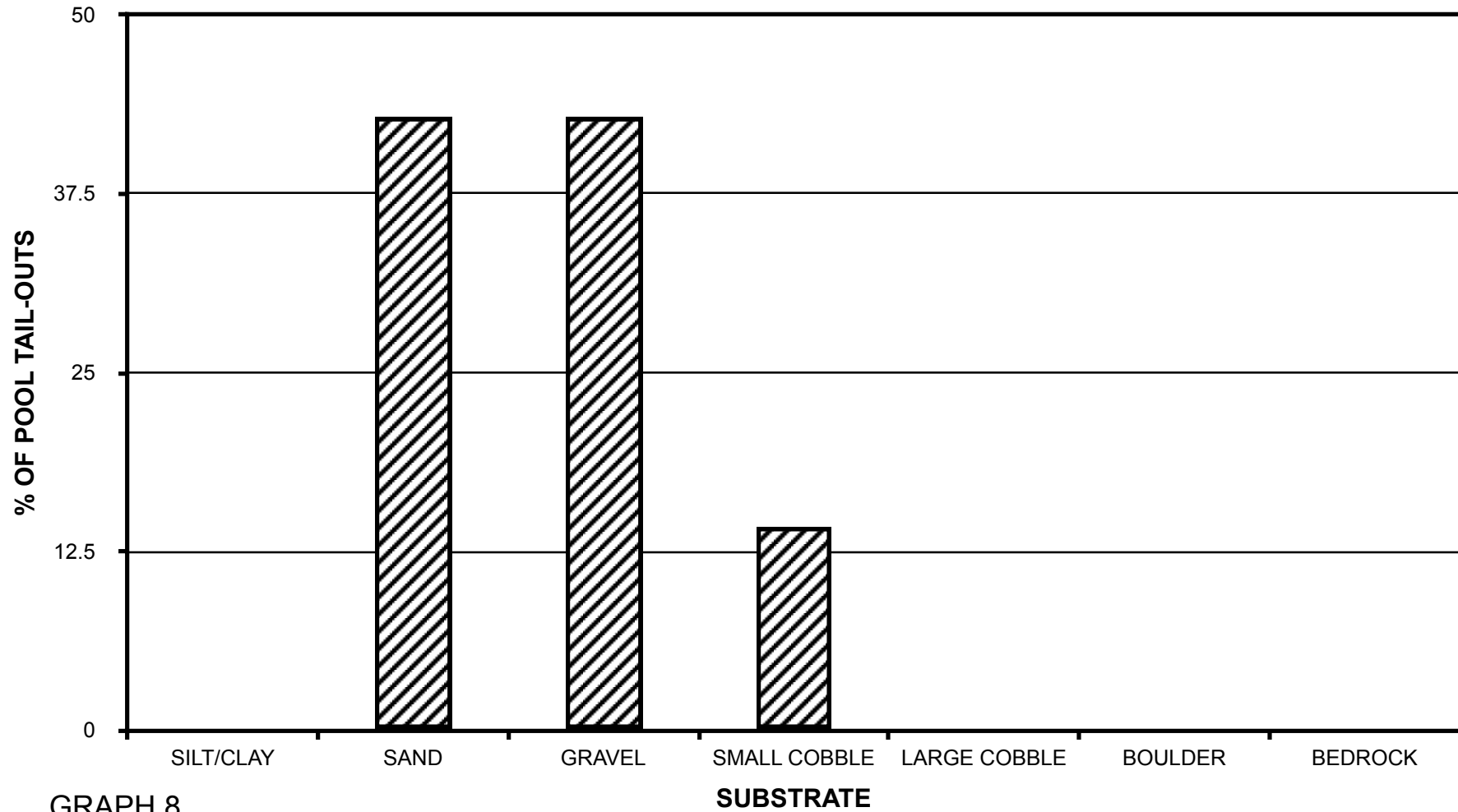
EAST FORK SCOTT RIVER  
2022  
PERCENT EMBEDDEDNESS



GRAPH 6



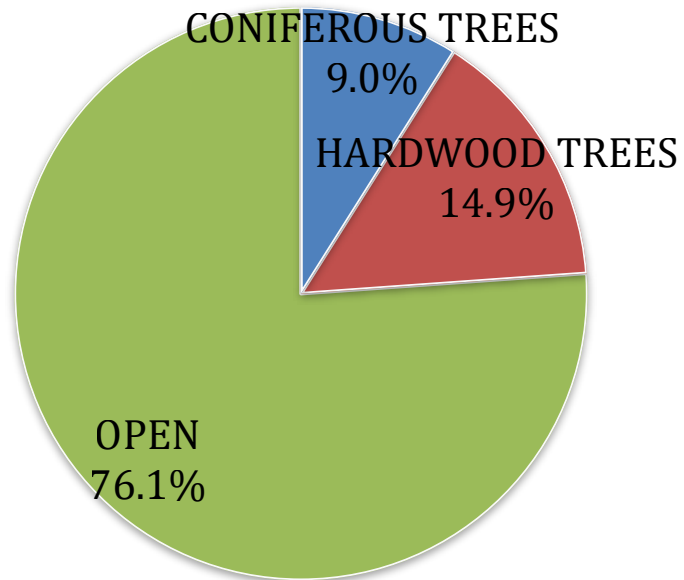
# EAST FORK SCOTT RIVER 2022 SUBSTRATE COMPOSITION IN POOL TAIL-OUTS



GRAPH 8

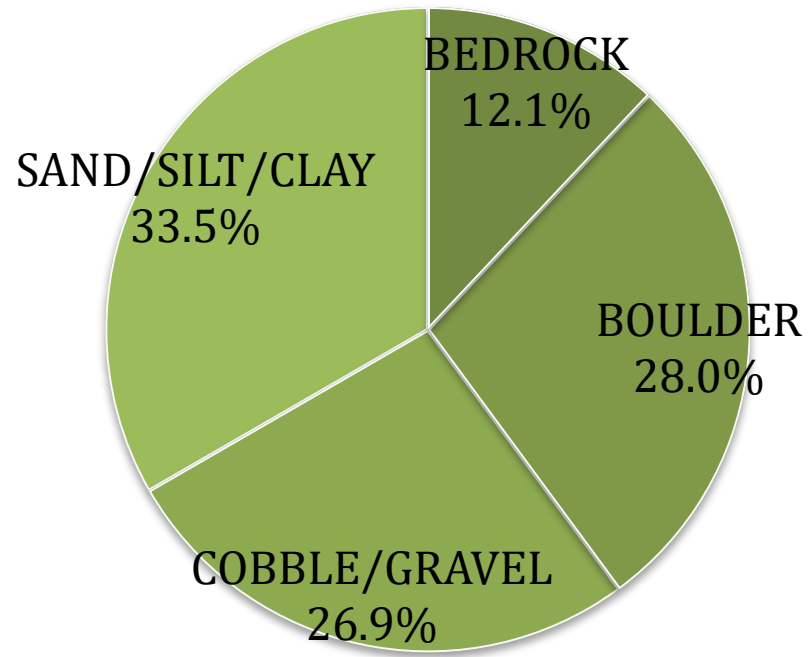


EAST FORK SCOTT RIVER  
2022  
MEAN PERCENT CANOPY



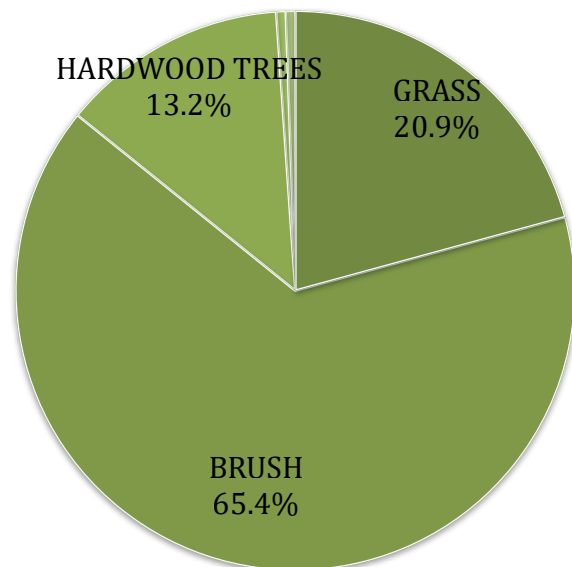
GRAPH 9

EAST FORK SCOTT RIVER  
2022  
DOMINANT BANK  
COMPOSITION IN SURVEY  
REACH



GRAPH 10

NO VEGETATION  
0.5%  
CONIFEROUS TREES  
0.5%  
EAST FORK SCOTT RIVER 2022  
DOMINANT BANK VEGETATION IN  
SURVEY REACH



GRAPH 11

Rating Curve -										
All measurements 4/13/23 - 4/20/23										
East Fork Scott River @ uppermost pool below long rapid in China Cove										
Location: N 41.30718, W 122.74188										
Date	x - axis	y - axis	y/0.6567	log (y/ 0.6567)	log (y/ 0.6567)/ 0.2922	Calculated Q	difference (%)	Difference (cfs)	measurement error %	
4/13/23	163.343	2.91	4.43124714	0.6465259	2.21261455	163.16	-0.11%	-0.182	2.4%	
4/18/23	112.212	2.61	3.97441754	0.5992734	2.05090174	112.44	0.20%	0.224	3.3%	
4/20/23	105.122	2.557	3.89371097	0.5903637	2.02040969	104.81	-0.30%	-0.309	2.1%	

