

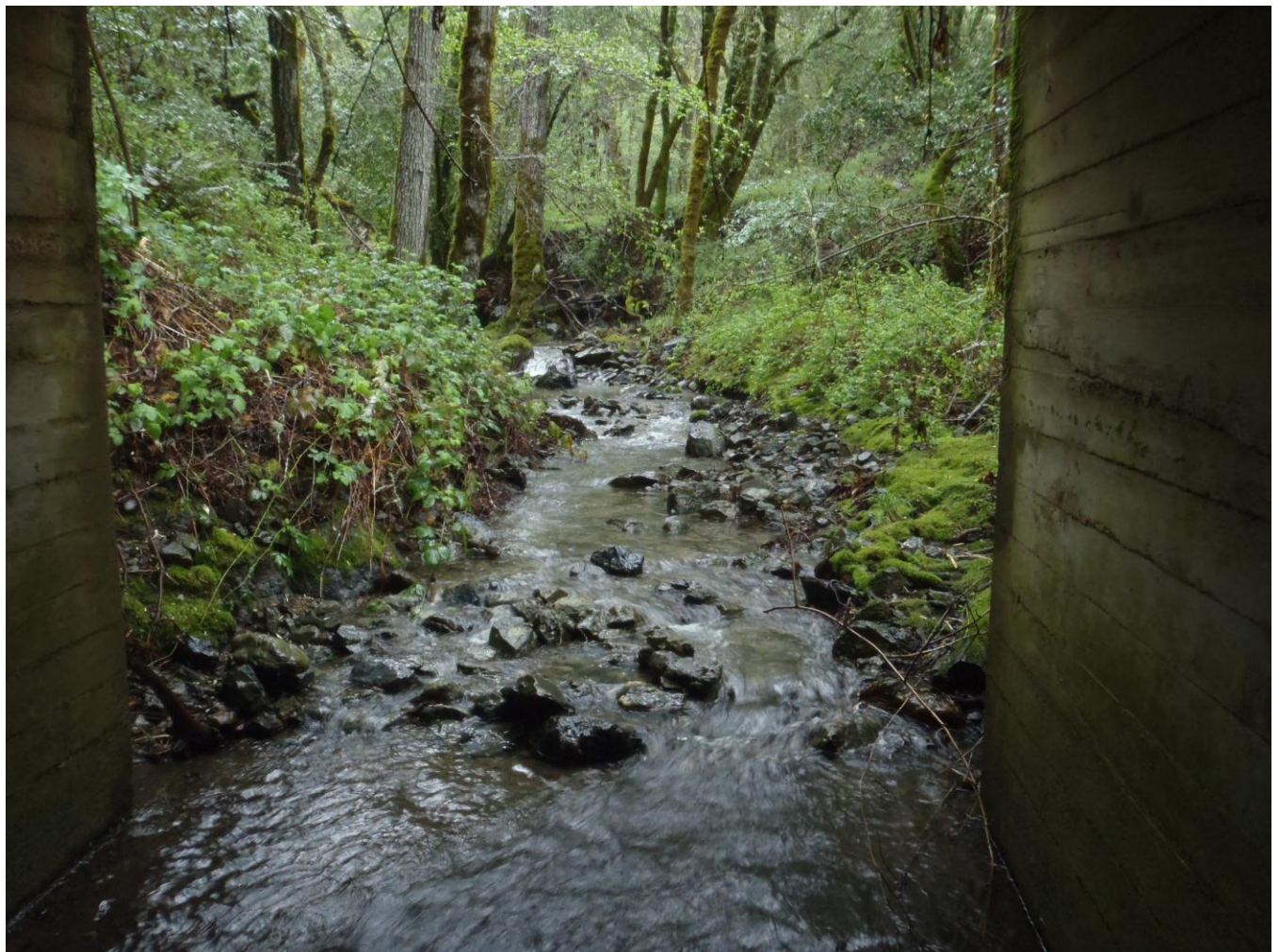


**California Department of Fish and Wildlife
Sonoma County
Russian River Watershed
Stream Habitat Assessment Reports**

Press Creek

Surveyed 2012

Report Completed in 2013



Press Creek

STREAM INVENTORY REPORT

Press Creek

INTRODUCTION

A stream inventory was conducted 5/24/2012 to 6/7/2012 on Press Creek. The survey began at the confluence with Porter Creek and extended upstream 2.5 miles.

The objective of the habitat inventory was to document the habitat available to anadromous salmonids in Press Creek.

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

WATERSHED OVERVIEW

Press Creek is located in Sonoma County, California (Map 1). It is a tributary to Porter Creek, which flows into Russian River, which flows into Pacific Ocean. Press Creek's legal description at the confluence with Porter Creek is T08N R10W Sec.13. Its location is (38:32:23.0N) 38.5396 north latitude and (122:54:43.0W) 122.912 west longitude, LLID number 1229120385396. Press Creek is a first order stream and has approximately 2.3 miles of blue line stream according to the USGS National Hydrology Dataset (NHD). Press Creek drains a watershed of approximately 1.1 square miles. Elevations range from about 249 feet at the mouth of the creek to 1,145 feet in the headwater areas (average elevation of headwaters, not highest point). Evergreen forest dominates the watershed. The watershed is entirely privately owned, which accounts for 100% of the land area. One hundred percent of the land is considered natural. Vehicle access exists via Westside Rd out of Healdsburg, CA. Turn Right onto Sweetwater Springs Rd and park at a turn-out near the confluence of Porter and Press Creek.

METHODS

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

SAMPLING STRATEGY

The inventory method for this survey sampled 100% of the habitat units within the survey reach.

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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 Press Creek 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". Press Creek 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 Press Creek, 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 such as

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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 Press Creek, 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 Press Creek, 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 Press Creek, 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.

BIOLOGICAL INVENTORY

Biological sampling during the stream inventory is used to determine fish species and their distribution in the stream. Fish presence was observed from the stream banks in Press Creek.

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 Wildlife. 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 Press Creek 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

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- 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 5/24/2012 to 6/7/2012, was conducted by C. Neill, D. Dela Vega (WSP). The total length of the stream surveyed was 13,030 feet.

Stream flow was measured near the bottom of the survey reach with a Marsh-McBirney Model 2000 flowmeter at 0.023 cfs on 6/5/2012.

Press Creek is a G4 channel type for 2,446 feet of the stream surveyed (Reach 1), a F4 channel type for 4,820 feet of the stream surveyed (Reach 2), a A3 channel type for 1,979 feet of the stream surveyed (Reach 3), and a B3 channel type for 3,785 feet of the stream surveyed (Reach 4). G4 channels are entrenched 'gully' step-pool channels on moderate gradients with low width to depth ratios, and gravel-dominant substrates. F4 channel types are entrenched meandering riffle/pool channels on low gradients with high width to depth ratios, and gravel-dominant substrates. A3 channels are steep, narrow, cascading, step-pool, high energy debris transporting channels with depositional soils, and cobble-dominant substrates. B3 channels are moderately entrenched, moderate gradient, riffle dominated channel with infrequently spaced pools, very stable plan and profile, stable banks, and cobble-dominant substrates.

Water temperatures taken during the survey period ranged from 50 to 60 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 45% pool units, 28% flatwater units, 17% dry units, 9% riffle units, and 1% culvert units, (Graph 1). Based on total length of Level II habitat types, there were 37% dry units, 35% flatwater units, 21% pool units, 7% riffle units, and 0% culvert units (Graph 2).

Eighteen Level IV habitat types were identified (Table 2). The most frequent habitat types by percent occurrence were 29% mid-channel pool units, 20% step run units, and 17% dry units (Graph 3). Based on percent total length, 37% dry units, 30% step run units, and 11% mid-channel pool units.

A total of 85 pools were identified (Table 3). Main channel pools were the most frequently encountered at 79% (Graph 4), and comprised 76% 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

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salmonids increases with depth. Twenty-eight of the 85 pools (33%) had a residual depth of two feet or greater (Graph 5).

The depth of cobble embeddedness was estimated at pool tail-outs. Of the 85 pool tail-outs measured, 30 had a value of 1 (35%), 45 had a value of 2 (53%), and 10 had a value of 3 (12%) (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 3, flatwater habitat types had a mean shelter rating of 12, and pool habitats had a mean shelter rating of 22 (Table 1). Of the pool types, the backwater pools had a mean shelter rating of 75, main channel pools had a mean shelter rating of 22, and scour pools had a mean shelter rating of 19 (Table 3).

Table 5 summarizes mean percent cover by habitat type. Small woody debris is the dominant cover type in Press Creek. Graph 7 describes the pool cover in Press Creek. Undercut banks is the dominant pool cover type, followed by boulders.

Table 6 summarizes the dominant substrate by habitat type. Graph 8 depicts the dominant substrate observed in pool tail-outs. Gravel substrate was observed in 81% of pool tail-outs; and small cobble substrate was observed in 16% of pool tail-outs.

The mean percent canopy density for the surveyed length of Press Creek was 89%. Of the canopy present, the mean percentages of hardwood and coniferous trees were 69% and 31%, respectively. Eleven percent of the canopy was open. Graph 9 describes the mean percent canopy in Press Creek.

For the stream reach surveyed, the mean percent right bank vegetated was 74%. The mean percent left bank vegetated was 72% (Table 7). The dominant elements composing the structure of the stream banks consisted of 44% cobble/gravel, 38% sand/silt/clay, 11% bedrock, and 8% boulder (Graph 10). Deciduous trees were the dominant vegetation type observed in 41% of the units surveyed. Additionally, 29% of the units surveyed had coniferous trees as the dominant vegetation type, and 22% had brush as the dominant vegetation type (Graph 11).

DISCUSSION

Press Creek is a G4 channel type for 2,446 feet of the stream surveyed, a F4 channel type for 4,820 feet of the stream surveyed, a A3 channel type for 1,979 feet of the stream surveyed, a B3 channel type for 3,785 feet of the stream surveyed. The suitability of G4, F4, A3, and B3 channel types for fish habitat improvement structures is/are as follows: G4 channel types are good for bank-placed boulders and fair for plunge weirs, opposing wing-deflectors, and log cover; F4 channel types are good for bank-placed boulders and fair for plunge weirs, single and opposing wing-deflectors, channel constrictors, and log cover; A3 channel types are good for

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bank-placed boulders and fair for plunge weirs, opposing wing-deflectors and log cover; and B3 channel types are excellent for plunge weirs, boulder clusters and bank-placed boulders, single and opposing wing-deflectors, and log cover.

The water temperatures recorded on the survey days 5/24/2012 to 6/7/2012, ranged from 50 to 60 degrees Fahrenheit. Air temperatures ranged from 61 to 77 degrees Fahrenheit. This is a good water temperature range for salmonids. 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 35% of the total length of this survey, riffles 7%, and pools 21%. The pools are relatively shallow, with 28 of the 85 (33%) pools having a maximum residual depth greater than two 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 channel 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.

Seventy-five of the 85 pool tail-outs measured had embeddedness ratings of 1 or 2. Ten of the pool tail-outs had embeddedness ratings of 3 or 4. Zero 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 Press Creek should be mapped and rated according to their potential sediment yields, and control measures should be taken.

Eighty-three of the 85 pool tail-outs measured had gravel and small cobble as the dominant substrate. This is generally considered good for spawning salmonids.

The mean shelter rating for pools is 22. The shelter rating in the flatwater habitats is 12. A pool shelter rating of approximately 100 is desirable. The amount of cover that now exists is being provided primarily by small woody debris in Press Creek. Undercut banks is the dominant cover type in pools, followed by boulders. 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 89%. Reach 1 had a canopy density of 88.1%, Reach 2 had a canopy density of 90%, Reach 3 had a canopy density of 90.2%, and Reach 4 had a canopy density of 85.8%. In general, revegetation projects are considered when canopy density is less than 80%.

The percentage of right and left bank covered with vegetation was 74% and 72%, respectively. In areas of stream bank erosion or where bank vegetation is sparse, planting endemic species of

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coniferous and hardwood trees, in conjunction with bank stabilization, is recommended.

GENERAL RECOMMENDATIONS

Press Creek should be managed as an anadromous, natural production stream.

Winter storms often bring down large trees and other woody debris into the stream, which increases the number and quality of pools. This woody debris, if left undisturbed, will provide fish shelter and rearing habitat, and offset channel incision. Landowners should be sensitive about the natural and positive role woody debris plays in the system, and encouraged not to remove woody debris from the stream, except under extreme buildup and only under guidance by a fishery professional.

RECOMMENDATIONS

- 1) 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.
- 2) There are several log debris accumulations present on Press Creek 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.
- 3) Access for migrating salmonids should be assessed at all road crossings and dams. Sites of particular concern include the Sweetwater Springs Road in-stream culvert and the multiple ford crossings identified throughout the survey. All fish passage assessments should be done according to Part 9 of the California Salmonid Stream Habitat Restoration Manual (Flosi et al, 1998). Where needed, crossings should be replaced or modified to improve fish passage.
- 4) There are several reaches where the stream is being impacted from livestock in the riparian zone. Livestock in streams generally inhibit the growth of new trees, exasperate erosion, and reduce summertime survival of juvenile fish by defecating in the water. Alternatives to limit cattle access, control erosion and increase canopy, should be explored with the landowner, and developed if possible.
- 5) Where feasible, design and engineer pool enhancement structures to increase the number of pools. This must be done where the banks are stable or in conjunction with stream bank armor to prevent erosion.
- 6) Due to the natural 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.

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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	Habitat Unit #	Memo
0	0001.00	Start of Survey at confluence with Porter Creek. WP 36 (N38.53977 W122.91335)
0	0001.00	Two young-of-the-year (YOY) steelhead observed
37	0003.00	Culvert 1 is under Sweetwater Springs Rd. It is made of concrete, 8.5' x 8' x 36', has a slope of <1%, and plunge of 1.5'. The max depth within 5' is 2'. It is in good condition and may be a possible barrier to juveniles in low flows. Culvert is 37' upstream of WP36
128	0005.00	One YOY salmonid observed.
156	0006.00	SWD and LWD are backed up behind boulder. Most of the shelter is at this accumulation near the bottom of the unit. The left bank is scoured above the accumulation.
488	0009.00	Left bank tributary 001 is dry, not flowing, and not accessible to fish. It has an estimated slope of 4% with gravel and boulder substrate. The tributary was checked 200' up. WP # 37 (N 38.54089 W 122.91304)
940	0019.00	At the bottom of the unit there is a small drainage from the road on the right bank.
969	0020.00	One 1+ steelhead observed
1,434	0027.00	One 1+ steelhead observed
1,829	0029.00	Right bank tributary 002 is wet with an estimated flow of 0.5-1 cfs, contributing 1-2% of flow. It is not accessible to fish, has an estimated slope of 10-15 % after 75 feet with boulder and gravel substrate. The tributary was checked 75' upstream. Water temperatures downstream = 58F, upstream = 56 F, and tributary = 57 F. WP 39 (N 38.54412 W122.91379)
1,850	0030.00	Landslide on left bank from large root was falling in creek. There is a wet drainage on the left bank at the top of the unit. Steelhead YOY observed 165' into unit.

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Position	Habitat Unit #	Memo
2,074	0032.00	Two pacific giant salamanders observed
2,095	0033.00	Bedrock sheet and step pool series with a gradient > 10%. 1st plunge= 4', 2nd plunge = 6-7'. Elevation change of 25' over distance of 96'. Substrate is bedrock and boulders. Potential barrier is 25' upstream of WP 40 (N38.5446 W122.9133).
2,421	0040.00	Right bank tributary 003 is wet with an estimated flow of 0.5 cfs, contributing 1-2%, Tributary temperature = 60 F, upstream = 57 F, and downstream = 57 F. The tributary is not accessible to fish, has an estimated slope of 4-7%, and has gravel and sand substrate. Tributary was checked 100' up to where barbed wire spans tributary. WP 41(N38.5453 W122.9135)
2,716	0045.00	Property line fence spans creek. Gate is on left bank
2,874	0047.00	Rip rap along left bank
2,998	0049.00	Left bank tributary 004 is dry and not accessible to fish. It has an estimated slope > 10%. Drainage goes through culvert under road with a plunge of 1-2' fat outlet. The tributary was checked 100' up. Tributary is 90' downstream of WP 42 (N38.5465 W122.9131)
3,194	0052.00	Three bullfrogs observed
3,540	0058.00	LDA 001 has length =58', height =10', and width = 22' with 9 pieces of LWD. Water flows through with some visible gaps. Gravel and sand sized sediment is retained approx. 100' x 10' x 3'. Fish can pass through LDA, but stored sediment creates dry channel upstream. WP 43 (N38.54648 W122.91370)
3,672	0060.00	. Cows have access to creek.
3,672	0060.00	Left bank tributary 005 is wet with 0 cfs flow and contributes < 1% of flow to stream. Tributary is patchy wet and dry . at confluence. Tributary is not currently accessible to fish, but could be in high flows. The tributary was checked 150' up and the estimated slope is < 1%. Property fence is collecting debris. WP 44 (N38.548 W122.9138)
3,696	0061.00	Ford crossing at bottom of unit. 58' into unit is small pool with hundreds of toad tadpoles.
3,884	0063.00	177' into unit is small wood and overgrown grape vines. Channel is completely dry. Toad observed at top of unit.

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Position	Habitat Unit #	Memo
4,449	0066.00	At top of unit is animal/cattle trail. Cattle have access to the creek throughout the rest of the survey.
4,612	0071.00	Two pacific giant salamanders observed. 150' into unit is right bank drainage from 4WD trail
4,817	0072.00	LDA at bottom of unit is retaining sediment
4,817	0072.00	LDA 002 is 43' long, 4.5' tall, and 30' wide with 9 associated pieces of wood. Water does not flow through and there are no gaps. Retaining gravel and sand 4' x 12' x 87'. It is possible barrier to juveniles in low flow/ dry months. WP 48 (N38.54764 W122.91750)
4,947	0073.00	Trail fords through channel at this unit. It is the end of the 4WD road.
5,344	0082.00	Small Landslide on right bank approximately 50' x 15'
5,579	0087.00	Trail continues on left bank
5,764	0090.00	Right bank tributary 006 is dry then becomes wet 80' into the tributary. It is accessible to fish when wet. Substrate is boulder and bedrock sheets with 6' plunges after first 80'. The tributary was checked 200' up and has an estimated slope of < 10%. WP# 50 (N38.54898 W 122.91994)
6,283	0097.00	Cattle have access to the creek
6,635	0102.00	Left bank drainage at top of unit is plugged from trail and trampling
6,829	0107.00	Algae growing in creek. 305' into unit a pacific chorus frog was observed.
6,829	0107.00	Left bank tributary 007 is wet, with estimated 0.001-0.005 cfs, contributing 0.1-1% of flow. It's accessible to fish and the gradient picks up after 75' with step pools, and cobble and boulder substrate. The tributary temperature = 70 F, upstream =58 F, and downstream = 61 F. 60' into tributary is right bank tributary, which is high gradient and dry. The tributary was checked 250'. WP 52 (N38.55166 W122.92224)
7,204	0109.00	LDA 003 has length = 34', height = 5', and width= 15' with 6 pieces LWD. Water does not flow through, there are visible gaps, and gravel sized sediment is retained 15' x 5' x 40'. It is a possible barrier to juveniles in dry months. 40' downstream of WP 53 (N38.5518 W122.9225)

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Position	Habitat Unit #	Memo
7,266	0111.00	LDA above pool is creating 6' plunge into unit
7,823	0121.00	Right bank tributary 008 has intermittent pools, but is not flowing. The tributary temperature =55 F, downstream = 57 F, upstream =N/A. The tributary was checked 120' up. It has a slope of approximately 4-8% and is accessible to adults. The substrate is bedrock and becomes gravel after 20' and LWD forms 4' plunge 120' upstream. The channel is moderately entrenched. WP54 (N38.55247 W122.92419) (10ft upstream)
8,258	0128.00	There is a 5' plunge at the top of the unit
8,258	0128.00	Left bank tributary 009 is dry, not accessible to fish, and has an estimated slope > 10%. There is a 4' plunge at the confluence to the creek. The Substrate is small cobble and gravel. The tributary was checked 120' up. WP 55 (N38.55353 W122.92504)
8,495	0131.00	There is a 3.5' plunge at the top of the unit.
8,609	0133.00	LDA 005 is 24' long, 9' high, and 22' wide with 10 pieces of LWD. Water does not flow through, there are visible gaps, and it is not retaining sediment. It is not likely a barrier. WP # 57 (N38.55419 W122.92577)
8,633	0134.00	Scour on right bank at the top of the LDA
8,710	0136.00	Left bank tributary 010 is dry at the confluence with 0.01 cfs estimated flow upstream. It is accessible to fish for the first 80' then becomes a bedrock sheet with 12' plunge, and another 4' plunge further up. Slope is an estimated 4%, with cobble and bedrock substrate. The tributary temperature = 55 F, upstream =50 F, and downstream = 56 F. The tributary was checked 250' up. WP58 (N38.55419 W122.92577)
8,710	0136.00	Left bank tributary 011 is dry, not accessible to fish, and has estimated slope of 4-10%. It is a recently formed drainage, entrenched, and has silt and sand substrate. After 180 ft it becomes dominated by boulder and cobble substrate. The tributary was checked 200' up. WP 58 (N38.55419 W122577)
8,876	0138.00	There is a 5' plunge at the top of the unit
8,892	0139.00	Gradient is 4-10%. If channel was wet this would be a steep cascade.
9,096	0145.00	LDA 006 has length = 19', height = 12', and width = 22', with 7 pieces LWD. Water does not flow

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Position	Habitat Unit #	Memo
		through, it has no visible gaps, and is retaining sand and gravel sized sediment approx =130' x 20' x 10'. It is a possible barrier with an 11' plunge and no water. WP 60 (N38.55485 W122.92692)
9,406	0152.00	Rough skinned newt and 2 bull frogs observed
9,860	0160.00	Left bank tributary 012 is dry, not accessible to fish, and has estimated slope >10%. It is a drainage with gravel and sand substrate, and is overgrown with grass. The tributary was checked 100' up and is located at the top of the unit. WP62 (N38.55636 W122.92853)
10,001	0166.00	Left bank tributary 013 is 50' into the unit. It is dry at the confluence and wet upstream with an estimated discharge = 0.005 cfs. The tributary is accessible to fish and has an estimated slope = 2-6%. The tributary temperature = 58 F, upstream = N/A, and downstream = N/A. The dominant substrate is cobble and gravel, and the channel is entrenched and overgrown with poison oak. The tributary was checked 200' up. WP63 (N38.55637 W122.92908)
10,001	0166.00	Right bank tributary 014 is 80' into unit. It is dry, accessible to fish for the first 200' then the gradient becomes >10%. The first 200' is very overgrown. The tributary was checked 300' up. Tributary is 30' upstream of WP# 63 (N38.55637 W122.92908)
10,320	0171.00	The channel begins to look overgrown with grass and brush
10,846	0178.00	Right bank tributary 015 is 21' into the unit. The tributary is dry and is low gradient for the first 50' then increases after a 3-4 ft plunge. The overall estimated slope = 4 – 10%. The tributary was checked 200' up. It is accessible to fish, has cobble substrate, and has little entrenchment. WP65 (N38.55781 W122.93060)
10,991	0181.00	Pacific chorus frog observed
11,229	0183.00	Left bank tributary 016 is 15' into the unit. It is wet, but not flowing. The tributary was checked 200' up. The estimated slope = 4-10%, with the gradient increasing after a 6 ft. bedrock sheet plunge 30 ft. into the tributary. The tributary is not accessible to fish. It dominated by cobble and boulder substrate. WP67 (N38.55873 W122.93076)

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Position	Habitat Unit #	Memo
11,229	0183.00	Right bank tributary 017 is 233' into the unit. The tributary is dry. It has an estimated slope = 4-10%, with a steady steep gradient. The tributary was checked 200' up. It is dominated by cobble substrate and is entrenched and overgrown. WP 68 (N38.55900 W122.93170)
11,608	0184.00	Spring on left bank supplies water to pool
11,612	0185.00	Right bank tributary 018 is 468' into the unit. It is dry . The tributary has an estimated slope > 10%, with large cobble substrate and moderate to slight entrenchment. The tributary was checked 125' up and is not accessible to fish. WP 69 (N38.56017 W122.93255)
11,612	0185.00	Right bank tributary 019 is 730' into the unit. It is dry . The tributary has an estimated slope of 8-10% and is not accessible to fish. The tributary was checked 200' up and there is a 5 ft plunge 100 ft up the tributary. The channel is dominated by cobble substrate and is very entrenched. WP 71 (N38.56075 W122.93300).
11,612	0185.00	Right Bank tributary 020 is 1000' into the unit. It is dry .. The first 75 ft. of the tributary spill onto the left bank floodplain creating a downstream channel. After 75ft the gradient picks up and is dominated by cobble and boulder substrate. The tributary was checked 200' up and it is not accessible to fish. WP 72 (N38.56131 W122.93362)
12,787	0186.00	There is a 3.5 plunge at the top of the unit. There is a drainage on the left bank.
12,981	0188.00	Right bank tributary 021 is at the bottom of the unit. It is dry. The tributary has an estimated slope of 4-10% and is not accessible to fish. The tributary was checked 200' up and is dominated by gravel substrate. It is very entrenched and over grown. WP 73 (N38.56188 W122.93430)
13,030	0188.00	End of Survey due to extensive dry units for last 2500' of survey. Ended survey approximately 200' downstream to confluence of headwater tributaries. No fish have been observed since habitat unit # 004. Access to end of survey is approximately 2 hour hike from parking place. WP 74 (N38.56195 W122.93459)

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.

Press Creek

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 marsh	(MAR)	[9.1]	

Press Creek 2012

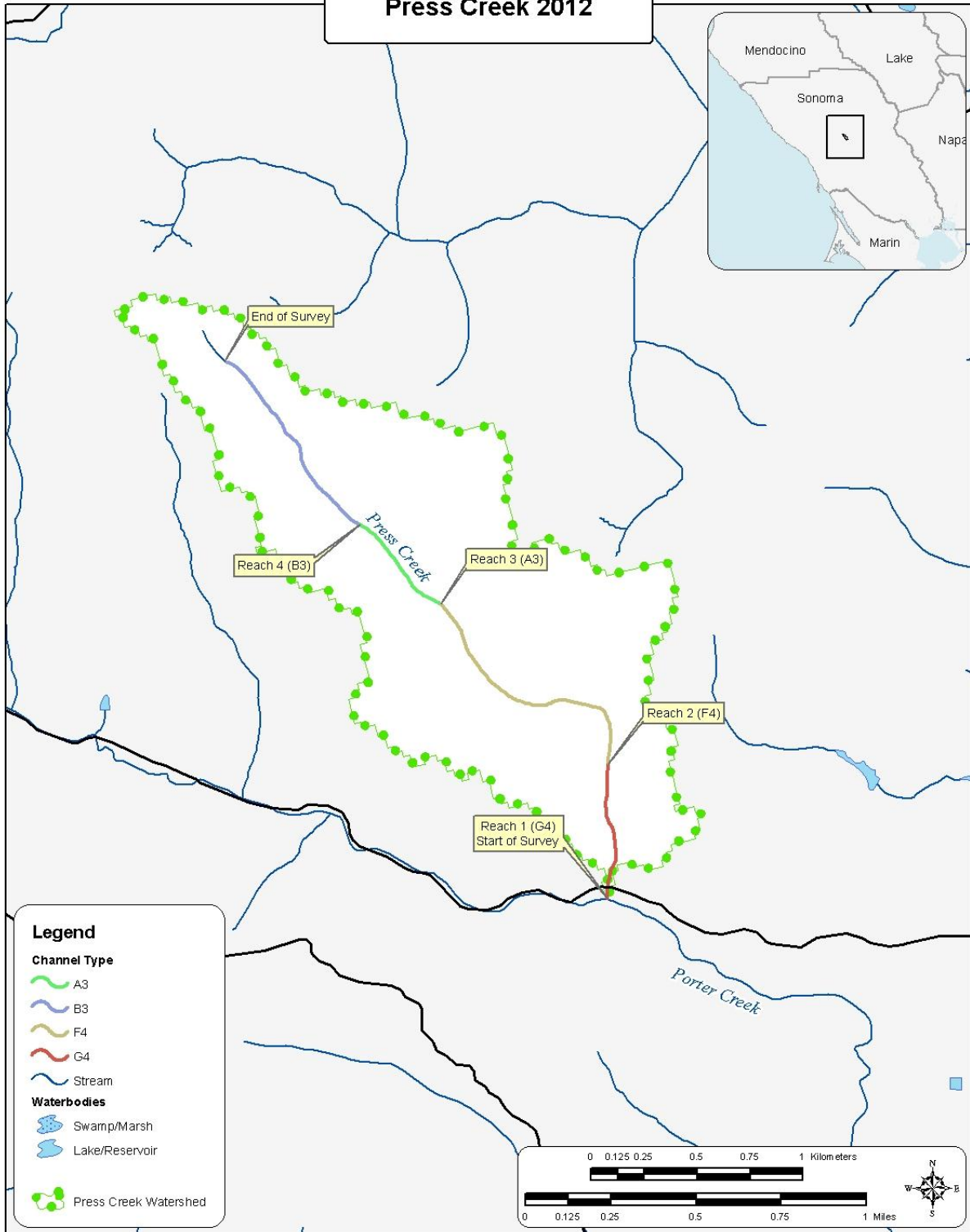


Table 1 - Summary of Riffle, Flatwater, and Pool Habitat Types

Stream Name: Press Creek

LLID: 1229120385396

Drainage: Russian River - Lower

Survey 5/24/2012 to 6/7/2012

Confluence Location: Quad: GUERNEVILLE

Legal Description: T08NR10WS13

Latitude: 38:32:23.0N

Longitude: 122:54:43.0W

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
1	0	CULVERT	0.5	36	36	0.3									
32	0	DRY	17.0	149	4764	36.6									
53	53	FLATWATER	28.2	86	4565	35.0	5.1	0.3	0.8	371	19680	135	7164		12
85	85	POOL	45.2	33	2793	21.4	7.2	0.8	1.8	221	18766	210	17889	186	22
17	17	RIFFLE	9.0	51	872	6.7	4.1	0.2	0.6	186	3160	64	1096		3
Total Units	Total Units Fully Measured				Total Length (ft.)						Total Area (sq.ft.)		Total Volume (cu.ft.)		
188	155				13030						41606		26148		

Table 2 - Summary of Habitat Types and Measured Parameters

Stream Name: Press Creek

LLID: 1229120385396

Drainage: Russian River - Lower

Survey 5/24/2012 to 6/7/2012

Confluence Location: Quad: GUERNEVILLE

Legal Description: T08NR10WS13

Latitude: 38:32:23.0N

Longitude: 122:54:43.0W

Habitat Units	Units Fully Measured	Habitat Type	Habitat Occurrence (%)	Mean Length (ft.)	Total Length (ft.)	Total Length (%)	Mean Width (ft.)	Mean Depth (ft.)	Mean Max Depth (ft.)	Mean Area (sq.ft.)	Estimated Total Area (sq.ft.)	Mean Volume (cu.ft.)	Estimated Total Volume (cu.ft.)	Mean Residual Pool Vol (cu.ft.)	Mean Shelter Rating	Mean Canopy (%)
10	10	LGR	5.3	39	394	3.0	4.0	0.2	0.9	115	1153	22	216		2	89
4	4	HGR	2.1	96	385	3.0	6.0	0.3	1.2	434	1736	197	789		5	89
2	2	CAS	1.1	36	72	0.6	2.0	0.3	1.8	72	145	27	53		3	86
1	1	BRS	0.5	21	21	0.2	6.0	0.3	0.9	126	126	38	38		10	86
3	3	GLD	1.6	43	128	1.0	4.0	0.3	0.6	189	568	62	185		5	83
13	13	RUN	6.9	36	466	3.6	4.0	0.3	1.1	120	1566	37	484		3	89
37	37	SRN	19.7	107	3971	30.5	6.0	0.3	1.7	474	17546	176	6495		15	88
54	54	MCP	28.7	26	1400	10.7	7.0	0.8	5.3	180	9727	172	9279	154	22	89
13	13	STP	6.9	56	734	5.6	6.0	0.7	3.5	290	3773	237	3076	207	21	89
4	4	CRP	2.1	34	134	1.0	8.0	0.9	2.9	246	984	246	985	208	5	90
3	3	LSL	1.6	49	147	1.1	7.0	0.7	1.7	345	1035	290	871	256	28	94
2	2	LSR	1.1	32	65	0.5	7.0	0.9	3.3	199	398	187	374	167	48	89
3	3	LSBk	1.6	52	156	1.2	8.0	0.6	2.4	359	1076	260	781	197	5	93
1	1	LSBo	0.5	23	23	0.2	4.0	0.7	1.3	87	87	61	61	61	5	78
4	4	PLP	2.1	30	118	0.9	14.0	1.3	5.2	400	1599	593	2374	531	24	90
1	1	BPB	0.5	16	16	0.1	10.0	0.8	1.8	88	88	88	88	70	75	92
32	0	DRY	17.0	149	4764	36.6										87
1	0	CUL	0.5	36	36	0.3										
Total Units	Total Units Fully Measured				Total Length (ft.)						Total Area (sq.ft.)		Total Volume (cu.ft.)			
188	155				13030						41606		26148			

Table 3 - Summary of Pool Habitat Types

Stream Name: Press Creek

LLID: 1229120385396

Drainage: Russian River - Lower

Survey 5/24/2012 to 6/7/2012

Confluence Location: Quad: GUERNEVILLE

Legal Description: T08NR10WS13

Latitude: 38:32:23.0N

Longitude: 122:54:43.0W

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
67	67	MAIN	79	32	2134	76	6.8	0.7	201	13500	164	10997	22
17	17	SCOUR	20	38	643	23	8.6	0.9	305	5178	277	4713	19
1	1	BACKWATER	1	16	16	1	10.0	0.8	88	88	70	70	75
Total Units	Total Units Fully Measured				Total Length (ft.)					Total Area (sq.ft.)		Total Volume (cu.ft.)	
85	85				2793					18766		15781	

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

Stream Name: Press Creek **LLID:** 1229120385396 **Drainage:** Russian River - Lower
Survey: 5/24/2012 to 6/7/2012

Confluence Location: Quad: GUERNEVILLE **Legal Description:** T08NR10WS13 **Latitude:** 38:32:23.0N **Longitude:** 122:54:43.0W

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
54	MCP	64	10	19	30	56	10	19	3	6	1	2
13	STP	15	1	8	6	46	5	38	1	8	0	0
4	CRP	5	0	0	1	25	3	75	0	0	0	0
3	LSL	4	0	0	3	100	0	0	0	0	0	0
2	LSR	2	0	0	0	0	1	50	1	50	0	0
3	LSBk	4	0	0	2	67	1	33	0	0	0	0
1	LSBo	1	0	0	1	100	0	0	0	0	0	0
4	PLP	5	0	0	2	50	0	0	1	25	1	25
1	BPB	1	0	0	1	100	0	0	0	0	0	0
Total Units			Total < 1 Foot Max Resid. Depth	Total < 1 Foot % Occurrence	Total 1 < 2 Feet Max Resid. Depth	Total 1 < 2 Feet % Occurrence	Total 2 < 3 Feet Max Resid. Depth	Total 2 < 3 Feet % Occurrence	Total 3 < 4 Feet Max Resid. Depth	Total 3 < 4 Feet % Occurrence	Total >= 4 Feet Max Resid. Depth	Total >= 4 Feet % Occurrence
85			11	13	46	54	20	24	6	7	2	2
Mean Maximum Residual Pool Depth (ft.):			2									

Table 5 - Summary of Mean Percent Cover By Habitat

Stream Name: Press Creek **Dry Units:** 32 **LLID:** 1229120385396 **Drainage:** Russian River - Lower
Survey 5/24/2012 to 6/7/2012
Confluence Location: Quad: GUERNEVILLE **Legal Description:** T08NR10WS13 **Latitude:** 38:32:23.0N **Longitude:** 122:54:43.0W

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
10	10	LGR	5	15	0	0	0	10	0	0	0
4	4	HGR	0	28	15	0	0	0	0	33	0
2	2	CAS	0	0	40	0	0	0	0	0	10
1	1	BRS	0	10	0	0	0	0	0	90	0
17	17	TOTAL RIFFLE	3	16	8	0	0	6	0	13	1
3	3	GLD	0	33	0	0	33	33	0	0	0
13	13	RUN	12	15	0	4	8	8	0	0	0
37	37	SRN	13	30	9	6	1	6	0	17	2
53	53	TOTAL FLAT	12	26	6	5	5	8	0	12	1
54	54	MCP	20	11	17	14	2	4	0	18	2
13	13	STP	18	20	12	15	0	0	0	34	1
4	4	CRP	45	18	0	13	0	0	0	0	0
3	3	LSL	27	10	50	13	0	0	0	0	0
2	2	LSR	50	0	0	50	0	0	0	0	0
3	3	LSBk	13	47	0	0	0	7	0	0	0
1	1	LSBo	0	0	0	0	0	0	0	100	0
4	4	PLP	13	13	28	10	0	0	10	13	15
1	1	BPB	30	10	0	30	0	0	0	30	0
85	85	TOTAL POOL	21	13	16	14	1	3	0	19	2
1	0	CUL									
188	155	TOTAL	16	18	12	10	2	5	0	16	2

Table 6 - Summary of Dominant Substrates By Habitat Type

Stream Name: Press Creek **Dry Units:** 32 **LLID:** 1229120385396 **Drainage:** Russian River - Lower
Survey 5/24/2012 to 6/7/2012

Confluence Location: Quad: GUERNEVILLE **Legal Description:** T08NR10WS13 **Latitude:** 38:32:23.0N **Longitude:** 122:54:43.0W

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
10	10	LGR	0	0	60	40	0	0	0
4	4	HGR	0	0	0	75	0	25	0
2	2	CAS	0	0	0	50	0	0	50
1	1	BRS	0	0	0	0	0	0	100
3	3	GLD	0	67	33	0	0	0	0
13	13	RUN	0	23	62	8	8	0	0
37	37	SRN	0	3	51	35	8	0	3
54	54	MCP	0	24	59	11	6	0	0
13	13	STP	0	23	38	15	8	8	8
4	4	CRP	0	25	75	0	0	0	0
3	3	LSL	0	0	100	0	0	0	0
2	2	LSR	0	50	50	0	0	0	0
3	3	LSBk	0	67	33	0	0	0	0
1	1	LSBo	0	0	100	0	0	0	0
4	4	PLP	25	25	25	0	0	0	25
1	1	BPB	0	0	100	0	0	0	0
1	0	CUL	0	0	0	0	0	0	0

Table 7 - Summary of Mean Percent Canopy for Entire Stream

Stream Name: Press Creek **LLID:** 1229120385396 **Drainage:** Russian River - Lower
Survey 5/24/2012 to 6/7/2012

Confluence Location: Quad: GUERNEVILLE **Legal Description:** T08NR10WS13 **Latitude:** 38:32:23.0N **Longitude:** 122:54:43.0W

Mean Percent Canopy	Mean Percent Conifer	Mean Percent Hardwood	Mean Percent Open Units	Mean Right Bank % Cover	Mean Left Bank % Cover
89	31	69	0	74	72

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 Press Creek LLID: 1229120385396 Drainage Russian River - Lower
 Survey Dates: 5/24/2012 to 6/7/2012 Survey Length (ft.): 13030 Main Channel (ft.): 13030 Side Channel (ft.): 0
 Confluence Location: Quad GUERNEVILLE Legal Description: T08NR10WS13 Latitude: 38:32:23.0N Longitude: 122:54:43.0W

Summary of Fish Habitat Elements By Stream Reach

STREAM REACH: 1

Channel Type: G4	Canopy Density (%): 88.1	Pools by Stream Length	31.8
Reach Length (ft.): 2446	Coniferous Component (%): 30.5	Pool Frequency (%):	50.0
Riffle/Flatwater Mean Width (ft.): 7.1	Hardwood Component	69.5	Residual Pool Depth (%):
BFW:	Dominant Bank	Hardwood Trees	< 2 Feet Deep: 55.0
Range (ft.): 13.00 to 21.00	Vegetative Cover (%): 66.7		2 to 2.9 Feet Deep: 25.0
Mean (ft.): 16.00	Dominant	Boulders	3 to 3.9 Feet Deep: 10.0
Std. Dev.: 3.32	Dominant Bank Substrate	Cobble/Gravel	>= 4 Feet Deep: 10.0
Base Flow (cfs): 0.023	Occurrence of LWD (%): 13.8	Mean Max Residual Pool Depth	2.315
Water (F): 52 - 58 Air (F): 62 - 67	LWD per 100 ft.:	Mean Pool Shelter	25
Dry Channel (ft.): 0	Riffles: 3		
	Pools: 3		
	Flat: 1		

Pool Tail Substrate (%): Silt/Clay: 0.0 Sand: 5.0 Gravel: 80.0 Sm Cobble: 15.0 Lg Cobble: 0.0 Boulder 0.0 Bedrock: 0.0
 Embeddedness Values (%): 1. 20.0 2. 55.0 3. 25.0 4. 0.0 5. 0.0

STREAM REACH: 2

Channel Type: F4	Canopy Density (%): 90.0	Pools by Stream Length	28.2
Reach Length (ft.): 4820	Coniferous Component (%): 40.2	Pool Frequency (%):	50.0
Riffle/Flatwater Mean Width (ft.): 5.1	Hardwood Component	59.8	Residual Pool Depth (%):
BFW:	Dominant Bank	Hardwood Trees	< 2 Feet Deep: 62.9
Range (ft.): 8.00 to 19.00	Vegetative Cover (%): 70.8		2 to 2.9 Feet Deep: 34.3
Mean (ft.): 12.86	Dominant	Small Woody Debris	3 to 3.9 Feet Deep: 2.9
Std. Dev.: 3.80	Dominant Bank Substrate	Sand/Silt/Clay	>= 4 Feet Deep: 0.0
Base Flow (cfs): 0.023	Occurrence of LWD (%): 7.1	Mean Max Residual Pool Depth	1.82
Water (F): 56 - 60 Air (F): 68 - 76	LWD per 100 ft.:	Mean Pool Shelter	17
Dry Channel (ft.): 1062	Riffles: 0		
	Pools: 2		
	Flat: 1		

Pool Tail Substrate (%): Silt/Clay: 0.0 Sand: 0.0 Gravel: 77.1 Sm Cobble: 22.9 Lg Cobble: 0.0 Boulder 0.0 Bedrock: 0.0
 Embeddedness Values (%): 1. 48.6 2. 48.6 3. 2.9 4. 0.0 5. 0.0

Press Creek

Summary of Fish Habitat Elements By Stream Reach

STREAM REACH: 3

Channel Type: A3	Canopy Density (%): 90.2	Pools by Stream Length	17.0				
Reach Length (ft.): 1979	Coniferous Component (%): 37.6	Pool Frequency (%):	40.0				
Riffle/Flatwater Mean Width (ft.): 2.9	Hardwood Component	62.4	Residual Pool Depth (%):				
BFW:	Dominant Bank	Hardwood Trees	< 2 Feet Deep: 71.4				
Range (ft.): 8.00 to 16.00	Vegetative Cover (%): 71.0		2 to 2.9 Feet Deep: 14.3				
Mean (ft.): 12.43	Dominant	Large Woody Debris	3 to 3.9 Feet Deep: 14.3				
Std. Dev.: 3.58	Dominant Bank Substrate	Cobble/Gravel	>= 4 Feet Deep: 0.0				
Base Flow (cfs): 0.023	Occurrence of LWD (%): 27.2	Mean Max Residual Pool Depth	1.75				
Water (F): 50 - 57	Air (F): 61 - 65	LWD per 100 ft.:	Mean Pool Shelter	47			
Dry Channel (ft.): 974	Riffles:	1					
	Pools:	8					
	Flat:	0					
Pool Tail Substrate (%):	Silt/Clay: 0.0	Sand: 0.0	Gravel: 85.7	Sm Cobble: 14.3	Lg Cobble: 0.0	Boulder: 0.0	Bedrock: 0.0
Embeddedness Values (%):	1. 35.7	2. 57.1	3. 7.1	4. 0.0	5. 0.0		

STREAM REACH: 4

Channel Type: B3	Canopy Density (%): 85.8	Pools by Stream Length	8.5				
Reach Length (ft.): 3785	Coniferous Component (%): 12.0	Pool Frequency (%):	37.2				
Riffle/Flatwater Mean Width (ft.): 2.4	Hardwood Component	88.0	Residual Pool Depth (%):				
BFW:	Dominant Bank	Hardwood Trees	< 2 Feet Deep: 87.5				
Range (ft.): 6.00 to 9.00	Vegetative Cover (%): 88.5		2 to 2.9 Feet Deep: 6.3				
Mean (ft.): 8.12	Dominant	Boulders	3 to 3.9 Feet Deep: 6.3				
Std. Dev.: 1.22	Dominant Bank Substrate	Sand/Silt/Clay	>= 4 Feet Deep: 0.0				
Base Flow (cfs): 0.023	Occurrence of LWD (%): 4.6	Mean Max Residual Pool Depth	1.125				
Water (F): 50 - 57	Air (F): 64 - 77	LWD per 100 ft.:	Mean Pool Shelter	7			
Dry Channel (ft.): 2728	Riffles:	1					
	Pools:	2					
	Flat:	0					
Pool Tail Substrate (%):	Silt/Clay: 0.0	Sand: 6.3	Gravel: 87.5	Sm Cobble: 6.3	Lg Cobble: 0.0	Boulder: 0.0	Bedrock: 0.0
Embeddedness Values (%):	1. 25.0	2. 56.3	3. 18.8	4. 0.0	5. 0.0		

Table 9 -Mean Percentage of Dominant Substrate and Vegetation

Stream Name: Press Creek **LLID:** 1229120385396 **Drainage:** Russian River - Lower
Survey 5/24/2012 to 6/7/2012
Confluence Location: Quad: GUERNEVILLE **Legal Description:** T08NR10WS13 **Latitude:** 38:32:23.0N **Longitude:** 122:54:43.0W

Mean Percentage of Dominant Stream Bank Substrate

Dominant Class of Substrate	Number of Units Right Bank	Number of Units Left Bank	Total Mean Percentage (%)
Bedrock	19	15	11.0
Boulder	12	12	7.7
Cobble/Gravel	62	73	43.5
Sand/Silt/Clay	62	55	37.7

Mean Percentage of Dominant Stream Bank Vegetation

Dominant Class of Vegetation	Number of Units Right Bank	Number of Units Left Bank	Total Mean Percentage
Grass	13	10	7.4
Brush	39	30	22.3
Hardwood	55	71	40.6
Coniferous	47	43	29.0
No Vegetation	1	1	0.6

Total Stream Cobble Embeddedness Values: 2

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

Stream Name: Press Creek

LLID: 1229120385396

Drainage: Russian River - Lower

Survey 5/24/2012 to 6/7/2012

Confluence Location: Quad: GUERNEVILLE

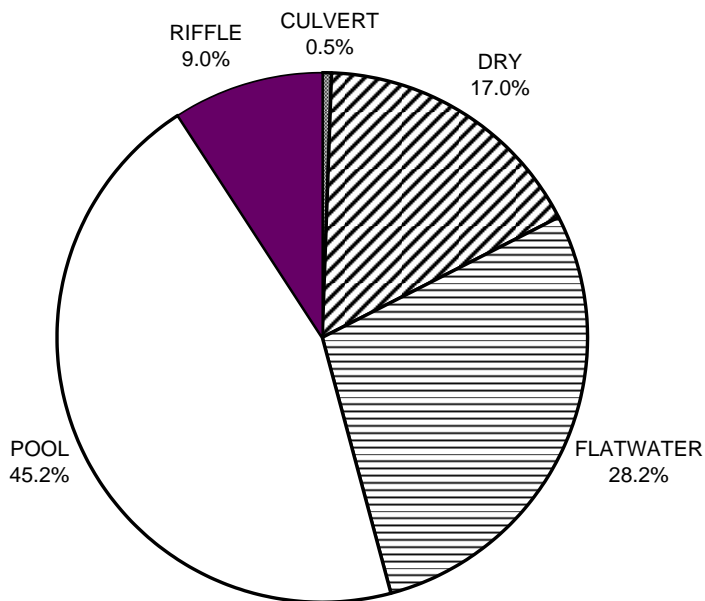
Legal Description: T08NR10WS13

Latitude: 38:32:23.0N

Longitude: 122:54:43.0W

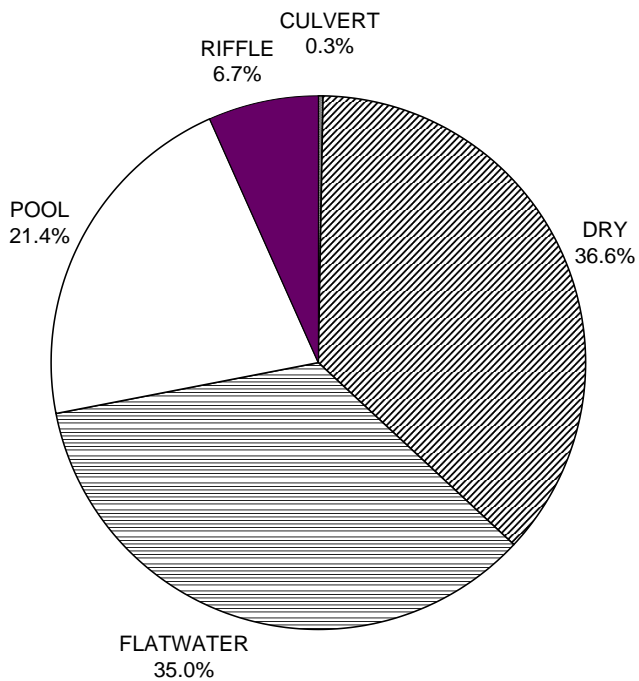
	Riffles	Flatwater	Pools
UNDERCUT BANKS (%)	3	12	21
SMALL WOODY DEBRIS (%)	16	26	13
LARGE WOODY DEBRIS (%)	8	6	16
ROOT MASS (%)	0	5	14
TERRESTRIAL VEGETATION	0	5	1
AQUATIC VEGETATION (%)	6	8	3
WHITEWATER (%)	0	0	0
BOULDERS (%)	13	12	19
BEDROCK LEDGES (%)	1	1	2

**PRESS CREEK 2012
HABITAT TYPES BY PERCENT OCCURRENCE**



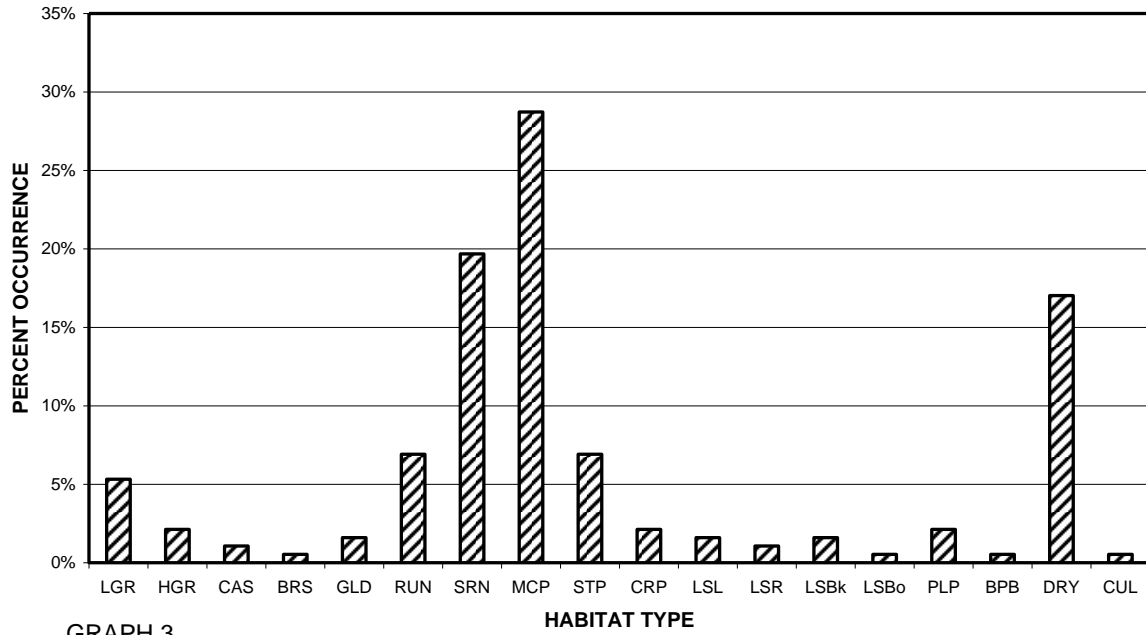
GRAPH 1

**PRESS CREEK 2012
HABITAT TYPES BY PERCENT TOTAL LENGTH**



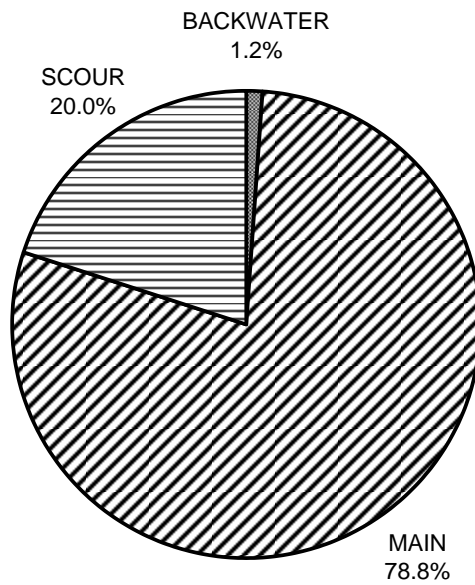
GRAPH 2

**PRESS CREEK 2012
HABITAT TYPES BY PERCENT OCCURRENCE**



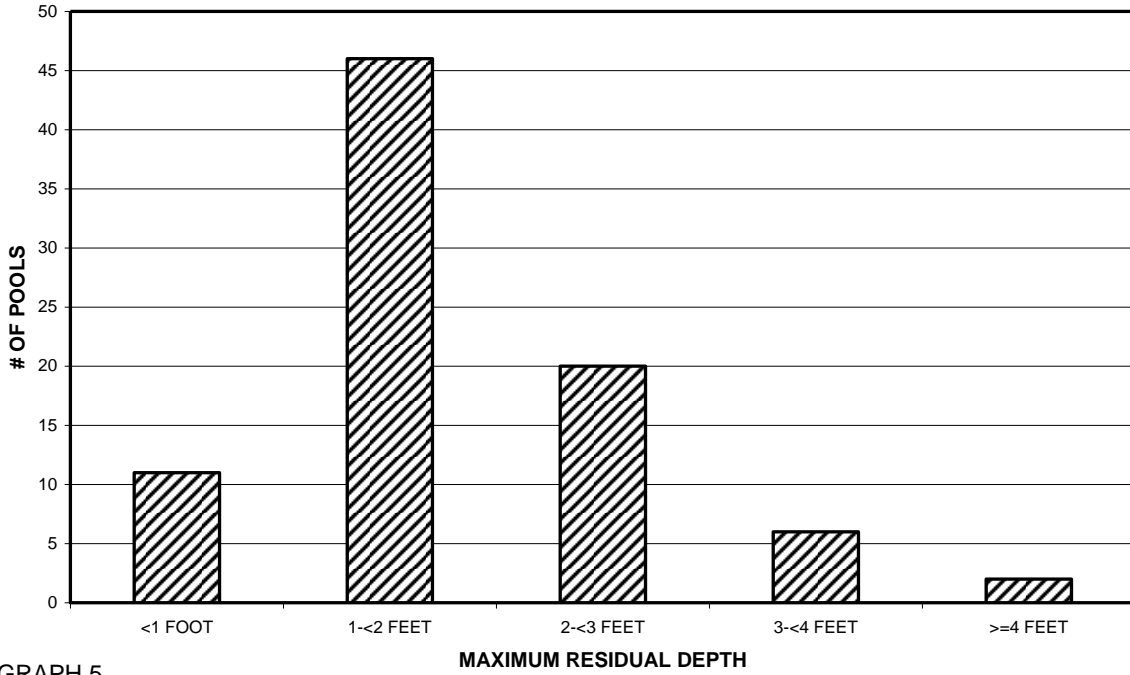
GRAPH 3

**PRESS CREEK 2012
POOL TYPES BY PERCENT OCCURRENCE**



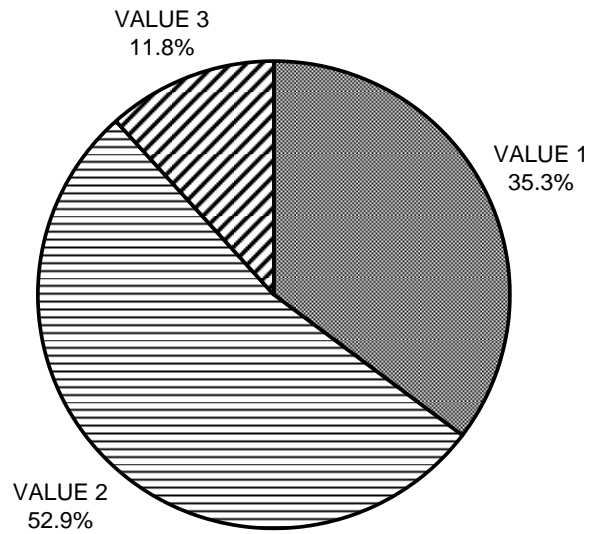
GRAPH 4

**PRESS CREEK 2012
MAXIMUM DEPTH IN POOLS**



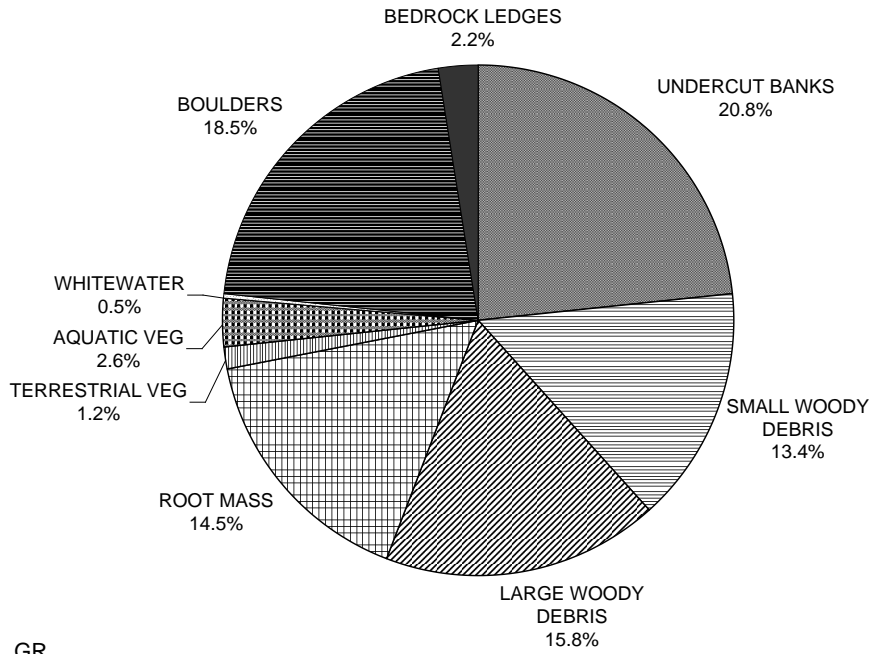
GRAPH 5

**PRESS CREEK 2012
PERCENT EMBEDDEDNESS**



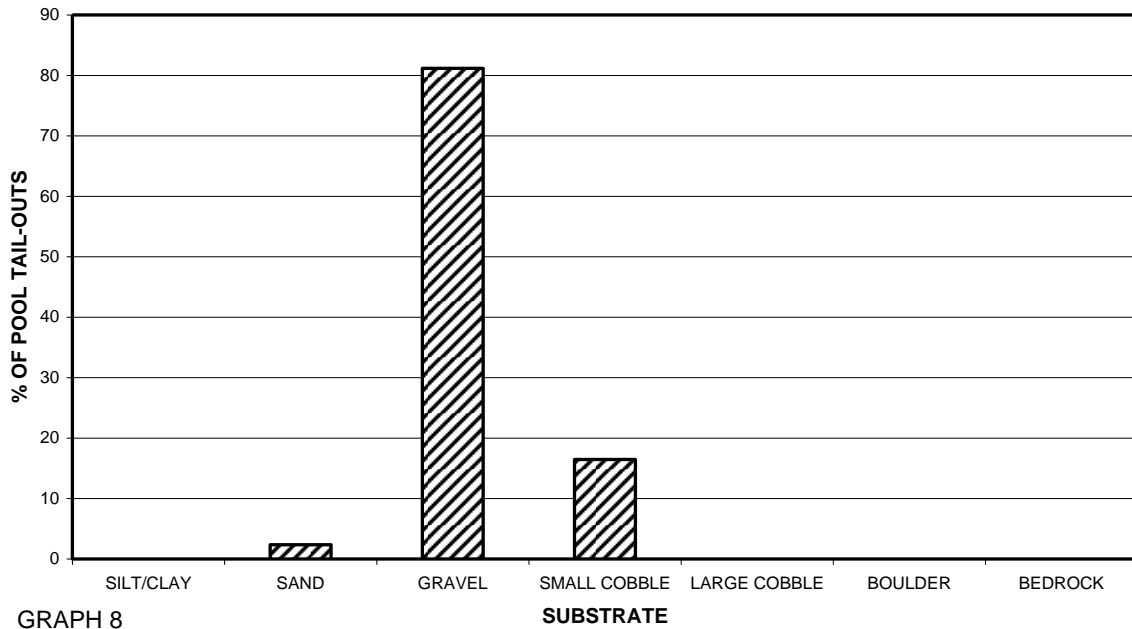
GRAPH 6

**PRESS CREEK 2012
MEAN PERCENT COVER TYPES IN POOLS**



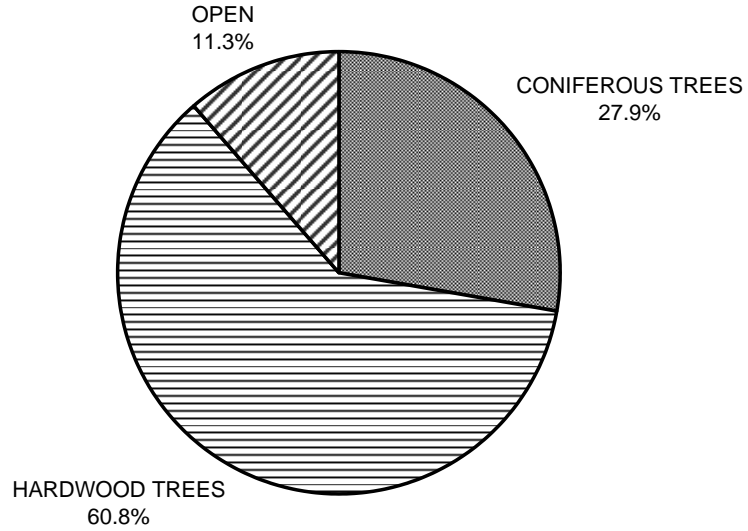
GR

**PRESS CREEK 2012
SUBSTRATE COMPOSITION IN POOL TAIL-OUTS**



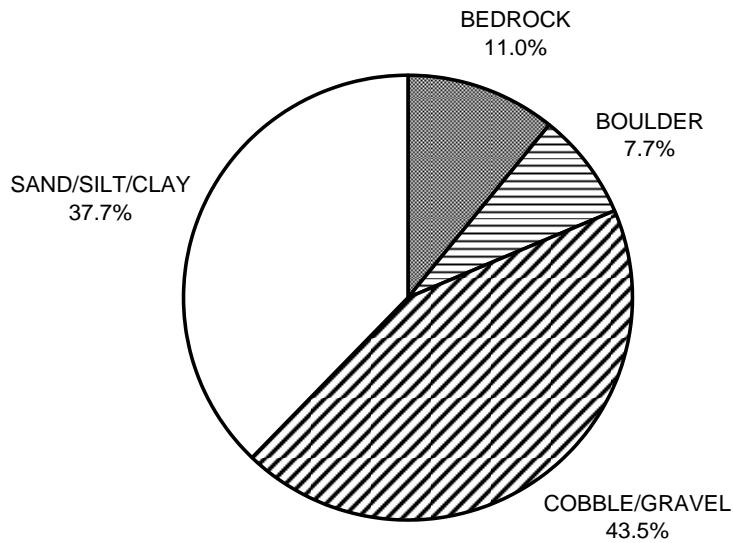
GRAPH 8

**PRESS CREEK 2012
MEAN PERCENT CANOPY**



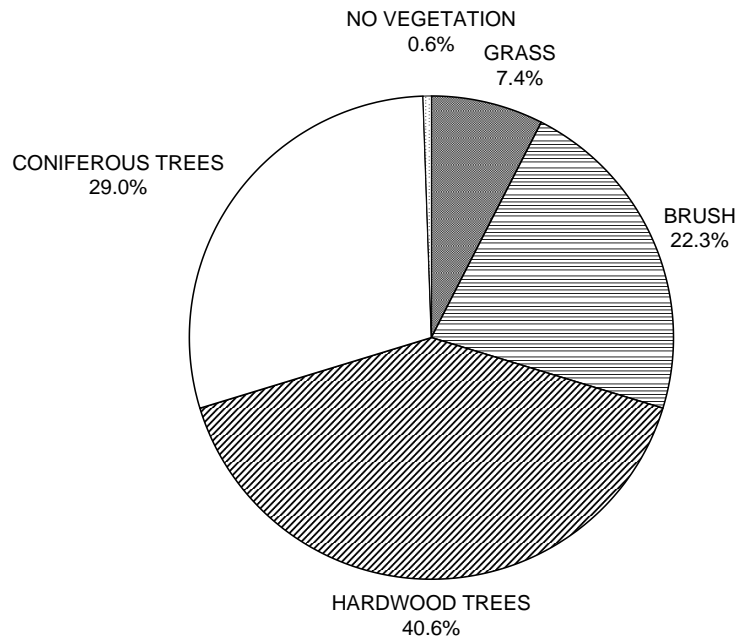
GRAPH 9

**PRESS CREEK 2012
DOMINANT BANK COMPOSITION IN SURVEY REACH**



GRAPH 10

**PRESS CREEK 2012
DOMINANT BANK VEGETATION IN SURVEY REACH**



GRAPH 11