

ODFW AQUATIC INVENTORY PROJECT

STREAM REPORT

STREAM: Brush Creek

BASIN: Calapooia River Basin

DATES: September 21 – October 3, 2006

SURVEY CREW: Sharon Tippery, LaNoah Babcock

REPORT PREPARED BY: Brian Bangs

STREAM ORDER: 3 BASIN AREA: 22.371km² FIRST ORDER TRIBUTARIES: 9

USGS MAPS: Crawfordsville

ECOREGION: Willamette Valley Plain / Foothill

HUC NUMBER: 17090003

LLID: 1228681443551

GENERAL DESCRIPTION:

The Brush Creek habitat survey began just upstream of the confluence with West Brush Creek and extended 7013 meters to the headwaters. Rural residential and large timber (30-50cm dbh) were the dominant land use types. Scour pools and riffles were the dominant instream habitat types. Gravel and cobble were the dominant substrate types. Wood volume for the creek was low. The trees found most frequently in the riparian zone were 3-50cm dbh hardwoods (based on 20 transects).

REACH DESCRIPTIONS:

- Reach 1: (T14S-R01W-S42SW) Length 2739 meters. Reach 1 began just upstream of the confluence with West Fork Brush Creek and extended to an unnamed tributary junction. The channel was constrained by terraces within a broad valley floor. The valley width index was 20. Land uses for the reach were agriculture and rural residential. The average unit gradient was 1.5 percent. Stream habitat was dominated by scour pools (86%). Stream substrate was a mix of fines (31%), gravel (26%) and bedrock (24%). The percentage of fines in riffles was high (24%). Approximately one third of the reach length had actively eroding banks. Wood volume was 6.3m³/100m. The trees found most frequently in the riparian zone were 3-15cm dbh hardwoods (based on 4 riparian transects).
- Reach 2: (T14S-R01W-S29NE) Length 1082 meters. Reach 2 began at an unnamed tributary junction and continued to a change in land use. The channel was constrained by terraces within a broad valley floor. The valley width index was 20. Land uses for the reach were rural residential and timber harvest. The average unit gradient was 1.2 percent. Stream habitat was dominated by scour pools (77%). Stream substrate was a mix of gravel (37%), fines (30%) and

cobble (28%). There were a high percentage of units with actively eroding banks. Wood volume was $6.3\text{m}^3/100\text{m}$. The trees found most frequently in the riparian zone were 3-90cm dbh hardwoods (based on 2 riparian transects).

- Reach 3: (T14S-R01W-S28SW) Length 1605 meters. Reach 3 was called due to land use changes. The channel was constrained by terraces within a broad valley floor. The average valley width index was 10.3 (range: 7.5-20). Land uses for the reach were rural residential and second growth timber (15-30cm dbh). The average unit gradient was 1.7 percent. Stream habitat was dominated by scour pools (57%) and riffles (35%). Stream substrate was dominated by cobble (32%) and gravel (23%). Wood volume was $1.9\text{m}^3/100\text{m}$. The trees found most frequently in the riparian zone were 15-30cm dbh hardwoods (based on 5 riparian transects).
- Reach 4: (T14S-R01W-S33SW) Length 547 meters. Reach 4 was called due to land use and geomorphology changes. The channel was constrained by an alternating hillslope and terrace within a broad valley floor. The average valley width index was 11.2 (range: 2 - 20). Land uses for the reach were second growth timber (15-30cm dbh) and large timber (30-50cm dbh). The average unit gradient was 2.9 percent. Stream habitat was dominated by riffles (61%) and scour pools (29%). Stream substrate was a mix of fines (31%), cobble (29%) and gravel (27%). The percentage of fines in riffles was high (26%). Wood volume was $8.1\text{m}^3/100\text{m}$. The trees found most frequently in the riparian zone were 3-30cm dbh hardwoods and 30-50cm dbh conifers (based on 2 riparian transects).
- Reach 5: (T15S-R01W-S04NW) Length 1040 meters. Reach 5 was called due to land use and geomorphology changes and extended to just downstream of an unnamed tributary junction. The channel was constrained by terraces within a broad valley floor. The average valley width index was 10.8 (range: 2.7-20). Land uses for the reach were young timber (less than 15cm dbh) and large timber (30-50cm dbh). The average unit gradient was 2.1 percent. Stream habitat was dominated by scour pools (62%) and riffles (32%). Stream substrate was dominated by gravel (43%) and fines (37%). The percentage of fines in riffles was high (24%). Wood volume was $13.2\text{m}^3/100\text{m}$. The trees found most frequently in the riparian zone were 3-15cm dbh (based on 4 riparian transects).

COMMENTS:

The crew observed fish through unit 464 (6601 meters); however, the upper fish distribution was not determined.

There were no barriers to upstream fish migration in the surveyed length.

Beaver activity was present in all the surveyed reaches. There was a beaver dam in unit 154 (3103 meters) that had a step height of 0.35 meters.

The crew observed deer, raccoons, a barn owl, crawdads, freshwater mussels, a tree frog, sculpin, trout, dace, and other unknown fish during the survey.

Brush Creek had a named tributary, Childers Creek, on which a habitat survey was conducted in the summer 2006.

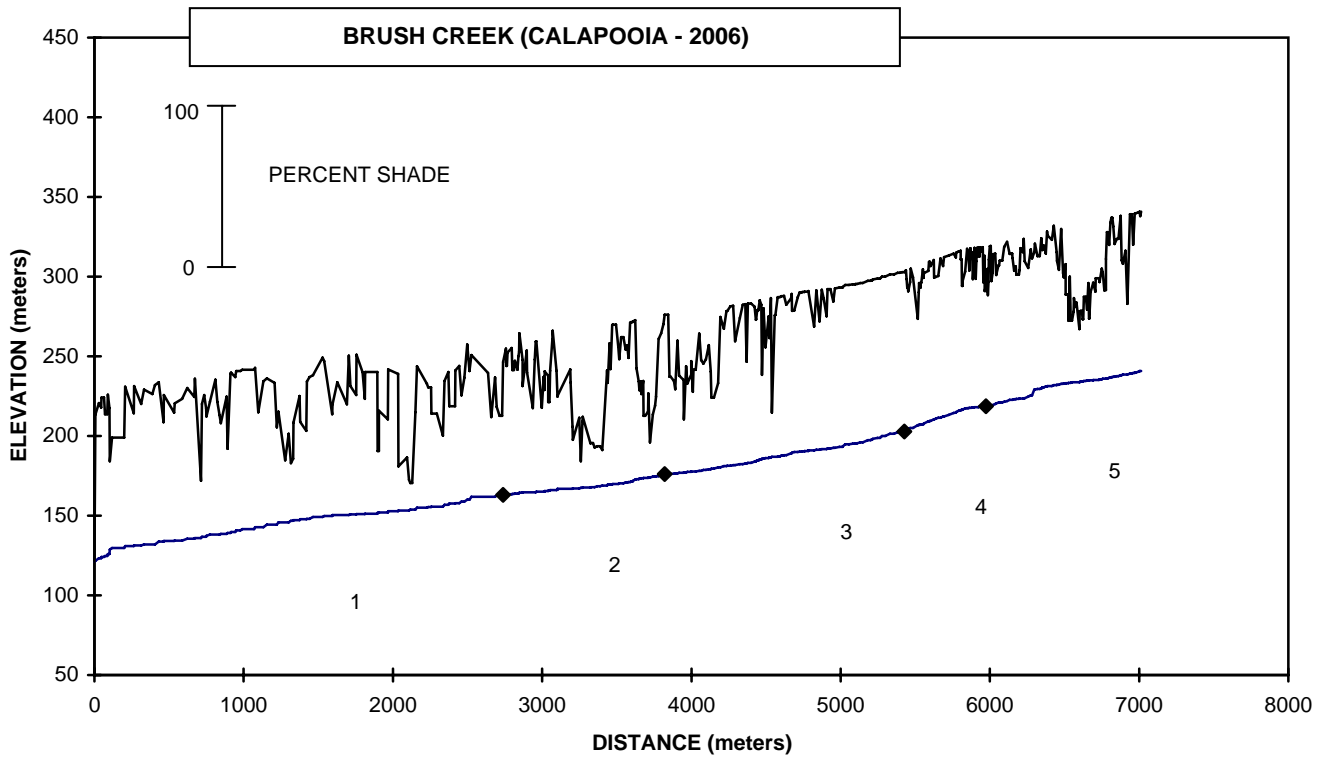
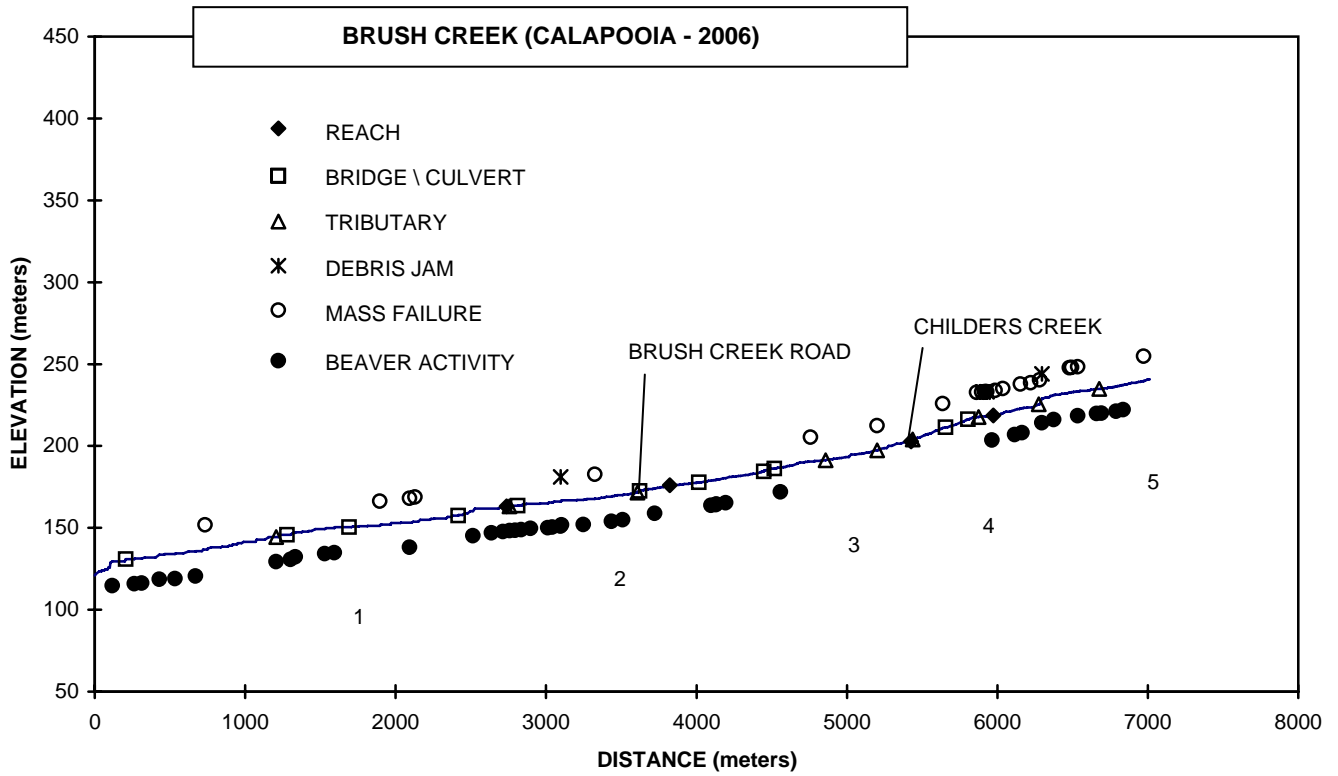
Road fords and fence crossings were abundant in reaches 1 through 3. Cattle and horse activity was noted along the creek in reach 1.

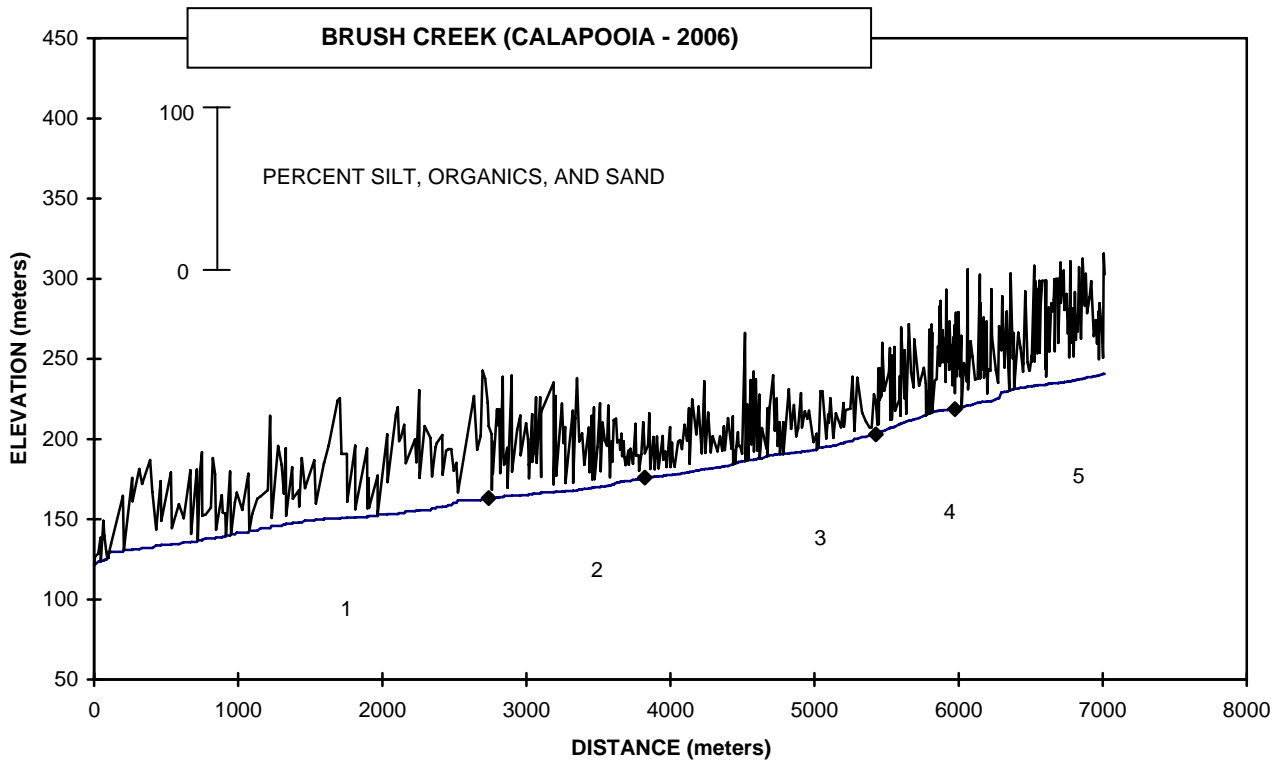
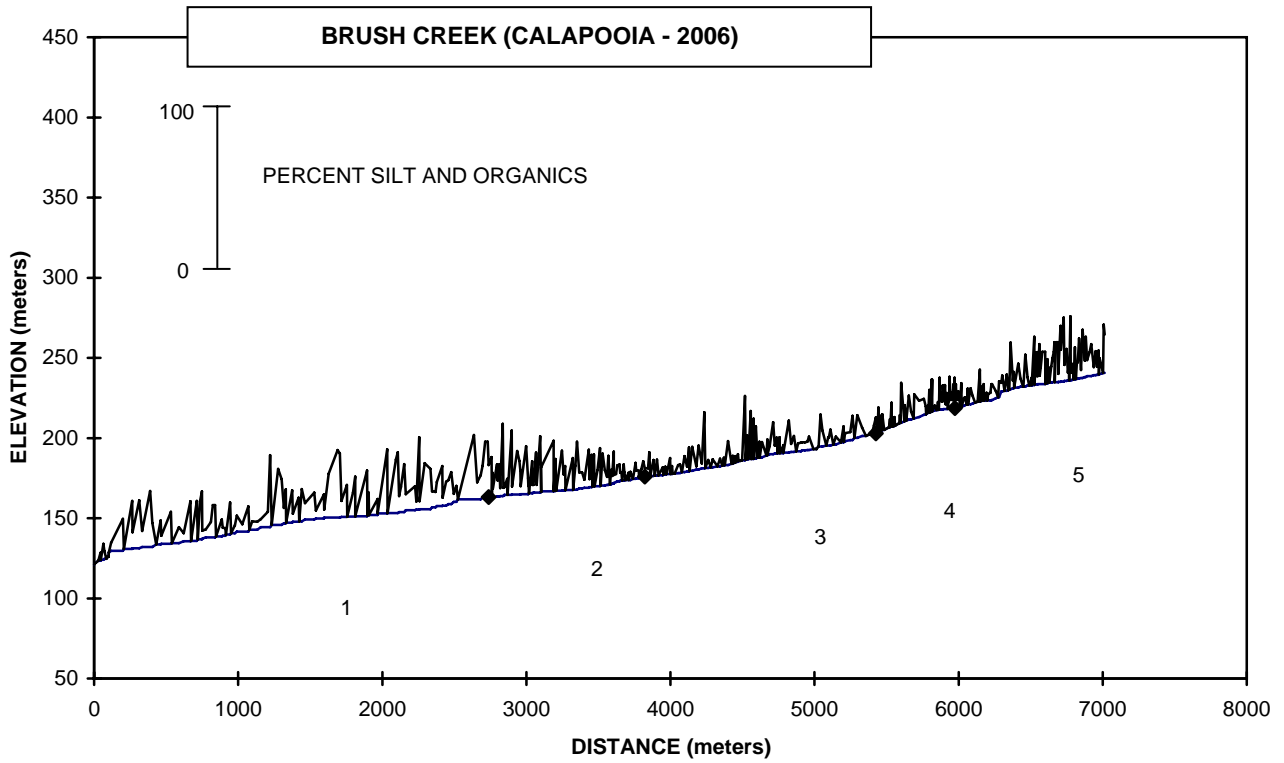
There were a large number of units with mass failures in reaches 4 and 5, although they were present in all reaches. There were a high percentage of units with actively eroding banks in reaches 2 and 5.

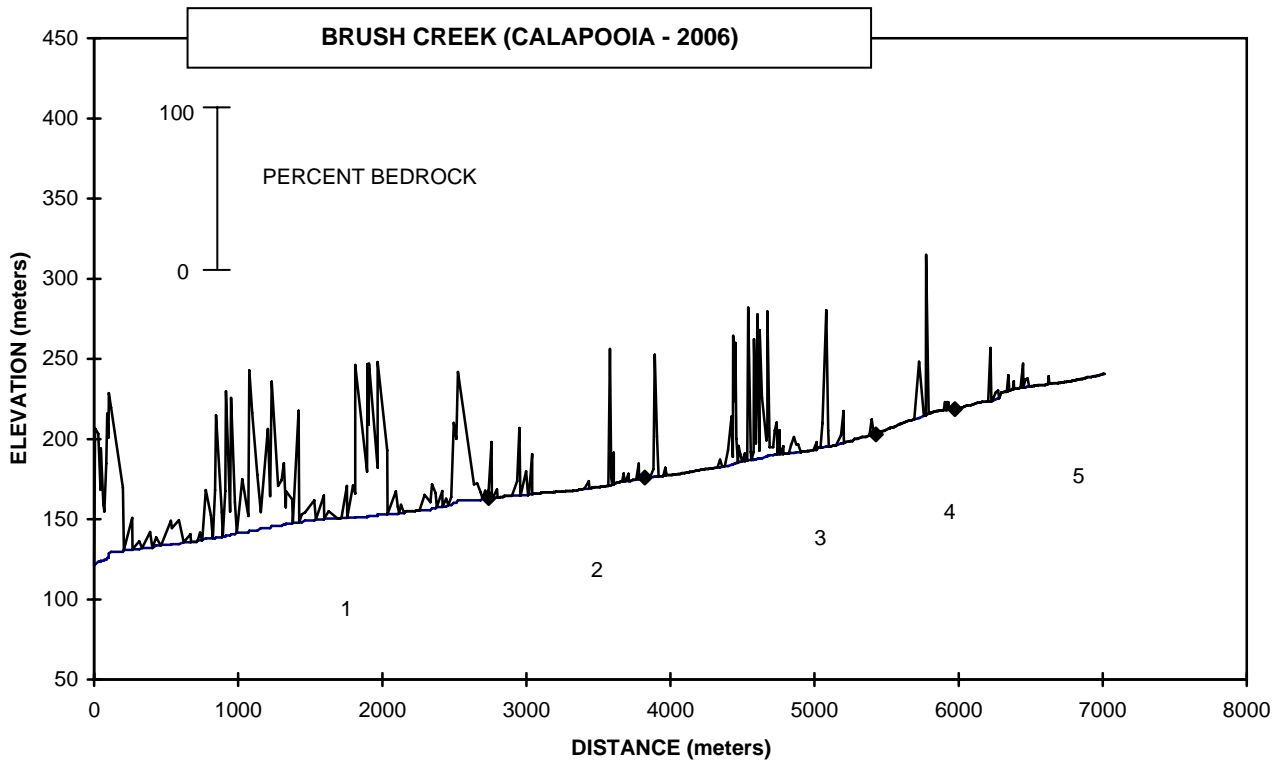
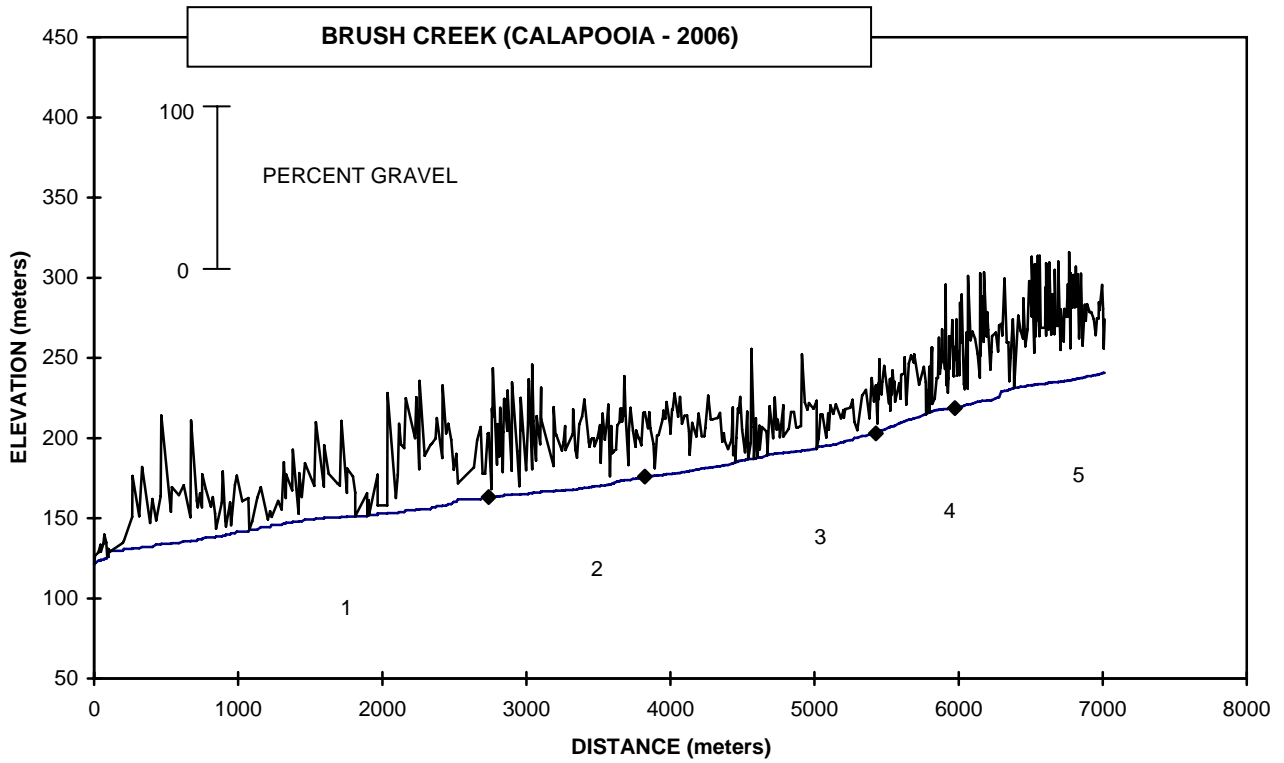
Culverts were encountered in units 13 (207 meters, 2 culverts side by side), 189 (3623 meters, 5 culverts side by side) and 364 (5804 meters, a single culvert). The culverts at unit 189 and unit 364 had step heights of 0.28 meters and 0.2 meters, respectively.

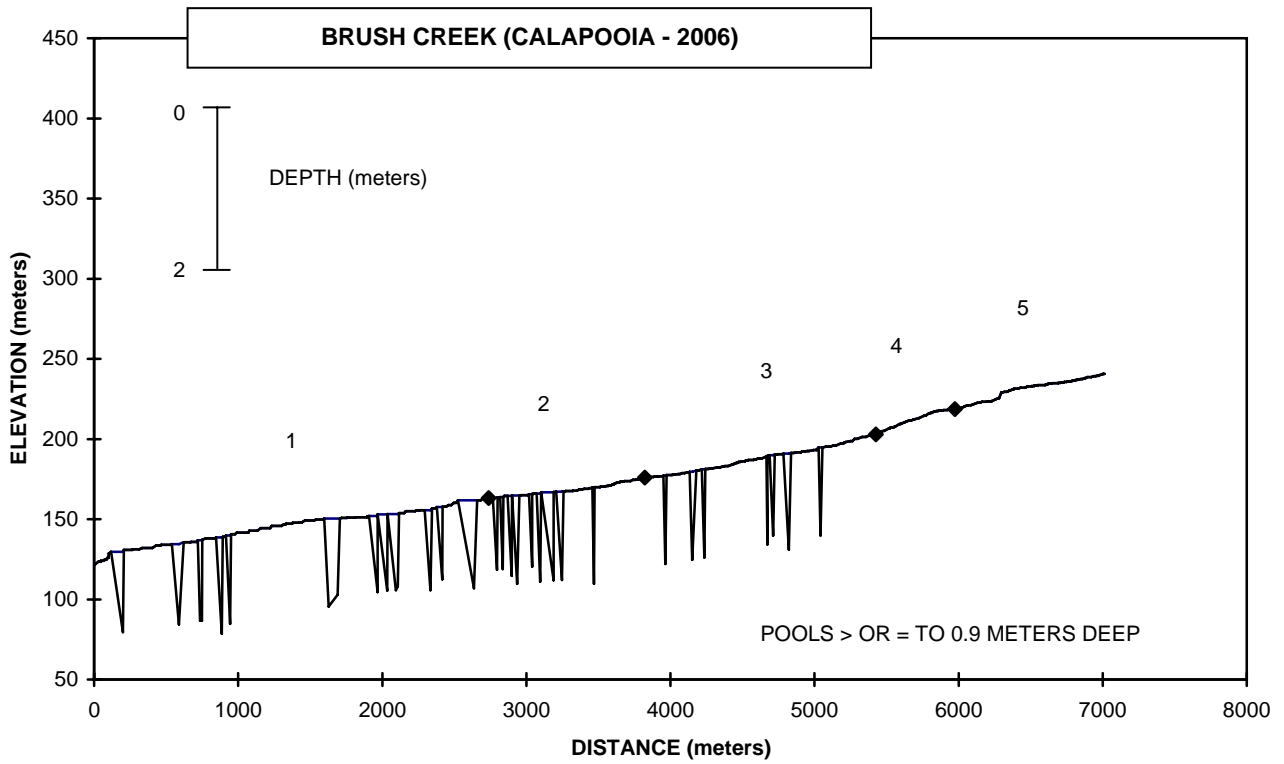
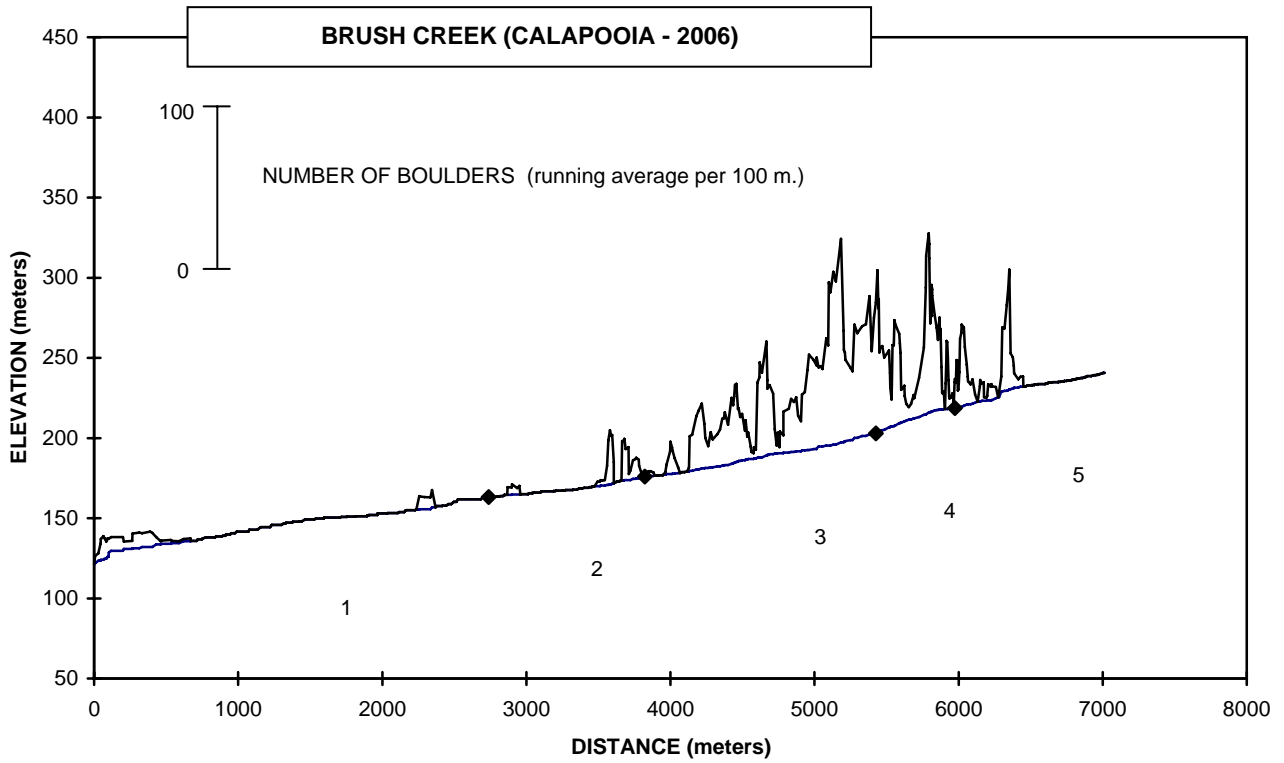
There were a number of bridges encountered in reaches 1 through 4.

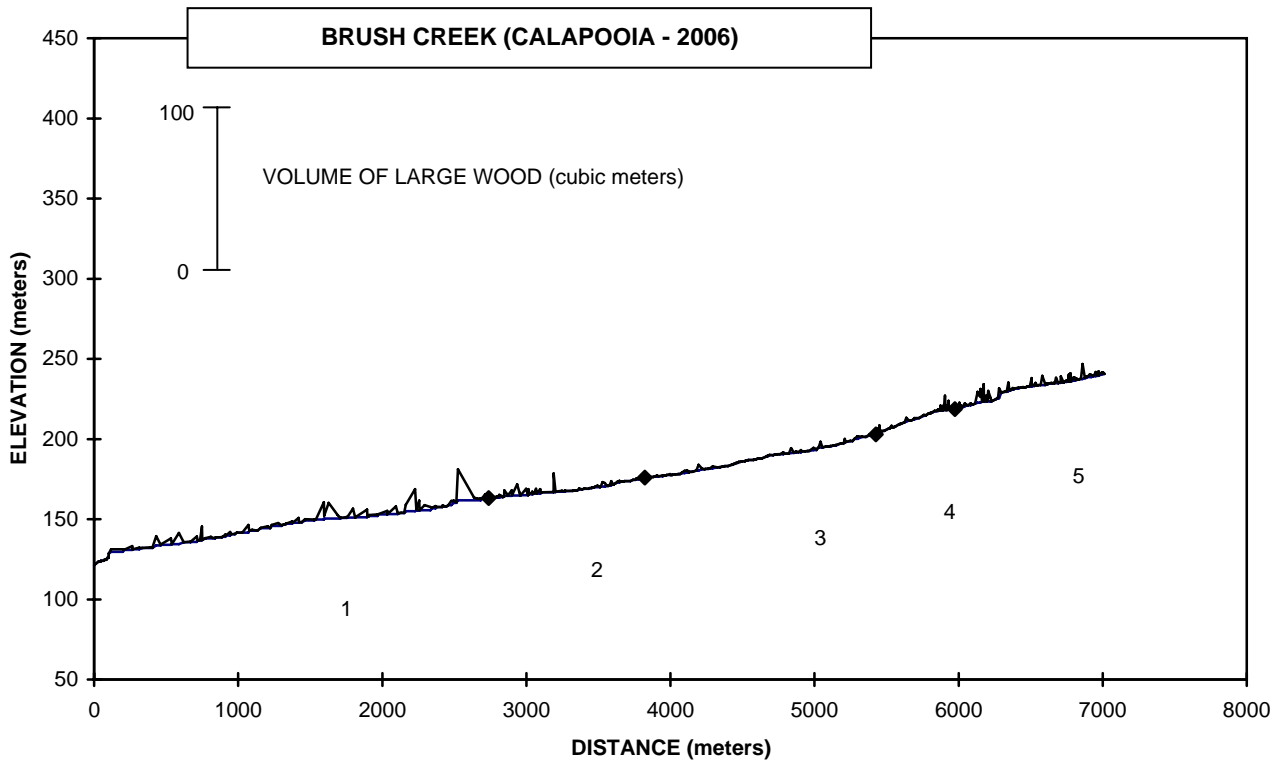
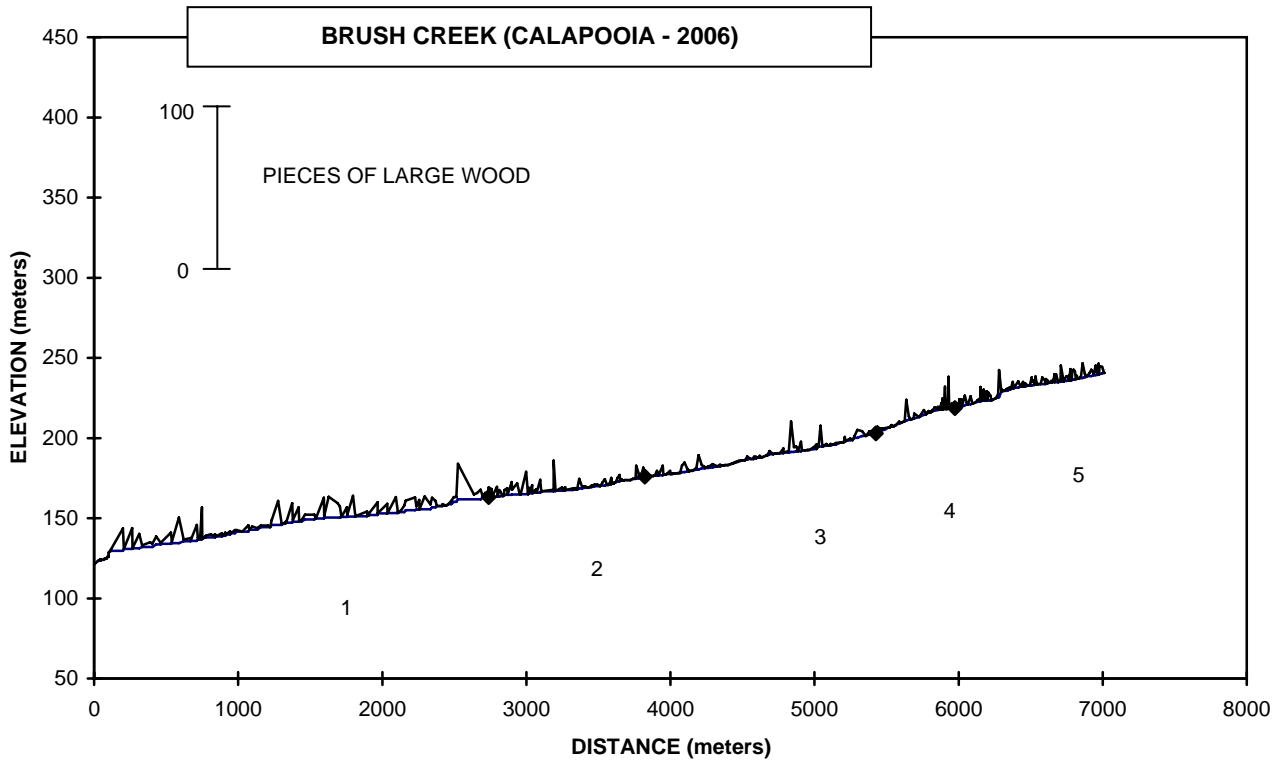
Reach 3 and 4 had units in which the substrate percent for bedrock was replaced by hardpan clay.

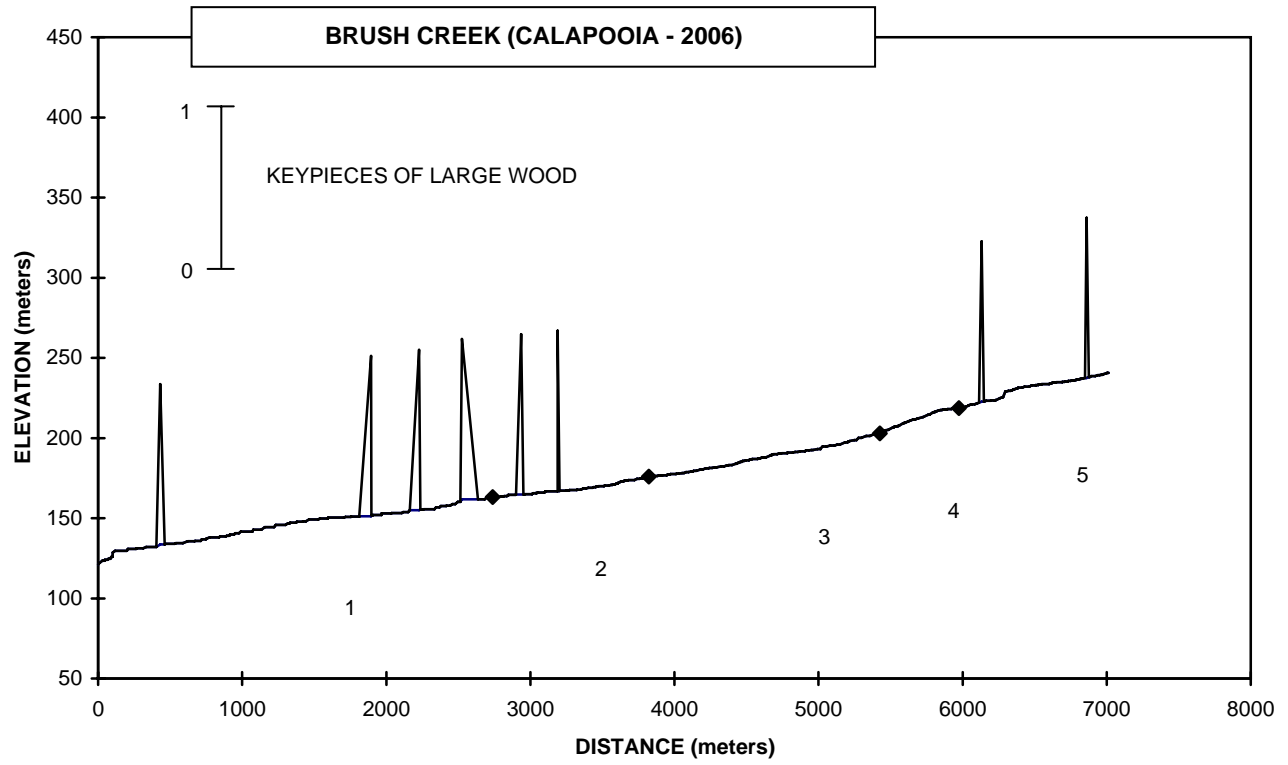












REACH 1

T14S-R01W-S42SW

REACH 1

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

<u>Narrow Valley Floor</u>		<u>Broad Valley Floor</u>	
Steep V-shape	0%	Constraining Terraces	100%
Moderate V-shape	0%	Multiple Terraces	0%
Open V-shape	0%	Wide Floodplain	0%
Valley Width Index	20.0	VWI Range:	20 - 20

Channel Morphology (Percent Reach Length)

<u>Constrained</u>		<u>Unconstrained</u>	
Hillslope	0%	Single Channel	0%
Bedrock	0%	Multiple Channel	0%
Terrace	100%	Braided Channel	0%
Alt. Terrace/Hill	0%		
Landuse	0%		

Channel Characteristics

<u>Type</u>	<u>Length (m)</u>	<u>Area (m2)</u>	<u>Dry Units</u>
Primary	2,739	15,007	0
Secondary	35	23	2

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u> n = 12	<u>First Terrace</u> n = 12
Width: 4.8	Width: 7.2	9.7 (7.5 - 15.2)	13.2 (8.8 - 20.3)
Depth: 0.44	Height: 0.5	1.1 (1 - 1.2)	1.8 (1.2 - 2.6)

W:D ratio: 13.5
Stream Flow Type: LF
Average Unit Gradient: 1.5%
Water temperature (°C): 9.5 - 9.5

Entrenchment (ACW:FPW ratio): 1.3
Habitat Units/100m (total channel length): 4.3
Habitat Units/100m (primary channel length): 4.3

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	AG	RR
Riparian Vegetation:	D30	G

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding:	31%	Reach avg: 77%
Undercut Banks:	13%	Range: 17 - 100

Large Wood Debris

	<u>Total</u>	<u>Total / 100m primary channel</u>
All pieces (>=3m x 0.15m):	381	13.9
Volume (m ³):	172	6.3
Key pieces (>=12m x 0.60m):	4	0.1

REACH 2

T14S-R01W-S29NE

REACH 2

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

<u>Narrow Valley Floor</u>		<u>Broad Valley Floor</u>	
Steep V-shape	0%	Constraining Terraces	100%
Moderate V-shape	0%	Multiple Terraces	0%
Open V-shape	0%	Wide Floodplain	0%
Valley Width Index	20.0	VWI Range:	20 - 20

Channel Morphology (Percent Reach Length)

<u>Constrained</u>		<u>Unconstrained</u>	
Hillslope	0%	Single Channel	0%
Bedrock	0%	Multiple Channel	0%
Terrace	100%	Braided Channel	0%
Alt. Terrace/Hill	0%		
Landuse	0%		

Channel Characteristics

<u>Type</u>	<u>Length (m)</u>	<u>Area (m2)</u>	<u>Dry Units</u>
Primary	1,082	5,448	0
Secondary	11	9	0

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u> n = 8	<u>First Terrace</u> n = 8
Width: 4.2	Width: 6.7	11.0 (7.3 - 15.4)	18.2 (9.8 - 27.8)
Depth: 0.39	Height: 0.5	1.1 (0.8 - 1.2)	1.6 (1.4 - 1.7)

W:D ratio: 12.6

Stream Flow Type: LF

Average Unit Gradient: 1.2%

Water temperature (°C): 11.0 - 11.0

Entrenchment (ACW:FPW ratio): 1.7

Habitat Units/100m (total channel length): 8.1

Habitat Units/100m (primary channel length): 8.2

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	RR	TH
Riparian Vegetation:	M30	S

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding:	42%	Reach avg: 67%
Undercut Banks:	15%	Range: 17 - 100

Large Wood Debris

	<u>Total</u>	<u>Total / 100m primary channel</u>
All pieces (>=3m x 0.15m):	157	14.5
Volume (m ³):	68	6.3
Key pieces (>=12m x 0.60m):	2	0.2

REACH 3

T14S-R01W-S28SW

REACH 3

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

<u>Narrow Valley Floor</u>		<u>Broad Valley Floor</u>	
Steep V-shape	0%	Constraining Terraces	100%
Moderate V-shape	0%	Multiple Terraces	0%
Open V-shape	0%	Wide Floodplain	0%
Valley Width Index	10.3	VWI Range:	7.5 - 20

Channel Morphology (Percent Reach Length)

<u>Constrained</u>		<u>Unconstrained</u>	
Hillslope	0%	Single Channel	0%
Bedrock	0%	Multiple Channel	0%
Terrace	100%	Braided Channel	0%
Alt. Terrace/Hill	0%		
Landuse	0%		

Channel Characteristics

<u>Type</u>	<u>Length (m)</u>	<u>Area (m2)</u>	<u>Dry Units</u>
Primary	1,605	6,692	0
Secondary	140	235	4

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u> n = 12	<u>First Terrace</u> n = 12
Width: 3.7	Width: 6.6	10.7 (7.3 - 20.3)	14.3 (7.8 - 24.3)
Depth: 0.36	Height: 0.5	1.0 (0.8 - 1)	1.5 (1 - 2.4)

W:D ratio: 13.7
Stream Flow Type: LF
Average Unit Gradient: 1.7%
Water temperature (°C): 10.0 - 10.0

Entrenchment (ACW:FPW ratio): 1.6
Habitat Units/100m (total channel length): 6.8
Habitat Units/100m (primary channel length): 7.4

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	RR	ST
Riparian Vegetation:	D30	S

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding:	24%	Reach avg: 89%
Undercut Banks:	5%	Range: 28 - 100

Large Wood Debris

	<u>Total</u>	<u>Total / 100m primary channel</u>
All pieces (>=3m x 0.15m):	120	7.5
Volume (m ³):	30	1.9
Key pieces (>=12m x 0.60m):	0	0.0

REACH 4

T14S-R01W-S33SW

REACH 4

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

<u>Narrow Valley Floor</u>		<u>Broad Valley Floor</u>	
Steep V-shape	0%	Constraining Terraces	100%
Moderate V-shape	0%	Multiple Terraces	0%
Open V-shape	0%	Wide Floodplain	0%
Valley Width Index	11.2	VWI Range:	2 - 20

Channel Morphology (Percent Reach Length)

<u>Constrained</u>		<u>Unconstrained</u>	
Hillslope	0%	Single Channel	0%
Bedrock	0%	Multiple Channel	0%
Terrace	0%	Braided Channel	0%
Alt. Terrace/Hill	100%		
Landuse	0%		

Channel Characteristics

<u>Type</u>	<u>Length (m)</u>	<u>Area (m2)</u>	<u>Dry Units</u>
Primary	547	1,888	0
Secondary	39	127	0

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u> n = 7	<u>First Terrace</u> n = 6
Width: 3.2	Width: 4.7	7.3 (4.2 - 11.6)	11.3 (6.1 - 16.6)
Depth: 0.26	Height: 0.4	0.9 (0.7 - 1)	1.1 (0.95 - 1.2)

W:D ratio: 11.0
Stream Flow Type: LF
Average Unit Gradient: 2.9%
Water temperature (°C): 10.5 - 10.5

Entrenchment (ACW:FPW ratio): 1.5
Habitat Units/100m (total channel length): 11.9
Habitat Units/100m (primary channel length): 12.8

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	ST	LT
Riparian Vegetation:	D30	S

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding:	13%	Reach avg: 93%
Undercut Banks:	5%	Range: 67 - 100

Large Wood Debris

	<u>Total</u>	<u>Total / 100m primary channel</u>
All pieces (>=3m x 0.15m):	103	18.8
Volume (m ³):	44	8.1
Key pieces (>=12m x 0.60m):	0	0.0

REACH 5

T15S-R01W-S04NW

REACH 5

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

<u>Narrow Valley Floor</u>		<u>Broad Valley Floor</u>	
Steep V-shape	0%	Constraining Terraces	100%
Moderate V-shape	0%	Multiple Terraces	0%
Open V-shape	0%	Wide Floodplain	0%
Valley Width Index	10.8	VWI Range:	2.7 - 20

Channel Morphology (Percent Reach Length)

<u>Constrained</u>		<u>Unconstrained</u>	
Hillslope	0%	Single Channel	0%
Bedrock	0%	Multiple Channel	0%
Terrace	100%	Braided Channel	0%
Alt. Terrace/Hill	0%		
Landuse	0%		

Channel Characteristics

<u>Type</u>	<u>Length (m)</u>	<u>Area (m2)</u>	<u>Dry Units</u>
Primary	1,040	2,716	0
Secondary	23	43	2

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u> n = 12	<u>First Terrace</u> n = 12
Width: 2.4	Width: 4.0	5.7 (3.7 - 10.3)	10.4 (6.3 - 15.8)
Depth: 0.26	Height: 0.4	0.8 (0.6 - 1)	1.2 (1 - 1.6)

W:D ratio: 10.3
Stream Flow Type: LF
Average Unit Gradient: 2.1%
Water temperature (°C): 8.5 - 8.5

Entrenchment (ACW:FPW ratio): 1.4
Habitat Units/100m (total channel length): 11.3
Habitat Units/100m (primary channel length): 11.5

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	YT	LT
Riparian Vegetation:	D15	S

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding:	14%	Reach avg: 79%
Undercut Banks:	4%	Range: 33 - 100

Large Wood Debris

	<u>Total</u>	<u>Total / 100m primary channel</u>
All pieces (>=3m x 0.15m):	232	22.3
Volume (m ³):	137	13.2
Key pieces (>=12m x 0.60m):	2	0.2

OREGON DEPARTMENT OF FISH AND WILDLIFE

BRUSH CREEK

HABITAT INVENTORY

Report Date: 12/27/2006

Survey Date:

10/3/2006

REACH 1

T14S-R01W-S42SW

REACH 1

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Large Boulders (#>0.5m)	Substrate Percent Wetted Area					
							S/O	Snd	Grvl	Cbl	Bldr	Bdrk
CULVERT CROSSING	1	7	1.8	0.50	13	0	0	0	5	15	80	0
DRY CHANNEL	2	35	0.6	0.00	23	0	20	68	8	5	0	0
POOL-DAMMED	1	18	6.0	0.55	108	3	10	15	10	25	5	35
POOL-LATERAL SCOUR	60	2,140	5.7	0.70	12,292	32	22	20	23	14	5	16
POOL-PLUNGE	1	9	8.0	0.80	76	2	0	0	5	5	15	75
POOL-STRAIGHT SCOUR	3	101	5.7	0.67	585	3	6	10	11	18	10	45
RAPID/BEDROCK	1	7	3.0	0.10	21	0	0	0	0	0	0	100
RIFFLE	25	356	4.1	0.15	1,536	12	8	16	35	20	1	20
RIFFLE W/ POCKETS	1	23	3.7	0.25	87	0	0	5	5	10	0	80
STEP/BEDROCK	10	33	2.5	0.15	89	0	0	2	3	5	1	90
STEP/COBBLE	13	42	4.3	0.08	198	0	3	12	50	30	0	5
STEP/LOG	1	2	1.3	0.05	2	0	5	30	45	20	0	0
Total:	119	2,773	4.8	0.44	15,030	52	Avg: 14	17	26	16	4	24

HABITAT SUMMARY

Habitat Group	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area		Large Boulders	
					(m ²)	Percent	Number	(# / 100m ²)
Dammed & BW Pools	1	18	6.0	0.55	108	0.72%	3	2.8
Scour Pools	64	2,251	5.8	0.70	12,953	86.18%	37	0.3
Glides	0	0			0	0.00%	0	0.0
Riffles	26	379	4.1	0.15	1,624	10.80%	12	0.7
Rapids	1	7	3.0	0.10	21	0.14%	0	0.0
Cascades	0	0			0	0.00%	0	0.0
Step/Falls	24	77	3.5	0.11	289	1.92%	0	0.0
Dry	2	35	0.6	0.00	23	0.15%	0	0.0
Culverts	1	7	1.8	0.50	13	0.08%	0	0.0

POOL SUMMARY

	Total of all Channel Lengths		Primary Channel Length
	Total	# / Km	# / Km
All Pools:	65	23.4	23.7
Pools >=1m deep:	9	3.2	3.3
Complex pools (LWD pieces>=3):	35	12.6	12.8
Pool frequency (channel widths/pool):	5.9		
Residual pool depth (avg):	0.62		

OREGON DEPARTMENT OF FISH AND WILDLIFE

BRUSH CREEK

HABITAT INVENTORY

Report Date: 12/27/2006

Survey Date:

9/27/2006

REACH 2

T14S-R01W-S29NE

REACH 2

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Large Boulders (#>0.5m)	Substrate Percent Wetted Area					
							S/O	Snd	Grvl	Cbl	Bldr	Bdrk
CULVERT CROSSING	1	15	1.2	0.05	18	0	5	35	20	30	10	0
POOL-BEAVER DAM	1	85	5.2	1.10	443	0	32	37	16	11	5	0
POOL-LATERAL SCOUR	42	749	5.3	0.65	4,144	31	17	24	30	21	2	4
POOL-PLUNGE	2	7	6.4	0.40	43	0	5	15	66	15	0	0
RIFFLE	14	147	3.3	0.15	512	0	5	14	35	38	1	6
STEP/BEAVER DAM	1	1	4.0	0.05	4	0	15	35	45	5	0	0
STEP/COBBLE	25	87	3.2	0.11	292	9	3	11	46	39	1	0
STEP/LOG	2	1	1.5	0.05	1	0	5	15	70	10	0	0
STEP/STRUCTURE	1	0	1.2	0.05	0	0	5	35	20	30	10	0
Total:	89	1,092	4.2	0.39	5,457	40	Avg: 11	19	37	28	2	3

HABITAT SUMMARY

Habitat Group	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area		Large Boulders	
					(m ²)	Percent	Number	(# / 100m ²)
Dammed & BW Pools	1	85	5.2	1.10	443	8.11%	0	0.0
Scour Pools	44	756	5.4	0.64	4,187	76.73%	31	0.7
Glides	0	0			0	0.00%	0	0.0
Riffles	14	147	3.3	0.15	512	9.38%	0	0.0
Rapids	0	0			0	0.00%	0	0.0
Cascades	0	0			0	0.00%	0	0.0
Step/Falls	29	90	3.0	0.10	298	5.46%	9	3.0
Dry	0	0			0	0.00%	0	0.0
Culverts	1	15	1.2	0.05	18	0.32%	0	0.0

POOL SUMMARY

	Total of all Channel Lengths		Primary Channel Length
	Total	# / Km	# / Km
All Pools:	45	41.2	41.6
Pools >=1m deep:	6	5.5	5.5
Complex pools (LWD pieces>=3):	14	12.8	12.9
Pool frequency (channel widths/pool):	3.6		
Residual pool depth (avg):	0.55		

OREGON DEPARTMENT OF FISH AND WILDLIFE

BRUSH CREEK

HABITAT INVENTORY

Report Date: 12/27/2006

Survey Date:

9/27/2006

REACH 3

T14S-R01W-S28SW

REACH 3

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Large Boulders (#>0.5m)	Substrate Percent Wetted Area					
							S/O	Snd	Grvl	Cbl	Bldr	Bdrk
CASCADE/BEDROCK	1	9	0.5	0.05	4	0	0	10	10	40	0	40
CULVERT CROSSING	1	16	0.5	0.15	8	0	0	0	0	5	95	0
POOL-ISOLATED	1	16	3.7	0.60	61	0	25	30	35	10	0	0
POOL-LATERAL SCOUR	50	843	4.4	0.61	3,735	153	10	19	26	30	11	4
POOL-PLUNGE	2	13	6.4	0.88	80	4	7	12	7	16	31	27
POOL-STRAIGHT SCOUR	3	44	3.3	0.42	148	2	12	22	25	23	3	15
PUDDLED UNIT	4	83	1.6	0.04	152	10	3	11	44	38	5	0
RAPID/BOULDERS	2	29	2.9	0.20	84	20	0	3	8	28	63	0
RIFFLE	32	578	3.8	0.16	2,288	296	2	11	23	34	17	14
RIFFLE W/ POCKETS	2	39	4.0	0.28	147	18	3	5	18	23	18	35
STEP/BEDROCK	5	9	1.4	0.10	14	1	0	1	2	10	7	80
STEP/BOULDERS	1	1	2.2	0.07	1	6	0	0	0	20	80	0
STEP/COBBLE	15	64	3.1	0.12	205	46	1	7	22	53	16	1
Total:	119	1,745	3.7	0.36	6,927	556	Avg: 6	13	23	32	15	11

HABITAT SUMMARY

Habitat Group	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area		Large Boulders	
					(m ²)	Percent	Number	(# / 100m ²)
Dammed & BW Pools	1	16	3.7	0.60	61	0.88%	0	0.0
Scour Pools	55	900	4.4	0.61	3,964	57.22%	159	4.0
Glides	0	0			0	0.00%	0	0.0
Riffles	34	618	3.8	0.17	2,435	35.16%	314	12.9
Rapids	2	29	2.9	0.20	84	1.21%	20	23.8
Cascades	1	9	0.5	0.05	4	0.06%	0	0.0
Step/Falls	21	74	2.6	0.12	220	3.17%	53	24.1
Dry	4	83	1.6	0.04	152	2.19%	10	6.6
Culverts	1	16	0.5	0.15	8	0.11%	0	0.0

POOL SUMMARY

	Total of all Channel Lengths		Primary Channel Length
	Total	# / Km	# / Km
All Pools:	56	32.1	34.9
Pools >=1m deep:	7	4.0	4.4
Complex pools (LWD pieces>=3):	11	6.3	6.9
Pool frequency (channel widths/pool):	4.7		
Residual pool depth (avg):	0.50		

OREGON DEPARTMENT OF FISH AND WILDLIFE

BRUSH CREEK

HABITAT INVENTORY

Report Date: 12/27/2006

Survey Date:

9/21/2006

REACH 4

T14S-R01W-S33SW

REACH 4

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Large Boulders (#>0.5m)	Substrate Percent Wetted Area					
							S/O	Snd	Grvl	Cbl	Bldr	Bdrk
CULVERT CROSSING	1	7	0.5	0.07	4	8	0	9	18	32	41	0
GLIDE	1	5	2.7	0.15	14	5	5	25	30	35	5	0
POOL-LATERAL SCOUR	26	153	3.4	0.41	538	37	12	35	30	17	5	1
POOL-STRAIGHT SCOUR	1	6	7.4	0.75	42	6	14	38	29	14	5	0
RAPID/BOULDERS	7	55	2.7	0.19	140	46	4	10	14	40	32	0
RIFFLE	23	344	3.2	0.17	1,224	137	4	22	31	31	11	2
STEP/BEDROCK	1	2	3.1	0.05	6	0	0	0	0	0	0	100
STEP/BOULDERS	2	2	1.6	0.10	2	9	0	5	12	20	63	0
STEP/COBBLE	7	13	3.2	0.11	44	4	4	11	25	59	2	0
STEP/STRUCTURE	1	0	0.4	0.05	0	4	0	0	0	55	45	0
Total:	70	587	3.2	0.26	2,015	256	Avg: 7	24	27	29	12	2

HABITAT SUMMARY

Habitat Group	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area		Large Boulders	
					(m ²)	Percent	Number	(# / 100m ²)
Dammed & BW Pools	0	0			0	0.00%	0	0.0
Scour Pools	27	159	3.6	0.42	580	28.80%	43	7.4
Glides	1	5	2.7	0.15	14	0.70%	5	35.3
Riffles	23	344	3.2	0.17	1,224	60.76%	137	11.2
Rapids	7	55	2.7	0.19	140	6.95%	46	32.9
Cascades	0	0			0	0.00%	0	0.0
Step/Falls	11	17	2.7	0.10	52	2.60%	17	32.4
Dry	0	0			0	0.00%	0	0.0
Culverts	1	7	0.5	0.07	4	0.18%	8	215.8

POOL SUMMARY

	Total of all Channel Lengths		Primary Channel Length
	Total	# / Km	# / Km
All Pools:	27	46.0	49.3
Pools >=1m deep:	0	0.0	0.0
Complex pools (LWD pieces>=3):	6	10.2	11.0
Pool frequency (channel widths/pool):	4.6		
Residual pool depth (avg):	0.34		

OREGON DEPARTMENT OF FISH AND WILDLIFE

BRUSH CREEK

HABITAT INVENTORY

Report Date: 12/27/2006

Survey Date:

9/21/2006

REACH 5

T15S-R01W-S04NW

REACH 5

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Large Boulders (#>0.5m)	Substrate Percent Wetted Area					
							S/O	Snd	Grvl	Cbl	Bldr	Bdrk
CASCADE/BOULDERS	1	2	0.6	0.05	1	5	0	0	10	20	70	0
DRY UNIT	1	5	3.9	0.02	19	0	5	15	45	35	0	0
POOL-LATERAL SCOUR	56	575	3.0	0.43	1,668	21	17	37	34	11	1	1
POOL-STRAIGHT SCOUR	1	16	2.8	0.45	44	0	5	14	19	29	0	33
PUDDLED UNIT	1	7	2.4	0.35	17	0	35	45	20	0	0	0
RAPID/BOULDERS	2	22	2.8	0.18	66	16	3	11	24	21	43	0
RIFFLE	44	410	1.9	0.12	906	52	4	20	49	23	3	1
STEP/BOULDERS	1	2	0.7	0.05	1	2	0	0	0	10	90	0
STEP/COBBLE	13	24	1.5	0.09	37	0	2	12	71	15	0	0
Total:	120	1,063	2.4	0.26	2,759	96	Avg: 10	27	43	16	4	1

HABITAT SUMMARY

Habitat Group	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area		Large Boulders	
					(m ²)	Percent	Number	(# / 100m ²)
Dammed & BW Pools	0	0			0	0.00%	0	0.0
Scour Pools	57	591	3.0	0.43	1,712	62.06%	21	1.2
Glides	0	0			0	0.00%	0	0.0
Riffles	44	410	1.9	0.12	906	32.84%	52	5.7
Rapids	2	22	2.8	0.18	66	2.38%	16	24.4
Cascades	1	2	0.6	0.05	1	0.04%	5	447.4
Step/Falls	14	26	1.4	0.09	38	1.39%	2	5.2
Dry	2	12	3.1	0.19	36	1.30%	0	0.0
Culverts	0	0			0	0.00%	0	0.0

POOL SUMMARY

	Total	Total of all Channel Lengths # / Km	Primary Channel Length # / Km
All Pools:	57	53.6	54.8
Pools >=1m deep:	0	0.0	0.0
Complex pools (LWD pieces>=3):	26	24.5	25.0
Pool frequency (channel widths/pool):	4.7		
Residual pool depth (avg):	0.37		

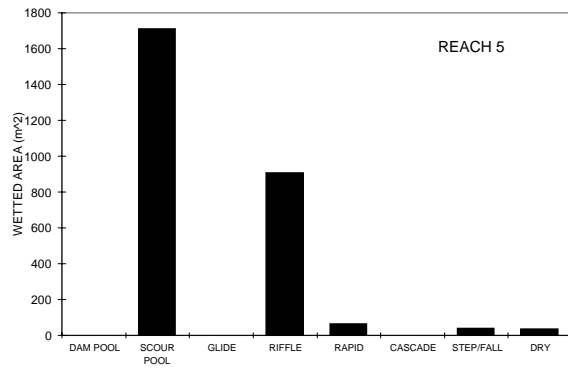
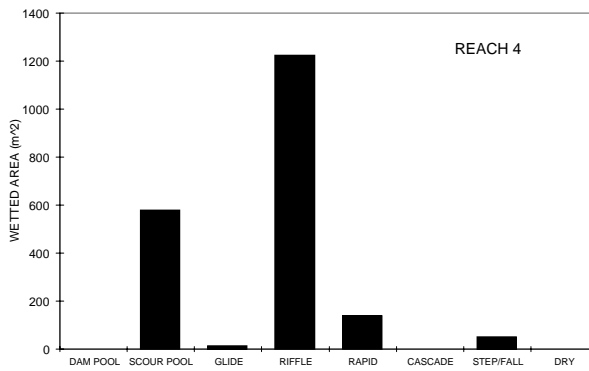
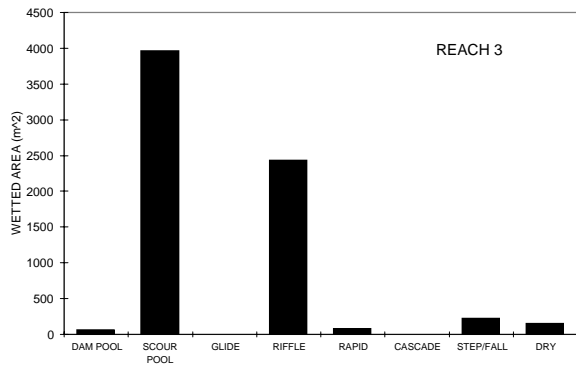
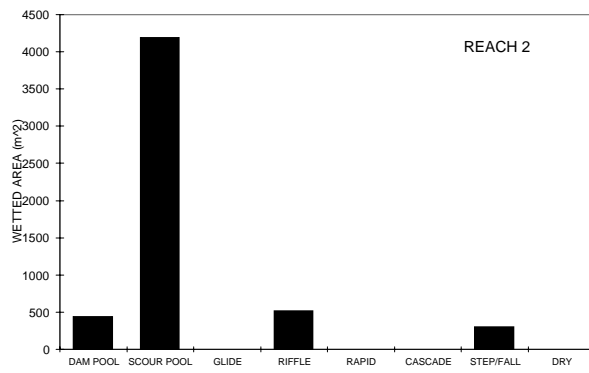
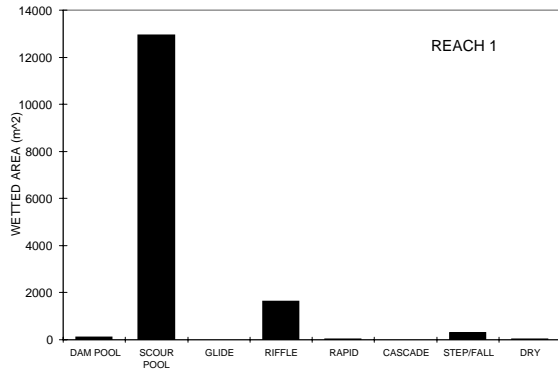
STREAM SUMMARY

BRUSH CREEK

Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Substrate						Large Boulders (#>0.5m)
					Percent Wetted Area						
					S/O	Snd	Grvl	Cbl	Bldr	Bdrk	
517	7,260	3.7	0.35	32,188	9	20	31	24	7	9	1,000

Habitat Group	Wetted Area	
	(m ²)	Percent
Dammed & BW Pools	612	1.90%
Scour Pools	23,396	72.69%
Glides	14	0.04%
Riffles	6,701	20.82%
Rapids	311	0.97%
Cascades	5	0.02%
Step/Falls	897	2.79%
Dry	210	0.65%
Culverts	41	0.13%
Unsurveyed	0	0.00%

BRUSH CREEK (CALAPOOIA - 2006) HABITAT DISTRIBUTION



RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

REACH 1

Summary of Riparian Zone (0-30m) 4 transects

Total hardwoods/1000	366
Total conifers/1000 ft	30
Total conifers >20" dbh/1000 ft	15
Total conifers >35" dbh/1000 ft	0

Average number of trees in a 5-meter wide band

Diameter class (cm)	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters		Zones 1-3 0-30 meters	
	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood
3-15cm	0.0	2.5	0.0	1.3	0.0	0.0	0.0	3.8
15-30cm	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.5
30-50cm	0.3	0.8	0.0	0.3	0.0	0.0	0.3	1.0
50-90cm	0.3	0.8	0.0	0.0	0.0	0.0	0.3	0.8
>90cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total/100m2	0.5	4.5	0.0	1.5	0.0	0.0	0.2	2.0

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Canopy closure	27		9		1	
Shrub cover	33		13		8	
Grass/forb cover	64		88		93	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Hillslope	0		0		0	
High terrace	100		100		100	
Low terrace	0		0		0	
Floodplain	0		0		0	
Wetland/meadow	0		0		0	
Stream channel	0		0		0	
Roadbed/Railroad	0		0		0	
Riprap	0		0		0	
Surface slope (%)	10		6		3	

RIPARIAN ZONE VEGETATION SUMMARY

REACH 2

REACH 2

Summary of Riparian Zone (0-30m) 2 transects

Total hardwoods/1000	1036
Total conifers/1000 ft	213
Total conifers >20" dbh/1000 ft	91
Total conifers >35" dbh/1000 ft	30

Average number of trees in a 5-meter wide band

Diameter class (cm)	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters		Zones 1-3 0-30 meters	
	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood
3-15cm	0.0	2.5	0.0	4.0	0.0	0.0	0.0	6.5
15-30cm	0.0	1.0	0.0	0.5	1.5	0.5	1.5	2.0
30-50cm	0.0	2.5	0.5	1.0	0.0	1.0	0.5	4.5
50-90cm	0.0	0.5	0.5	1.0	0.5	2.0	1.0	3.5
>90cm	0.5	0.0	0.0	0.0	0.0	0.5	0.5	0.5
Total/100m2	0.5	6.5	1.0	6.5	2.0	4.0	1.2	5.7

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Canopy closure	60		70		71	
Shrub cover	51		40		53	
Grass/forb cover	38		38		33	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Hillslope	25		25		50	
High terrace	75		75		50	
Low terrace	0		0		0	
Floodplain	0		0		0	
Wetland/meadow	0		0		0	
Stream channel	0		0		0	
Roadbed/Railroad	0		0		0	
Riprap	0		0		0	
Surface slope (%)	18		14		24	

RIPARIAN ZONE VEGETATION SUMMARY

REACH 3

REACH 3

Summary of Riparian Zone (0-30m) 5 transects

Total hardwoods/1000	625
Total conifers/1000 ft	236
Total conifers >20" dbh/1000 ft	12
Total conifers >35" dbh/1000 ft	12

Average number of trees in a 5-meter wide band

Diameter class (cm)	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters		Zones 1-3 0-30 meters	
	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood
3-15cm	1.9	1.5	0.2	1.2	0.4	0.0	2.5	2.7
15-30cm	0.2	1.9	0.0	1.0	0.4	1.7	0.6	4.6
30-50cm	0.2	0.6	0.0	0.8	0.4	0.4	0.6	1.7
50-90cm	0.0	0.6	0.0	0.6	0.0	0.0	0.0	1.2
>90cm	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Total/100m2	2.5	4.6	0.2	3.5	1.2	2.1	1.3	3.4

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Canopy closure	41		36		24	
Shrub cover	25		24		11	
Grass/forb cover	63		71		44	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Hillslope	10		10		19	
High terrace	97		87		39	
Low terrace	0		0		0	
Floodplain	0		0		0	
Wetland/meadow	0		0		0	
Stream channel	0		0		0	
Roadbed/Railroad	0		0		39	
Riprap	0		0		0	
Surface slope (%)	16		7		6	

RIPARIAN ZONE VEGETATION SUMMARY

REACH 4

REACH 4

Summary of Riparian Zone (0-30m) 2 transects

Total hardwoods/1000	457
Total conifers/1000 ft	457
Total conifers >20" dbh/1000 ft	152
Total conifers >35" dbh/1000 ft	61

Average number of trees in a 5-meter wide band

Diameter class (cm)	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters		Zones 1-3 0-30 meters	
	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood
3-15cm	1.0	0.0	0.0	0.5	0.0	3.5	1.0	4.0
15-30cm	0.0	1.5	0.0	0.0	1.0	1.0	1.0	2.5
30-50cm	0.0	0.5	1.0	0.0	2.0	0.5	3.0	1.0
50-90cm	1.0	0.0	0.0	0.0	0.5	0.0	1.5	0.0
>90cm	0.5	0.0	0.5	0.0	0.0	0.0	1.0	0.0
Total/100m2	2.5	2.0	1.5	0.5	3.5	5.0	2.5	2.5

Canopy closure and ground cover

	Zone 1 0-10 meters (%)	Zone 2 10 - 20 meters (%)	Zone 3 20 - 30 meters (%)
Canopy closure	68	51	58
Shrub cover	29	24	18
Grass/forb cover	60	41	43

Predominant landform in each zone

	Zone 1 0-10 meters (%)	Zone 2 10 - 20 meters (%)	Zone 3 20 - 30 meters (%)
Hillslope	75	50	50
High terrace	25	25	25
Low terrace	0	0	0
Floodplain	0	0	0
Wetland/meadow	0	0	0
Stream channel	0	0	0
Roadbed/Railroad	0	25	25
Riprap	0	0	0
Surface slope (%)	45	13	21

RIPARIAN ZONE VEGETATION SUMMARY

REACH 5

REACH 5

Summary of Riparian Zone (0-30m) 4 transects

Total hardwoods/1000	930
Total conifers/1000 ft	351
Total conifers >20" dbh/1000 ft	168
Total conifers >35" dbh/1000 ft	152

Average number of trees in a 5-meter wide band

Diameter class (cm)	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters		Zones 1-3 0-30 meters	
	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood
3-15cm	0.0	3.8	0.0	3.3	0.0	3.0	0.0	10.0
15-30cm	0.3	0.0	0.0	0.8	2.5	0.5	2.8	1.3
30-50cm	0.0	1.3	0.0	0.8	0.3	0.5	0.3	2.5
50-90cm	0.0	0.8	0.0	0.3	0.3	0.3	0.3	1.3
>90cm	0.0	0.3	1.0	0.0	1.5	0.0	2.5	0.3
Total/100m2	0.3	6.0	1.0	5.0	4.5	4.3	1.9	5.1

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Canopy closure	62		62		72	
Shrub cover	41		41		36	
Grass/forb cover	39		48		42	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Hillslope	13		38		50	
High terrace	88		63		50	
Low terrace	0		0		0	
Floodplain	0		0		0	
Wetland/meadow	0		0		0	
Stream channel	0		0		0	
Roadbed/Railroad	0		0		0	
Riprap	0		0		0	
Surface slope (%)	26		15		22	

Summary of Riparian Zone (0-30m) for all reaches**20 transects****Summary of riparian zone (0-100 feet) extrapolated to 1,000 feet along stream**

Total hardwoods/1000	664
Total conifers/1000 ft	238
Total conifers >20" dbh/1000 ft	75
Total conifers >35" dbh/1000 ft	50

Average number of trees in a 5-m wide band

Diameter class (cm)	Zones 1-3	
	<u>0-30 meters</u>	
	<u>Conifer</u>	<u>Hardwood</u>
3-15cm	0.9	5.2
15-30cm	1.1	2.3
30-50cm	0.7	2.0
50-90cm	0.4	1.2
>90cm	0.8	0.1

RIPARIAN ZONE VEGETATION

Reach 1

Reach 1

Unit	Side	Zone	Surface	Slope	Cover (percent)				Diameter class (cm)					Notes	
					Canopy	Shrub	Grass		3-15	15-30	30-50	50-90	>90		
30	LF	1	HT	22	75	60	40	Conifer							TRANS
								Hardwood			1	1			TERRACE
30	LF	2	HT	25	60	30	70	Conifer							0513313,
								Hardwood	2						4908845
30	LF	3	HT	7	5	0	100	Conifer							
								Hardwood							
30	RT	1	HT	20	30	80	20	Conifer							
								Hardwood	2						
30	RT	2	HT	7	5	70	30	Conifer							
								Hardwood	3						
30	RT	3	HT	5	5	60	40	Conifer							
								Hardwood							
60	LF	1	HT	14	0	10	90	Conifer							0513366,
								Hardwood							4908420
60	LF	2	HT	3	0	0	100	Conifer							FIELD
								Hardwood							
60	LF	3	HT	2	0	0	100	Conifer							FIELD
								Hardwood							
60	RT	1	HT	20	0	40	60	Conifer							
								Hardwood							
60	RT	2	HT	3	10	0	100	Conifer							
								Hardwood			1				
60	RT	3	HT	3	0	0	100	Conifer							
								Hardwood							
79	LF	1	HT	0	0	0	100	Conifer							FIELD
								Hardwood							
79	LF	2	HT	0	0	0	100	Conifer							0513384,
								Hardwood							4908142
79	LF	3	HT	0	0	0	100	Conifer							
								Hardwood							
79	RT	1	HT	0	10	5	95	Conifer							FIELD
								Hardwood	3	1					
79	RT	2	HT	0	0	0	100	Conifer							
								Hardwood							
79	RT	3	HT	0	0	0	100	Conifer							
								Hardwood							
109	LF	1	HT	0	40	40	50	Conifer					1		0513767,
								Hardwood	3		2	1			4907805

RIPARIAN ZONE VEGETATION

Reach 2

Reach 2

Unit	Side	Zone	Surface	Slope	Cover (percent)				Diameter class (cm)					Notes	
					Canopy	Shrub	Grass		3-15	15-30	30-50	50-90	>90		
149	LF	1	HS	45	55	25	40	Conifer							0514218, 4907718
								Hardwood		2	1				
149	LF	2	HS	45	30	20	35	Conifer			1				
								Hardwood				1			
149	LF	3	HS	45	45	70	20	Conifer							
								Hardwood		1		2	1		
149	RT	1	HT	0	65	60	40	Conifer						1	
								Hardwood			1				
149	RT	2	HT	0	85	30	50	Conifer				1			
								Hardwood	3						
149	RT	3	HT	0	80	25	70	Conifer					1		
								Hardwood			1	1			
179	LF	1	HT	20	60	50	40	Conifer							TRANS TERRACE
								Hardwood	4		1	1			
179	LF	2	HT	5	85	30	45	Conifer							TRANS TERRACE
								Hardwood	5		1				
179	LF	3	HS	45	80	25	30	Conifer			3				0514383, 4907376
								Hardwood							
179	RT	1	HT	7	60	70	30	Conifer							UNK FROG
								Hardwood	1		2				
179	RT	2	HT	5	80	80	20	Conifer							
								Hardwood		1	1	1			
179	RT	3	HT	5	80	90	10	Conifer							
								Hardwood			1	1			

RIPARIAN ZONE VEGETATION

Reach 3

Reach 3

Unit	Side	Zone	Surface	Slope	Cover (percent)				Diameter class (cm)					Notes	
					Canopy	Shrub	Grass		3-15	15-30	30-50	50-90	>90		
209	LF	1	HT	2	0	0	100	Conifer							0514291, 4907097
								Hardwood							
209	LF	1	HT	2	0	0	100	Conifer							PASTURE
								Hardwood							
209	LF	2	HT	2	0	0	100	Conifer							
								Hardwood							
209	LF	3	HT	2	0	0	100	Conifer							
								Hardwood							
209	RT	1	HS	35	75	40	60	Conifer							
								Hardwood	3		2				
209	RT	2	HS	30	80	55	40	Conifer							
								Hardwood			2	1			
209	RT	3	HS	30	80	30	40	Conifer							
								Hardwood		5	1				
239	LF	1	HT	0	0	0	100	Conifer							SEEP
								Hardwood							
239	LF	2	HT	0	0	0	100	Conifer							HS STARTS AT END ZONE 3
								Hardwood							
239	LF	3	RB	0	0	0	0	Conifer							0514440, 4906729
								Hardwood							
239	RT	1	HT	5	40	30	70	Conifer				1			
								Hardwood	3	5					
239	RT	2	HT	3	0	5	95	Conifer							MARSH AREA
								Hardwood							
239	RT	3	HT	4	0	5	95	Conifer							SEEP
								Hardwood							
269	LF	1	HT	14	10	5	90	Conifer							0514439, 4906426
								Hardwood	1	2					
269	LF	2	HT	3	0	0	100	Conifer							
								Hardwood							
269	LF	3	RB	0	0	0	0	Conifer							
								Hardwood							
269	RT	1	HT	40	20	5	5	Conifer						1	FC, TRANS TERRACE
								Hardwood				1			
269	RT	2	HT	3	0	0	100	Conifer							
								Hardwood							
269	RT	3	HT	3	0	0	100	Conifer							
								Hardwood							

300	LF	1	HT	8	55	45	35	Conifer						514506, 4906191
								Hardwood	1	1				
300	LF	2	HT	7	40	20	65	Conifer						
								Hardwood			1	1		
300	LF	3	RB	0	0	0	0	Conifer						
								Hardwood						
300	RT	1	HT	20	80	75	20	Conifer						
								Hardwood	1	2				
300	RT	2	HT	7	85	40	50	Conifer						
								Hardwood	3					
300	RT	3	HS	15	80	15	65	Conifer		2	1			
								Hardwood			1			
327	LF	1	HT	20	80	60	40	Conifer	10					TRANS TERRACE
								Hardwood				1		
327	LF	2	HT	7	80	70	30	Conifer	1					
								Hardwood			1	1		
327	LF	3	RB	0	0	0	0	Conifer						
								Hardwood						
327	RT	1	HT	25	90	15	75	Conifer		1				TRANS TERRACE
								Hardwood				1		
327	RT	2	HT	5	75	45	30	Conifer						
								Hardwood	3	5				
327	RT	3	HT	7	80	60	40	Conifer	2		1			
								Hardwood		4				

RIPARIAN ZONE VEGETATION

Reach 4

Reach 4

Unit	Side	Zone	Surface	Slope	Cover (percent)				Diameter class (cm)					Notes	
					Canopy	Shrub	Grass		3-15	15-30	30-50	50-90	>90		
358	LF	1	HS	34	85	5	95	Conifer							
								Hardwood		1	1				
358	LF	2	HS	4	40	65	0	Conifer							ALSO RB
								Hardwood							
358	LF	3	HS	55	85	30	40	Conifer			2	2			
								Hardwood	3	2					
358	RT	1	HS	37	60	80	10	Conifer	2						
								Hardwood		2					
358	RT	2	RB	0	20	0	0	Conifer							
								Hardwood							
358	RT	3	RB	0	0	0	0	Conifer							ALSO HS
								Hardwood							
388	LF	1	HS	105	40	10	90	Conifer					1		0514706, 4905257
								Hardwood							
388	LF	2	HS	45	60	25	70	Conifer							
								Hardwood	1						
388	LF	3	HS	25	60	20	65	Conifer				1			
								Hardwood	1						
388	RT	1	HT	3	85	20	45	Conifer					1	1	
								Hardwood							
388	RT	2	HT	2	85	5	95	Conifer			2			1	
								Hardwood							
388	RT	3	HT	2	85	20	65	Conifer				1	1		
								Hardwood	3		1				

RIPARIAN ZONE VEGETATION

Reach 5

Reach 5

Unit	Side	Zone	Surface	Slope	Cover (percent)				Diameter class (cm)					Notes	
					Canopy	Shrub	Grass		3-15	15-30	30-50	50-90	>90		
418	LF	1	HS	40	60	10	60	Conifer		1					0514696, 4904934
								Hardwood	2						
418	LF	2	HS	75	70	20	80	Conifer							
								Hardwood	4						
418	LF	3	HS	80	60	30	70	Conifer			1		2	YT, OLD CLEARCUT AFTER ZONE TRANS TERRACE	
								Hardwood							
418	RT	1	HT	35	70	30	20	Conifer						1	
								Hardwood						1	
418	RT	2	HS	17	70	30	25	Conifer						1	
								Hardwood	1						
418	RT	3	HS	28	85	20	40	Conifer				1			
								Hardwood	2		1				
448	LF	1	HT	15	80	30	10	Conifer							TRANS TERRACE
								Hardwood	3						
448	LF	2	HS	10	85	45	30	Conifer							0514627, 4904603
								Hardwood		2					
448	LF	3	HS	12	90	0	0	Conifer		10					
								Hardwood			1				
448	RT	1	HT	30	65	40	45	Conifer							
								Hardwood			1	1			
448	RT	2	HT	5	70	30	60	Conifer						1	
								Hardwood	3						
448	RT	3	HT	7	70	45	30	Conifer							
								Hardwood	5						
479	LF	1	HT	23	65	10	90	Conifer							0514629, 4904441
								Hardwood	9						
479	LF	2	HT	5	75	15	85	Conifer						1	
								Hardwood			1				
479	LF	3	HS	30	70	10	90	Conifer						1	CLEARCUT BEYOND THE RIPARIAN
								Hardwood	4						
479	RT	1	HT	15	10	45	55	Conifer							
								Hardwood	1						
479	RT	2	HT	5	4	40	60	Conifer						1	
								Hardwood	2						
479	RT	3	HT	5	50	45	55	Conifer						2	
								Hardwood	1	2					
508	LF	1	HT	25	63	85	8	Conifer							TRANS TERRACE
								Hardwood			3	1			

508	LF	2	HT	3	55	85	5	Conifer				0514570, 4904185
								Hardwood	1	2	1	
508	LF	3	HT	5	70	85	10	Conifer				
								Hardwood			1	
508	RT	1	HT	25	80	75	25	Conifer				TRANS
								Hardwood		1	1	TERRACE
508	RT	2	HT	3	70	60	40	Conifer				
								Hardwood	3			
508	RT	3	HT	5	80	50	40	Conifer				1
								Hardwood				

BRUSH CREEK (CALAPOOIA - 2006)

REACH	UNIT#	TYPE	CHAN	DIST.(m)	COMMENTS	NOTE_ESTIMATOR	NOTE_NUMERATOR
1	1	SR	00	6		T = 9.5 C 0512869, 4909281	T = 9.5 C, FENCED AREA ON RT
1	2	RP	00	29		EST VALLEY WIDTH = 1 MILE	POCKET DEPTH .35 M
1	3	LP	00	44			
1	5	DP	00	64	SD/	IRR DIVERSION	
1	6	SC	00	71	WL		TRAIL
1	9	PP	00	100		CT-CT, D30, S, AG, RR	
1	10	SR	00	103		H = .9 M	H = .9 M, COWS IN FENCED AREA
1	11	RI	00	117	RF, BV		
1	12	LP	00	200	WL, /CS		CRAWDAD, TRAILS
1	13	CC	00	207	CC	2.7 X 2.7 M METAL CULV	2.7 X 2.7 M, 1.8 X 1.9 M CULVS
1	14	LP	00	264	WL, BV	1.8 X 1.9 M 2ND METAL CULV	STEP H = .4 FOR CULVERTS
1	15	SC	00	266			U 14 = RACoon TRACKS
1	16	LP	00	312	BV		
1	17	RI	00	332			FISH
1	20	RI	00	430	WL	CA-CT, D30, S, AG, RR	CRAWDAD, FRESHWATER MUSSELS
1	21	LP	00	462			UNK JV FISH
1	23	LP	00	534	BV		
1	27	LP	00	669	BV		
1	30	RI	00	720		CT-MT, D30, S, AG, RR	
1	31	LP	00	735	/LA		
1	37	LP	00	839			CRAWDAD
1	39	LP	00	886	/CS		
1	40	RI	00	893		CT-MT, D30, S, AG, RR	
1	42	SR	00	916	WL		TRAILS
1	44	SR	00	951	WL		TRAILS
1	45	LP	00	977			CRAWDAD
1	49	DC	02			ACW = .7 M	ACW = .7 M
1	50	RR	00	1077		CT-CT, D30, S, AG, YT	
1	52	LP	00	1132	WL		TRAILS
1	54	SP	01	1206	BV, FC,TJ/	TJ/	
1	55	DC	11			ACW = .6 M	
1	58	LP	00	1277	BC		BRIDGE HELD UP BY OLD CAR
1	59	LP	00	1301	/SD, BV		
1	60	RI	00	1316		CT-CT, D30, S, AG, RR	HORSES IN CREEK
1	62	SC	00	1333	BV		
1	65	LP	00	1420	WL		TRAILS
1	68	RI	00	1465			HORSES IN CREEK
1	69	LP	00	1529	BV		FENCED OFF
1	70	RI	00	1539	WL	CT-CT, D30, S, AG, RR	TRAILS
1	71	LP	00	1594	BV		
1	72	SL	00	1596		H = .2 M	H = .2 M
1	73	LP	00	1627			CRAWDAD
1	74	LP	00	1691	BC, CS,/WL		TREE FROG
1	75	LP	00	1706	WL		TRAILS
1	79	LP	00	1797		CT-CT, D30, S, AG, RR	
1	80	LP	00	1812		0513384, 4908142	0513385, 4908145, T = 9.5 C
1	82	LP	00	1895	LA/		
1	88	LP	00	2034		EST. VALLEY WIDTH = 245 M	UNK JV FISH
1	89	SC	00	2036		CT-CT, G, D15, RR, AG	
1	90	LP	00	2094	/LA, BV		
1	93	LP	00	2130	/LA, WL		RACoon TRACKS
1	98	LP	00	2256		EST. VALLEY WIDTH = 250 M	
1	99	SC	00	2258		CT-CT, G, D15, AG, RR	
1	100	LP	00	2294	WL		DEER TRACKS
1	105	LP	00	2416	BC		

BRUSH CREEK (CALAPOOIA - 2006)

REACH	UNIT#	TYPE	CHAN	DIST.(m)	COMMENTS	NOTE_ESTIMATOR	NOTE_NUMERATOR
1	108	RI	00	2458		EST. VALLEY WIDTH = 250 M	COW MANURE
1	109	LP	00	2478		CT-CT, G, D15, AG, RR	FENCED AREA WITH ERODED BANK
1	111	LP	00	2514	BV		
1	113	LP	00	2637	BV		
1	117	LP	00	2714	BV		
1	118	LP	00	2733		EST. VALLEY WIDTH = 250 M	
1	119	RI	00	2739		CT-CT, G, D15, AG, RR	END REACH
2	120	LP	01	2758	/TJ, WL	T = 11 C 0513959, 4907734	0513959, 4907734, T = 11 C
2	121	RI	11			T = 10.5 C, ACW = 1.2 M	FRESH WATER MUSSELS
2	122	SC	00	2760	BV, WL		
2	123	LP	00	2765	BV, WL		
2	125	LP	00	2796	BV		
2	126	SC	00	2800	BV		
2	127	LP	00	2811	BC		FOOT BRIDGE
2	128	RI	00	2818		CT-CT, M30, S, RR, YT	
2	129	LP	00	2835	BV, WL	EST. VALLEY WIDTH = 1000 M	DEER TRACKS
2	132	SL	00	2847		H = .4 M	H = .4 M
2	133	LP	00	2868	WL		TRACKS
2	135	LP	00	2898	BV, WL		TRACKS
2	136	SC	00	2900	WL		TRACKS, RR/AG
2	138	LP	00	2951	CS/	CT-CT, M30, S, RR, TH	
2	139	LP	00	2958		EST. VALLEY WIDTH = 1000 M	
2	141	LP	00	2998	BV		
2	142	LP	00	3011	BV		
2	145	SC	00	3018	BV	H = .3 M	H = .3 M
2	146	LP	00	3041	BV		
2	147	SL	00	3041		H = .15 M	H = .15 M
2	148	LP	00	3049		CA-CT, M30, S, RR, TH	
2	149	SC	00	3054		EST. VALLEY WIDTH = 700 M	
2	150	LP	00	3068			CLEARCUT
2	151	SC	00	3071	WL		TRAIL
2	152	LP	00	3097	BV, DJ		SCULPIN
2	153	SC	00	3102	BV		
2	154	SD	00	3103	BD	BV, H = .35 M	TH/, H = .35 M
2	155	BP	00	3188	BV		UNK FROG
2	157	LP	00	3203	WL	TH STARTS TO HAVE BUFFER ON L'	TH/, DACE
2	159	LP	00	3247	BV	POWERLINES CROSSING	UNK FRY
2	160	RI	00	3259		CT-CT, M30, S, RR, TH	
2	161	LP	00	3269	BV		
2	163	LP	00	3324	/EA		
2	165	LP	00	3341			SCULPIN
2	166	LP	00	3352			4" TROUT
2	168	LP	00	3387		EST. VALLEY WIDTH = 550 M	
2	169	RI	00	3402		CT-CT, D3, P, RR, TH	
2	170	LP	00	3434	BV, BD	POWERLINES CROSSING CREEK	FRY, 4" TROUT
2	177	LP	00	3511	BV		LG CEDAR
2	178	RI	00	3517		EST. VALLEY WIDTH = 150 M	
2	179	LP	00	3530		CT-CT, D15, S, RR	
2	186	LP	01	3607	TJ/	0514386, 4907277	
2	187	RI	11			T = 12.5 C ACW = 1.7 M	
2	188	SS	00	3608		H = .28 M, BRUSH CREEK ROAD	H = .28 M, T = 12.5 C
2	189	CC	00	3623	CC	5 1.2 X 1.2 M CULV'S IN A ROW	5 1.3 X 1.3 CONCRETE CULVERTS
2	190	RI	00	3632		CT-CT, D30, S, RR, YT	CA-CT
2	193	LP	00	3660		BLACKBERRIES/WILLOWS	
2	196	SC	00	3679		POWERLINES OVER CREEK	

BRUSH CREEK (CALAPOOIA - 2006)

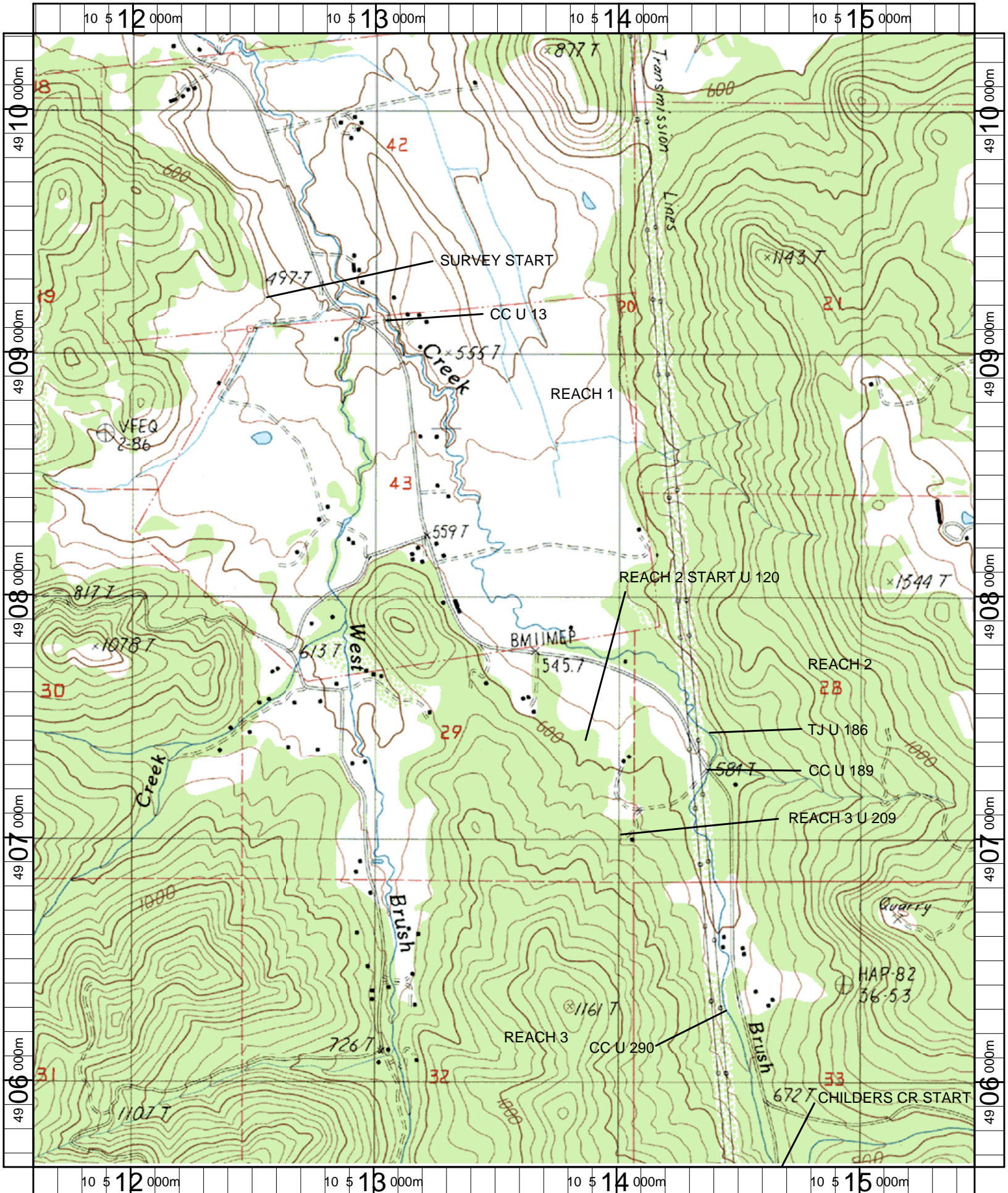
REACH	UNIT#	TYPE	CHAN	DIST.(m)	COMMENTS	NOTE_ESTIMATOR	NOTE_NUMERATOR
2	198	LP	00	3708		WILLOWS/WILLOWS	
2	200	LP	00	3723	BV	EST. VALLEY WIDTH = 300 M	
2	204	LP	00	3780	/SS		
2	208	RI	00	3822		CA-CT, D15, S, RR, YT	END REACH
3	209	LP	00	3845	/SS	EST. VALLEY WIDTH = 75 M	
3	210	LP	00	3853		T = 10 C AT 0855	T = 10 C
3	211	SC	00	3859		OPEN FIELD/ ALDER HS	LANDOWNER CLEARING BLACKBERRY
3	212	LP	00	3883			ON SIDES OF CREEK, NO SHADE
3	218	LP	00	3965		WILLOW/WILLOW	
3	219	RI	00	3973		CT-CT, D3, S, RR, ST	
3	220	LP	00	3998			YOUNG CRAWDAD
3	221	SC	00	3999		EST. VALLEY WIDTH = 106 M	
3	222	LP	00	4010	RF, FC	RF, FC	ELECTRIC FENCE
3	223	RI	00	4015	BC		FOOT BRIDGE
3	227	RI	00	4080	WL		RACCOON TRACKS
3	228	LP	00	4097	BV		
3	229	RI	00	4116		CT-CT, D15, S, RR, ST	
3	230	LP	00	4129	BV	EST. VALLEY WIDTH = 96 M	
3	231	SC	00	4133	BV, WL		TRACKS
3	232	LP	00	4152	BV		CHEWED ON STICKS
3	233	RI	00	4180	WL		
3	234	SP	00	4195	BV, WL		DEER TRACKS
3	236	LP	00	4235	BV		
3	238	LP	00	4261		CT-CT, D3, S, RR, ST	
3	239	RI	00	4279	RF	EST. VALLEY WIDTH = 55 M	
3	240	LP	00	4293	RF, SS/		
3	241	RI	00	4326			2 4" TROUT
3	244	LP	00	4371		CT-CT, D15, S, RR, ST	
3	245	SC	00	4377		BARN OWL	
3	246	LP	00	4400	WL		BARN OWL, SCULPIN, IRR POOL?
3	248	LP	00	4432		CA-CT, D15, S, RR, ST	
3	249	SR	00	4434		H = .35 M	H = .35 M
3	250	RP	00	4441		EST. VALLEY WIDTH = 63 M	MAX POCKETS = .4 M
3	251	PP	00	4449	BC		
3	252	SR	00	4450		H = .45 M	H = .45 M
3	258	LP	01	4518	BC, CS/		
3	259	SC	01	4523	CS/		
3	260	LP	01	4532		CA-CT, D15, S, RR, ST	
3	261	RI	01	4540	CS/		
3	262	PD	02			ACW = 1.8 M	
3	263	LP	00	4558	BV, SS/		FISH
3	269	LP	00	4618		CT-CT, D15, S, RR, ST	
3	271	LP	00	4635			CRAWDAD
3	274	SR	00	4674		H = .4 M	H = .4 M
3	276	LP	00	4713	CS/		
3	278	SP	00	4738		EST. VALLEY WIDTH = 80 M	
3	279	SC	00	4743		CT-CT, D15, S, RR, ST	
3	280	LP	01	4757	/LA		
3	283	SC	01	4785		H = .4 M	H = .3 M
3	285	PD	02			ACW = 4.6 M	
3	286	IP	10		/LA		
3	288	RI	00	4838		EST. VALLEY WIDTH = 60 M	
3	289	LP	01	4858	CS/, TJ/	CT-CT, D15, S, RR, ST	
3	290	CC	11		CC, CS/	.5 X .5 M CONCRETE CULVERT	.5 X .5 M CONCRETE CULVERT
3	291	RI	00	4873	CS/		

BRUSH CREEK (CALAPOOIA - 2006)

REACH	UNIT#	TYPE	CHAN	DIST.(m)	COMMENTS	NOTE_ESTIMATOR	NOTE_NUMERATOR
3	292	LP	00	4887	CS/		
3	300	SB	00	5014		H = .35 M	H = .35 M
3	304	RI	00	5081	RF	RF	
3	305	LP	00	5096	SS/		
3	310	RI	00	5183		CA-CT, M30, S, RR, ST	
3	311	LP	01	5201	/TJ, /EI	/TJ (NOT ON MAP)	SCULPIN
3	312	CR	11			ACW = .9 M, T = 11.5	BEDROCK = HARDPAN CLAY
3	319	LP	01	5298		EST. VALLEY WIDTH = 60 M	
3	320	RP	01	5330		CT-CT, M30, S, RR, ST	MAX POCKETS = .4 M DEEP
3	321	PD	02		/TJ	/TJ, 0514515, 4905984	
3	322	RI	11			ACW = 1.6 M, T = 11.5 C	END REACH
4	328	RB	01	5438	TJ/	0514590, 4905841, T = 10.5 C	T = 10.5 C
4	329	RI	11		BC	ACW = 8 M, T = 8 C	CHILDERS CREEK
4	333	SC	00	5454		CT-CT, D15, S, ST, LT	
4	338	LP	00	5523	WL		TRACKS
4	340	LP	00	5536	/SS		
4	344	LP	00	5555	/SS		LG DOUG FIR IN RIP
4	347	LP	00	5593	WL		DEER TRACKS
4	350	RI	00	5623	WL		TRAIL
4	352	RB	00	5636	/EA		
4	353	RI	00	5655	/EA, BC		
4	354	LP	00	5670		UNDER BRIDGE	
4	356	LP	00	5693			BLUE AND WHITE FLAG
4	358	RI	00	5758		CA-CT, C30, S, LT, ST	BLUE AND WHITE FLAG
4	360	SR	00	5775			BEDROCK = HARDPAN
4	363	SS	00	5797		H = .2 M	H = .2 M
4	364	CC	00	5804	CC	1.8 X 1.8 M METAL CULVERT	1.8 X 1.8 M METAL CULVERT
4	365	SB	00	5805		H = .2 M	H = .2 M, WATER FLOWS UNDER CC
4	369	SB	00	5818		H = .2 M	H = .2 M
4	373	RI	00	5863	/EA		
4	374	LP	00	5868	WL		DEER TRACKS
4	376	LP	01	5875	/TJ	/TJ	
4	377	RB	11		CE	ACW= .5 M, T = 11.5 C	.5 M X .5 M CEMENT CULV, H=2M
4	381	RI	00	5896	/EI		CRAWDAD
4	382	LP	00	5906	DJ, /SS		
4	384	LP	00	5915	WL, /EA		TRACKS
4	386	LP	00	5922	EI/		
4	388	LP	00	5930	DJ, EI/		
4	392	LP	00	5953			HORSETAILS
4	394	LP	00	5965	WL, BV		TRACKS
4	395	SC	00	5966		CA-CT, D15, S, YT, LT	END REACH
5	399	RI	00	5986	EI/		ENTERING CLEARCUT ON LT
5	401	RI	00	5994	WL		TRAIL
5	404	RI	00	6009			CRAWDAD
5	405	LP	00	6019			DACE, SCULPIN
5	407	RI	00	6036	/EI		FRESHWATER MUSSELS
5	409	RI	00	6057		T = 8.5 C AT 0900	T = 8.5 C, 0514645, 4905089
5	410	LP	01	6062		TJ/	
5	411	CB	11		/TJ	T = 9 C, ACW = 1.3 M	T = 8 C
5	415	RI	00	6115	BV		
5	417	LP	00	6147		CLEARCUT, SM RIP ON LT	
5	418	SC	00	6149		0514696, 4904934	
5	419	LP	00	6153	EI/		
5	420	RI	00	6163	BV		
5	421	LP	00	6173			FROG HEARD, UNK SP

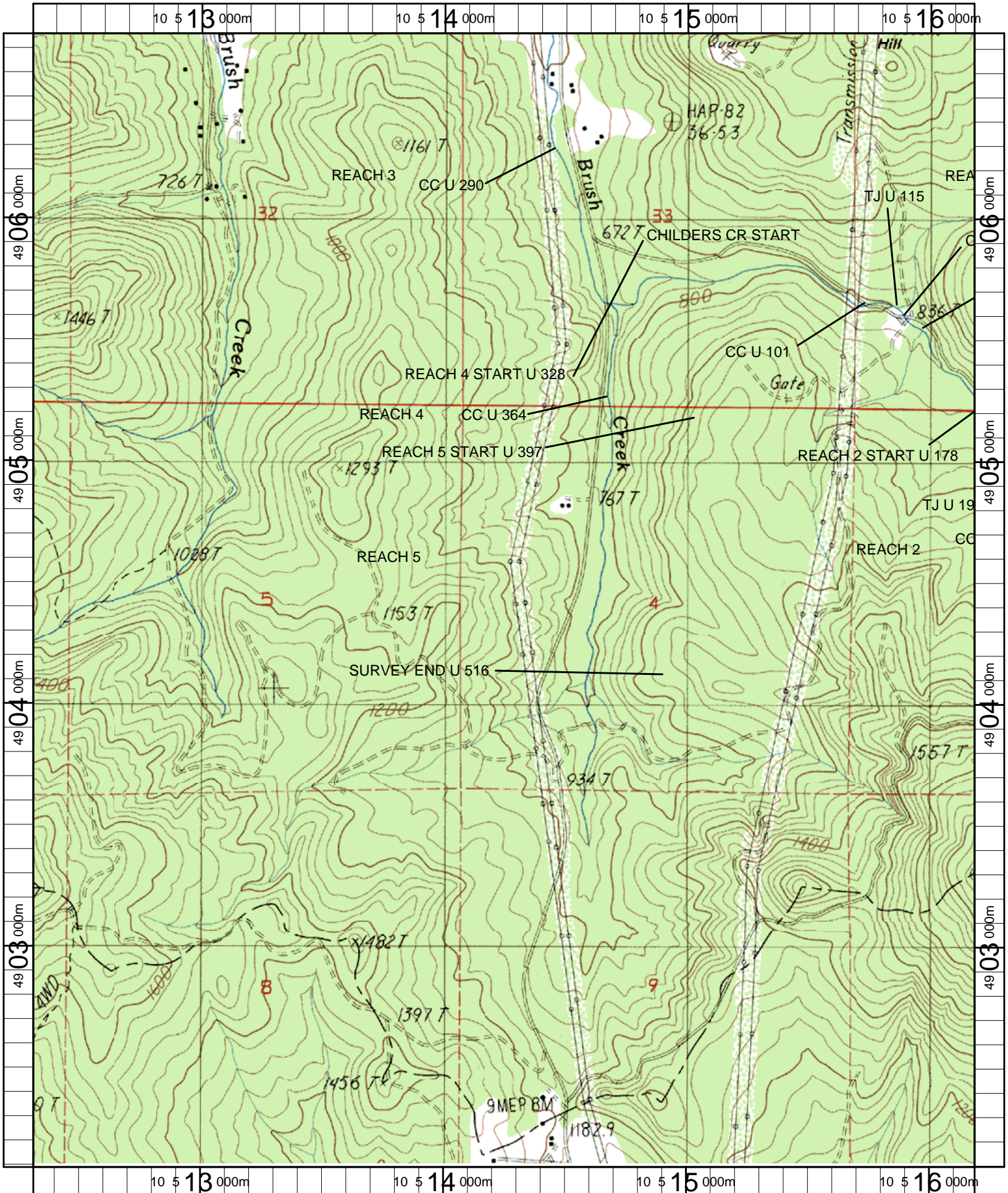
BRUSH CREEK (CALAPOOIA - 2006)

REACH	UNIT#	TYPE	CHAN	DIST.(m)	COMMENTS	NOTE_ESTIMATOR	NOTE_NUMERATOR
5	426	SP	00	6222	EI/, SS/		
5	430	RI	01	6275	/TJ	/TJ, 0514632, 4904826	
5	431	RI	11			ACW = 1.2 M, T = 9.5 C	0514632, 4904826
5	432	LP	00	6282	EI/		
5	433	RB	00	6297	BV, DJ,EI/	CA-CT, D15, S, YT, ST	DJ HAS ACCUM LOTS OF MATERIAL
5	434	LP	00	6302		CLEARCUT/ADERS	
5	436	LP	00	6334		SCULPIN	SCULPIN
5	439	LP	00	6362	/SS, WL		TRACKS
5	440	RI	00	6375	BV		
5	442	SB	00	6386		H = .2 M	H = .2 M
5	448	RI	00	6478	EI/	CA-CT, D15, S, YT, LT	
5	449	LP	00	6490		YT/S SCULPIN	SCULPIN
5	450	RI	00	6494	/EI		
5	452	SC	00	6508		H = .15 M	H = .15
5	454	RI	00	6527	WL		BEAR TRACKS
5	455	LP	00	6535	/EI, BV		YT ON LT
5	460	LP	00	6561			SCULPIN
5	463	LP	00	6581			LAMPREY, SCULPIN
5	464	LP	00	6601		SCULPIN	
5	468	LP	00	6617		CT-CT, D3, S, YT, ST	
5	470	LP	00	6626			CRAWDAD
5	471	RI	00	6629	BV		
5	474	LP	00	6661	BV		BEAVER DEN?
5	477	LP	01	6676	TJ/	TJ/	
5	478	RI	11			ACW = .8 M	
5	479	LP	00	6691	BV		
5	480	SC	00	6693	BV		OLD BLOWN OUT DAM
5	483	LP	00	6730	BV		OLD BLOWN OUT DAM
5	489	LP	00	6777		CT-CT, D15, S, YT, LT	
5	492	LP	00	6790	BV	ALDER RIPARIAN	
5	495	RI	00	6815	WL		TRACKS
5	500	LP	00	6836	BV	CT-CT, D15, S, YT, LT	
5	502	LP	00	6861	WL		TRACKS
5	503	RI	00	6877	BV		
5	504	LP	00	6883	WL		TRAIL
5	506	LP	00	6909	WL		TRAIL
5	507	LP	00	6921	WL		TRAIL
5	508	RI	00	6939		CT-CT, D15, S, YT, LT	
5	509	LP	00	6951	WL	T = 10.5 C AT0935	TRAIL. T = 10.5 C
5	512	SC	00	6973	/EA		
5	514	RI	00	6996	/SS	YT, ST, D15, C30	MARSHY AREA ON RT
5	515	RI	00	7003		GRAVEL BAR	
5	516	LP	00	7008			
5	517	LP	00	7014		END BELOW /TJ	END BELOW TJ



Name: CRAWFORDSVILLE (OR)
 Date: 12/27/2006
 Scale: 1 inch equals 1600 feet

Location: 10 0513531 E 4907981 N
 Caption: BRUSH CREEK (CALAPOOIA - SUMMER 2006) STREAM
 HABITAT SURVEY



Name: CRAWFORDSVILLE (OR)
 Date: 12/27/2006
 Scale: 1 inch equals 1600 feet

Location: 10 0514245 E 4904427 N
 Caption: BRUSH CREEK (CALAPOOIA - SUMMER 2006) STREAM
 HABITAT SURVEY

Brush Creek (Calapooia)

Summer 2006



Reach 1 - Unit 60



Reach 1 - Unit 109



Reach 2 - Unit 149



Reach 2 - Unit 187
5 Culverts in a row



Reach 3 - Unit 239



Reach 3 - Unit 269

Brush Creek (Calapooia)

Summer 2006



Reach 3 - Unit 326



Reach 5 - Unit 418



Reach 4 - Unit 388



Reach 5 - Unit 448



Reach 5 - Unit 508