

**ODFW AQUATIC INVENTORY PROJECT
RESTORATION MONITORING
STREAM HABITAT REPORT**

STREAM: PARADISE CREEK SITE 1
 GCG: 4-UMP
 SITE ID: 351
 BASIN: UMPQUA
 TREATMENT DATE: 2006
 SURVEY DATE: 8/3/2011
 SURVEY CREW: Eric Bailey and Sara DeRischebourg
 USGS MAPS: ELKTON
 ECOREGION: Mid-Coastal Sedimentary
 REPORT PREPARED BY: Lora Tennant

REACH: 1 LOCATION: T22S-R08W-S10NE

SURVEY DESCRIPTION:

Channel morphology: Constrained by land use

Dominant landuse(s): Agricultural crop or dairy land.

Dominant riparian vegetation: Shrubs (willow, salmonberry, some small alder)

Primary channel length (meters) and area (m²): 1,379 : 9,607

Secondary channel length (meters) and area (m²): 211 : 907

VWI average: 10.6 VWI Range: 8.5 - 12 Average Gradient: 1.2%

Pieces LWD per 100m: 16.0 Wood Volume (m³) per 100m: 16.3

Percent pools: 75% Complex pools (LWD pieces \geq 3): 14 Pools \geq 1m deep: 4

<u>Percent substrate (avg):</u>	<u>Silt / organics</u>	<u>Sand</u>	<u>Gravel</u>	<u>Cobble</u>	<u>Boulder</u>	<u>Bedrock</u>
All units	19	8	22	5	7	40
Pool units	13	9	16	4	4	56
Fast water units	6	7	47	4	0	36

SURVEY COMMENTS:

This is a post-treatment(boulders) restoration survey. The crew observed beaver activity, juvenile salmonids, a rough-skinned newt, wildlife trails and tracks, and freshwater mussels. Boulder habitat structures were also documented.

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 REPORT PREPARED BY: Lora Tennant

REACH: 2 LOCATION: T12S-R08W-S10NE

SURVEY DESCRIPTION:

Channel morphology: Constrained alternately by high terraces and hillslopes

Dominant landuse(s): Second growth timber (15-30 cm dbh)

Dominant riparian vegetation: Deciduous trees: size class 30-50cm dbh

Primary channel length (meters) and area (m²): 223 : 1,867

Secondary channel length (meters) and area (m²): 21 : 34

VWI average: 8.5 VWI Range: 8.5 - 8.5 Average Gradient: 2.0%

Pieces LWD per 100m: 6.3 Wood Volume (m³) per 100m: 7.7

Percent pools: 54% Complex pools (LWD pieces>=3): 0 Pools >=1m deep: 0

<u>Percent substrate (avg):</u>	<u>Silt / organics</u>	<u>Sand</u>	<u>Gravel</u>	<u>Cobble</u>	<u>Boulder</u>	<u>Bedrock</u>
All units	1	5	5	17	10	63
Pool units	1	5	5	24	7	58
Fast water units	1	5	5	9	10	70

SURVEY COMMENTS:

This is a post-treatment(boulders) restoration survey. The crew observed beaver activity, juvenile salmonids, a rough-skinned newt, wildlife trails and tracks, and freshwater mussels. Boulder habitat structures were also documented.

Survey Date: 8/3/2011

Report Date: 6/8/2012

T22S-R08W-S10NE

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	0%
Moderate V-shape	0%	Multiple Terraces	100%
Open V-shape	0%	Wide Floodplain	0%
Valley Width Index	10.6	VWI Range:	8.5 - 12

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	0%		
Landuse	100%		

Channel Characteristics

<u>Type</u>	<u>Length (m)</u>	<u>Area (m²)</u>	<u>Dry Units</u>
Primary	1,379	9,607	0
Secondary	211	907	2

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u> <i>n</i> = 4	<u>First Terrace</u> <i>n</i> = 4
Width: 5.4	Width: 10.0	12.2 (10.5 - 13.6)	16.1 (11.4 - 21.4)
Depth: 0.35	Height: 0.5	1.0 (0.5 - 1.5)	1.8 (0.9 - 2.7)

W:D ratio: 23.3

Stream Flow Type: LF

Average Unit Gradient: 1.2%

Water temperature (°C): 15.0 - 18.0

Entrenchment (ACW:FPW ratio): 1.2

Habitat Units/100m (total channel length): 5.3

Habitat Units/100m (primary channel length): 6.2

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	AG	TH
Riparian Vegetation:	S	D15

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding:	13%	Reach avg: 52%
Undercut Banks:	9%	Range: 28 - 100

Large Wood Debris

	<u>Total</u>	<u>Total / 100m primary channel</u>
All pieces (>=3m x 0.15m):	220	16.0
Volume (m ³):	225	16.3
Key pieces (>=12m x 0.60m):	11	0.8

Survey Date: 8/4/2011

Report Date: 6/8/2012 T12S-R08W-S10NE

REACH 2

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

Narrow Valley Floor		Broad Valley Floor	
Steep V-shape	0%	Constraining Terraces	0%
Moderate V-shape	0%	Multiple Terraces	100%
Open V-shape	0%	Wide Floodplain	0%
Valley Width Index	8.5	VWI Range:	8.5 - 8.5

Channel Morphology (Percent Reach Length)

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

Channel Characteristics

Type	Length (m)	Area (m2)	Dry Units
Primary	223	1,867	0
Secondary	21	34	0

Channel Dimensions (m)

Wetted	Active	Floodprone	n = 1	First Terrace	n = 1
Width: 7.2	Width: 12.4	13.7	(13.7 - 13.7)	15.4	(15.4 - 15.4)
Depth: 0.25	Height: 0.5	0.9	(0.9 - 0.9)	1.6	(1.6 - 1.6)

W:D ratio: 27.6

Entrenchment (ACW:FPW ratio): 1.1

Stream Flow Type: LF

Habitat Units/100m (total channel length): 5.3

Average Unit Gradient: 2.0%

Habitat Units/100m (primary channel length): 5.8

Water temperature (°C): 13.0 - 13.0

Riparian, Bank, and Wood Summary

	Primary	Secondary
Land Use:	ST	LT
Riparian Vegetation:	D30	S

Bank Condition and Shade

Bank Status	Percent Reach Length	Shade (% of 180)
Actively Eroding:	14%	Reach avg: 57%
Undercut Banks:	21%	Range: 39 - 81

Large Wood Debris

	Total	Total / 100m primary channel
All pieces (>=3m x 0.15m):	14	6.3
Volume (m ³):	17	7.7
Key pieces (>=12m x 0.60m):	0	0.0

HABITAT INVENTORY

GCG: 4-UMP SITE ID: 351

Survey Date: 8/3/2011

Report Date: 6/8/2012

T22S-R08W-S10NE

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
CASCADE/BEDROCK	2	30	4.9	0.23	196	0	3	8	10	3	0	78
CASCADE/BOULDERS	1	1	0.2	0.05	0	0	0	0	90	10	0	0
POOL-BACKWATER	7	31	3.1	0.13	99	3	80	9	9	1	0	0
POOL-DAMMED	5	352	7.7	0.78	2,924	84	28	6	4	1	3	59
POOL-ISOLATED	5	22	1.5	0.18	33	0	60	19	18	3	0	0
POOL-LATERAL SCOUR	16	466	5.9	0.61	2,899	145	14	11	28	7	4	36
POOL-PLUNGE	2	7	5.2	0.95	38	0	0	5	5	0	0	90
POOL-STRAIGHT SCOUR	10	249	7.6	0.58	1,980	186	5	7	4	0	5	78
PUDDLED UNIT	2	112	5.7	0.08	733	8	83	8	5	0	3	3
RAPID/BEDROCK	5	63	6.9	0.20	362	1	2	5	3	1	0	89
RAPID/BOULDERS	1	10	0.2	0.05	2	0	80	10	10	0	0	0
RIFFLE	8	132	2.9	0.13	448	4	0	9	80	6	0	5
RIFFLE W/ POCKETS	3	54	7.4	0.30	405	18	8	4	55	3	3	27
STEP/BEDROCK	8	28	5.9	0.16	163	3	2	4	2	1	0	90
STEP/COBBLE	4	9	3.2	0.11	27	0	0	5	48	48	0	0
STEP/STRUCTURE	6	23	8.8	0.15	205	263	4	4	5	1	71	15
Total:	85	1,590	5.4	0.35	10,514	715	Avg: 19	8	22	5	7	40

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	17	405	4.0	0.34	3,056	29.06%	87	2.8
Scour Pools	28	723	6.5	0.63	4,917	46.77%	331	6.7
Glides	0	0			0	0.00%	0	0.0
Riffles	11	186	4.1	0.17	853	8.12%	22	2.6
Rapids	6	73	5.8	0.18	364	3.46%	1	0.3
Cascades	3	31	3.3	0.17	196	1.86%	0	0.0
Step/Falls	18	60	6.3	0.15	396	3.77%	266	67.2
Dry	2	112	5.7	0.08	733	6.97%	8	1.1
Culverts	0	0			0	0.00%	0	0.0

HABITAT INVENTORY

GCG: 4-UMP SITE ID: 351

Survey Date: 8/4/2011

Report Date: 6/8/2012

T12S-R08W-S10NE

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
POOL-BACKWATER	1	11	0.8	0.20	9	0	0	5	5	0	0	90
POOL-LATERAL SCOUR	3	94	9.9	0.50	938	44	0	5	5	17	10	64
POOL-STRAIGHT SCOUR	1	12	7.0	0.70	84	2	5	5	5	45	0	40
RAPID/BEDROCK	3	50	6.1	0.05	315	4	0	5	5	2	2	87
RAPID/BOULDERS	1	43	8.1	0.10	349	83	0	5	0	0	48	48
RIFFLE W/ POCKETS	1	24	5.6	0.10	134	2	5	5	10	40	0	40
STEP/BEDROCK	1	4	4.5	0.20	18	0	0	5	0	0	0	95
STEP/COBBLE	1	5	6.0	0.10	27	1	0	5	10	81	0	5
STEP/STRUCTURE	1	2	13.0	0.15	26	26	0	5	5	0	45	45
Total:	13	244	7.2	0.25	1,900	162	Avg: 1	5	5	17	10	63

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	11	0.8	0.20	9	0.46%	0	0.0
Scour Pools	4	106	9.2	0.55	1,022	53.77%	46	4.5
Glides	0	0			0	0.00%	0	0.0
Riffles	1	24	5.6	0.10	134	7.07%	2	1.5
Rapids	4	93	6.6	0.06	664	34.96%	87	13.1
Cascades	0	0			0	0.00%	0	0.0
Step/Falls	3	11	7.8	0.15	71	3.74%	27	38.0
Dry	0	0			0	0.00%	0	0.0
Culverts	0	0			0	0.00%	0	0.0

OREGON DEPT OF FISH AND WILDLIFE
HABITAT INVENTORY

PARADISE CREEK SITE 1
GCG: 4-UMP SITE ID: 351

Survey Date: 8/3/2011

Report Date: 6/8/2012

T12S-R08W-S10NE

REACH 1

POOL SUMMARY

	<u>Total</u>	Total of all Channel Lengths <u># / Km</u>	Primary Channel Length <u># / Km</u>
All Pools:	45	28.3	32.6
Pools >=1m deep:	4	2.5	2.9
Complex pools (LWD pieces>=3):	14	8.8	10.2
Pool frequency (channel widths/pool):	3.5		
Residual pool depth (avg):	0.54		

Survey Date: 8/4/2011

Report Date: 6/8/2012

T12S-R08W-S10NE

REACH 2

POOL SUMMARY

	<u>Total</u>	Total of all Channel Lengths <u># / Km</u>	Primary Channel Length <u># / Km</u>
All Pools:	5	20.5	22.5
Pools >=1m deep:	0	0.0	0.0
Complex pools (LWD pieces>=3):	0	0.0	0.0
Pool frequency (channel widths/pool):	3.9		
Residual pool depth (avg):	0.46		

Survey Date 8/3/2011

**RIPARIAN ZONE
VEGETATION SUMMARY**

REACH 1

Report Date: 6/8/2012

Summary of Riparian Zone (0-30m) 3 transects

Total hardwoods/1000	427
Total conifers/1000 ft	102
Total conifers >20" dbh/1000 f	0
Total conifers >35" dbh/1000 f	0

Average number of trees in a 5-meter wide band

Diameter class (cm)	Zone 1 <u>0-10 meters</u>		Zone 2 <u>10 - 20 meters</u>		Zone 3 <u>20 - 30 meters</u>		Zones 1-3 <u>0-30 meters</u>	
	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood
3-15cm	0.3	1.0	0.3	0.0	0.0	0.0	0.7	1.0
15-30cm	0.0	4.7	0.0	0.3	1.0	0.0	1.0	5.0
30-50cm	0.0	0.3	0.0	0.7	0.0	0.0	0.0	1.0
50-90cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>90cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total/100m2	0.3	6.0	0.3	1.0	1.0	0.0	0.6	2.3

Canopy closure and ground cover

	Zone 1 <u>0-10 meters</u>		Zone 2 <u>10 - 20 meters</u>		Zone 3 <u>20 - 30 meters</u>	
	(%)		(%)		(%)	
Canopy closure	22		70		80	
Shrub cover	57		5		10	
Grass/forb cover	43		99		98	

Predominant landform in each zone

	Zone 1 <u>0-10 meters</u>		Zone 2 <u>10 - 20 meters</u>		Zone 3 <u>20 - 30 meters</u>	
	(%)		(%)		(%)	
Hillslope	17		17		17	
High terrace	83		83		83	
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 (%)	40		35		35	

Summary of Riparian Zone (0-30m) for all reaches**3 transects****Summary of riparian zone (0-100 feet) extrapolated to 1,000 feet along stream**

Total hardwoods/1000	427
Total conifers/1000 ft	102
Total conifers >20" dbh/1000 f	0
Total conifers >35" dbh/1000 f	0

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	0.7	1.0
15-30cm	1.0	5.0
30-50cm	0.0	1.0
50-90cm	0.0	0.0
>90cm	0.0	0.0

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			
22	LF	1	HT			20	80	Conifer	1						MEADOW, TRANSITION TO CR
								Hardwood							MEADOW, AG
22	LF	2	HT				100	Conifer							MEADOW, AG
								Hardwood							
22	LF	3	HT				100	Conifer							MEADOW, AG
								Hardwood							
22	RT	1	HT		10	30	70	Conifer							MEADOW, TRANSITION TO CR
								Hardwood	1	1					MEADOW, AG
22	RT	2	HT				100	Conifer							MEADOW, AG
								Hardwood							
22	RT	3	HT				100	Conifer							MEADOW, AG
								Hardwood							
49	LF	1	HT		10	90	10	Conifer							MEADOW, BENCHMARK #4
								Hardwood		8	1				MEADOW, AG
49	LF	2	HT				100	Conifer							MEADOW, AG
								Hardwood		1	1				
49	LF	3	HT				100	Conifer							MEADOW, AG
								Hardwood							
49	RT	1	HS	40	75	20	80	Conifer							BENCHMARK #4
								Hardwood	2						
49	RT	2	HS	35	70	5	95	Conifer							
								Hardwood			1				
49	RT	3	HS	35	80	10	90	Conifer			3				
								Hardwood							
75	LF	1	HT		5	95	5	Conifer							TRANSITION, 15% SLOPE
								Hardwood			1				
75	LF	2	HT				100	Conifer	1						MEADOW, AG
								Hardwood							
75	LF	3	HT				100	Conifer							MEADOW, AG
								Hardwood							
75	RT	1	HT		10	85	15	Conifer							TRANSITION, 21% SLOPE
								Hardwood			4				
75	RT	2	HT				100	Conifer							MEADOW, AG
								Hardwood							
75	RT	3	HT				100	Conifer							MEADOW, AG
								Hardwood							

OREGON DEPT OF FISH AND WILDLIFE
HABITAT INVENTORY

OREGON PLAN MONITORING SITE
SURVEY DATE: 8/3/2011

COMMENT SUMMARY

MONITORING AREA: 4-UMP SITE ID: 351 STREAM: PARADISE CREEK SITE 1

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	1	SR	00	3	BC	0449479/4835634
1	2	SP	00	14	BC	BRIDGE
1	8	SP	00	70.3	BV,HS	
1	10	SP	00	107		
1	12	SP	00	143.8	HS	HS-BOULDER, BROKEN CABLE
1	13	SS	00	154.8	HS,/SS	HS-BOULDER
1	14	SP	00	163.8	HS, BV,SS/	
1	16	SS	00	169.6	HS,/DJ	
1	17	DP	00	185.1	HS	
1	19	LP	01	223	WL	
1	21	SS	00	224.5	HS	
1	22	DP	01	340.5	WL	RIP #1

COMMENT SUMMARY

MONITORING AREA: 4-UMP SITE ID: 351 STREAM: PARADISE CREEK SITE 1

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	24	SS	00	343.9	HS	BENCH #2
1	25	DP	00	387.9	WL,AM	
1	27	SP	00	466.4	WL	
1	29	DP	01	576.4	HS	
1	31	SS	00	578.4	HS	BENCH #3
1	32	DP	01	648.9	WL	
1	33	BW	10	648.9	WL	
1	36	SP	01	693.4	/TJ	
1	37	CB	11	693.4		ACW=0.8M
1	39	LP	00	707.4	SS	
1	41	LP	00	713.9		
1	45	CR	01	769.4		

COMMENT SUMMARY

MONITORING AREA: 4-UMP SITE ID: 351 STREAM: PARADISE CREEK SITE 1

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	48	PD	02	803.9		ACW=2.8M
1	49	RP	00	833		RIP #2, BENCH #4
1	50	LP	00	875.7	HS,BV,DJ	HS-LOGS
1	52	LP	01	964.7		
1	54	RI	01	1030.5	WL	MUSSELL SHELL COLLECTED
1	56	LP	01	1079.5	HS	
1	57	PD	02	1079.5		.6M DEEP POOL; ACW=8.5
1	58	SC	00	1081		BENCH #5
1	63	LP	00	1114.9	HS	
1	65	LP	01	1172.7	HS, TJ	
1	67	RB	11	1172.7		T=14C, ACW=0.55M
1	68	BW	10	1172.7	DJ	

COMMENT SUMMARY

MONITORING AREA: 4-UMP SITE ID: 351 STREAM: PARADISE CREEK SITE 1

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	72	LP	00	1223	HS,DJ	
1	75	RI	01	1249.8	FC,RF	LIVESTOCK XING-ELECTRIC FENCE
1	76	LP	01	1284.9	HS	
1	78	LP	02	1284.9	HS	
1	81	RI	00	1299.5	AM	
1	82	LP	00	1326.6	HS	
1	83	RP	00	1341.2		BENCH #6
1	84	LP	01	1379.3	HS	
1	85	CR	11	1379.3		T=14C, ACW=0.75
2	86	SC	00	1383.8	HS	
2	88	RP	00	1419.8	AM	
2	91	LP	01	1467.8	WL	

COMMENT SUMMARY

MONITORING AREA: 4-UMP SITE ID: 351 STREAM: PARADISE CREEK SITE 1

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
2	94	LP	00	1521.9		
2	95	RR	01	1556.9	TJ/	
2	96	RR	11	1556.9	/CE	END SIGN, ACW=3.2M
2	97	RB	00	1600	HS	
2	98	SS	00	1602	HS,PA	BENCH #7, FLAG, EOS