

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

STREAM: BEAR CREEK
 GCG: 2-MC
 SITE ID: 427
 BASIN: SALMON
 TREATMENT DATE: 2010
 SURVEY DATE: 2/15/2011
 SURVEY CREW: Nick Chambers and Aaron McAlexander
 USGS MAPS: STOTT MOUNTAIN
 ECOREGION: Coastal Lowlands
 REPORT PREPARED BY: Matt Strickland / Charles Stein

REACH: 1 LOCATION: T07S-R10W-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): 2,540 : 11,105

Secondary channel length (meters) and area (m²) 323 : 902

VWI average: 4.8 VWI Range: 1.5 - 15 Average Gradient: 2.8%

Pieces LWD per 100m: 23.6 Wood Volume (m³) per 100m: 34.3

Percent pools: 21% Complex pools (LWD pieces \geq 3): 19 Pools \geq 1m deep:5

<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	2	17	51	24	2	4
Pool units	2	20	47	22	2	6
Fast water units	1	12	52	29	3	3

SURVEY COMMENTS:

This is a post treatment restoration survey. The crew noted large wood stream habitat structures throughout the survey. The crew also noted gravel retaining in areas within large wood placement. Juvenile coho salmon were observed.

Survey Date: 2/15/2011

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T07S-R10W-S10NE

REACH 1

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

Narrow Valley Floor		Broad Valley Floor	
Steep V-shape	0%	Constraining Terraces	100%
Moderate V-shape	0%	Multiple Terraces	0%
Open V-shape	0%	Wide Floodplain	0%
Valley Width Index	4.8	VWI Range:	1.5 - 15

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 (m ²)	Dry Units
Primary	2,540	11,105	0
Secondary	323	902	2

Channel Dimensions (m)

Wetted	Active	Floodprone <i>n</i> = 11	First Terrace <i>n</i> = 9
Width: 4.1	Width: 7.7	14.5 (5.9 - 36)	14.0 (8 - 21.8)
Depth: 0.43	Height: 0.6	1.2 (0.9 - 1.4)	1.6 (1 - 3.4)

W:D ratio: 13.0

Stream Flow Type: MF

Average Unit Gradient: 2.8%

Water temperature (°C): 9.0 - 9.0

Entrenchment (ACW:FPW ratio): 2.0

Habitat Units/100m (total channel length): 4.5

Habitat Units/100m (primary channel length): 5.1

Riparian, Bank, and Wood Summary

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

Bank Condition and Shade

Bank Status	Percent Reach Length	Shade (% of 180)
Actively Eroding:	4%	Reach avg: 87%
Undercut Banks:	6%	Range: 56 - 100

Large Wood Debris

	Total	Total / 100m primary channel
All pieces (>=3m x 0.15m):	599	23.6
Volume (m ³):	870	34.3
Key pieces (>=12m x 0.60m):	34	1.3

OREGON DEPT OF FISH AND WILDLIFE
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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	2	14	2.1	0.25	33	0	0	10	34	42	6	8
POOL-BACKWATER	6	29	3.2	0.54	102	0	17	40	32	7	1	3
POOL-ISOLATED	2	12	2.2	0.40	24	0	15	38	45	3	0	0
POOL-LATERAL SCOUR	40	503	4.1	0.75	2,130	0	1	18	48	24	1	7
POOL-PLUNGE	4	16	6.6	0.79	122	0	6	23	54	17	0	0
POOL-STRAIGHT SCOUR	5	60	4.3	0.72	273	28	5	32	36	17	5	6
PUDDLED UNIT	2	27	1.0	0.20	27	0	3	23	53	21	0	0
RAPID/BEDROCK	1	24	4.5	0.40	108	0	0	0	5	10	5	80
RAPID/BOULDERS	18	913	3.6	0.24	3,566	7	1	11	42	36	7	3
RIFFLE	38	1,232	4.2	0.20	5,462	1	1	13	59	25	1	1
STEP/COBBLE	4	27	4.7	0.20	132	0	0	11	51	32	3	3
STEP/LOG	8	6	5.0	0.13	29	0	0	10	73	16	0	0
Total:	130	2,863	4.1	0.43	12,007	36	Avg: 2	17	51	24	2	4

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	8	41	3.0	0.51	126	1.05%	0	0.0
Scour Pools	49	579	4.3	0.75	2,524	21.02%	28	1.1
Glides	0	0			0	0.00%	0	0.0
Riffles	38	1,232	4.2	0.20	5,462	45.49%	1	0.0
Rapids	19	937	3.6	0.25	3,674	30.60%	7	0.2
Cascades	2	14	2.1	0.25	33	0.28%	0	0.0
Step/Falls	12	34	4.9	0.15	160	1.34%	0	0.0
Dry	2	27	1.0	0.20	27	0.22%	0	0.0
Culverts	0	0			0	0.00%	0	0.0

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POOL SUMMARY

	<u>Total</u>	Total of all Channel Lengths <u># / Km</u>	Primary Channel Length <u># / Km</u>
All Pools:	57	19.9	22.4
Pools >=1m deep:	5	1.7	2.0
Complex pools (LWD pieces>=3):	19	6.6	7.5
Pool frequency (channel widths/pool):	6.5		
Residual pool depth (avg):	0.51		

Survey Date 2/14/2011

**RIPARIAN ZONE
VEGETATION SUMMARY**

Report Date: 9/14/2011

REACH 1

Summary of Riparian Zone (0-30m) 9 transects

Total hardwoods/1000	650
Total conifers/1000 ft	203
Total conifers >20" dbh/1000 f	14
Total conifers >35" dbh/1000 f	14

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	0.0	1.2	0.4	1.0	0.1	1.2	0.6	3.4
15-30cm	0.0	0.4	0.3	1.7	0.9	1.2	1.2	3.3
30-50cm	0.0	1.3	0.3	1.2	1.0	0.8	1.3	3.3
50-90cm	0.0	0.4	0.0	0.0	0.0	0.1	0.0	0.6
>90cm	0.1	0.0	0.0	0.0	0.1	0.0	0.2	0.0
Total/100m2	0.1	3.4	1.1	3.9	2.1	3.3	1.1	3.6

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	86		87		79	
Shrub cover	28		37		32	
Grass/forb cover	59		49		61	

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	50		72		89	
High terrace	39		22		11	
Low terrace	11		6		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 (%)	9		19		19	

Summary of Riparian Zone (0-30m) for all reaches

9 transects

Summary of riparian zone (0-100 feet) extrapolated to 1,000 feet along stream

Total hardwoods/1000	650
Total conifers/1000 ft	203
Total conifers >20" dbh/1000 f	14
Total conifers >35" dbh/1000 f	14

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	0.6	3.4
15-30cm	1.2	3.3
30-50cm	1.3	3.3
50-90cm	0.0	0.6
>90cm	0.2	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		
19	LT	1	LT	0	95	20	40								
19	LT	2	HT	0	100	40	20	Conifer	3						
								Hardwood							
19	LT	3	HS	35	90	20	40	Conifer		3	3				
								Hardwood	1		1	1			
19	RT	1	HS	47	90	30	20	Conifer							
								Hardwood	2						
19	RT	2	HS	47	100	70	10	Conifer							
								Hardwood	2						
19	RT	3	HS	47	40	80	10	Conifer							
								Hardwood			1				
32	LT	1	HS	10	90	20	70	Conifer							
								Hardwood							
32	LT	2	HS	17	95	40	50	Conifer							
								Hardwood	3						
32	LT	3	HS	17	95	20	80	Conifer		1	2				
								Hardwood	2		1				
32	RT	1	HS	10	90	15	80	Conifer							
								Hardwood				1			
32	RT	2	HS	40	100	5	70	Conifer							
								Hardwood		3					
32	RT	3	HS	5	95	25	50	Conifer							
								Hardwood	1	4					
62	LT	1	HT	0	95	40	60	Conifer							
								Hardwood			1	1			
62	LT	2	HS	37	100	60	30	Conifer							
								Hardwood							
62	LT	3	HS	3	100	0	100	Conifer	1	1	1				
								Hardwood	2		2				
62	RT	1	HT	10	100	10	90	Conifer							
								Hardwood		1	2				
62	RT	2	HS	24	95	10	70	Conifer							
								Hardwood	1	2					
62	RT	3	HS	55	100	10	70	Conifer							
								Hardwood		1	1				
75	LT	1	HS	12	100	10	70	Conifer							1
								Hardwood							
75	LT	2	HS	9	100	5	80	Conifer							
								Hardwood							

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		
75	LT	3	HS	9	50	10	90	Conifer		1	1				
								Hardwood		1					
75	RT	1	HT	0	90	5	90	Conifer							
								Hardwood							
75	RT	2	HT	0	90	5	90	Conifer							
								Hardwood	2						
75	RT	3	HT	0	95	5	90	Conifer			2	3			
								Hardwood							
85	LT	1	HT	0	40	5	90	Conifer							
								Hardwood							
85	LT	2	HT	0	20	80	20	Conifer							
								Hardwood							
85	LT	3	HT	0	30	90	10	Conifer							
								Hardwood		2					
85	RT	1	HT	0	90	10	90	Conifer							
								Hardwood				1			
85	RT	2	HS	10	95	20	40	Conifer							
								Hardwood				4			
85	RT	3	HS	10	100	30	40	Conifer							
								Hardwood	1		1				
92	LT	1	HS	0	60	70	30	Conifer							
								Hardwood	1	1					
92	LT	2	HS	0	70	80	10	Conifer							
								Hardwood		1					
92	LT	3	HS	0	0	80	20	Conifer							
								Hardwood							
92	RT	1	HT	0	50	80	20	Conifer							
								Hardwood				1			
92	RT	2	HS	50	40	60	40	Conifer	1						
								Hardwood	1						
92	RT	3	HS	50	70	40	60	Conifer							
								Hardwood	2						
110	LT	1	LT	0	100	10	70	Conifer							
								Hardwood	1			1			
110	LT	2	LT	0	100	20	30	Conifer							CROSSES POOL IN SS
								Hardwood			1				
110	LT	3	HS	2	80	20	80	Conifer			1				
								Hardwood							
110	RT	1	HT	0	80	20	40	Conifer							
								Hardwood	2		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		
110	RT	2	HT	0	100	20	80	Conifer		1					
								Hardwood		1					
110	RT	3	HS	0	100	10	80	Conifer			3				
								Hardwood	2						
113	LT	1	HS	5	100	30	70	Conifer							
								Hardwood		1	2				
113	LT	2	HS	0	95	5	85	Conifer			2	2			
								Hardwood		2	2				
113	LT	3	HS	5	100	10	90	Conifer							
								Hardwood							
113	RT	1	HS	40	90	70	30	Conifer							
								Hardwood							
113	RT	2	HS	40	90	60	40	Conifer							
								Hardwood							
113	RT	3	HS	40	80	80	20	Conifer							
								Hardwood							
126	LT	1	HS	5	90	30	30	Conifer							
								Hardwood	2	1	2				
126	LT	2	HS	14	80	60	40	Conifer							
								Hardwood			3				
126	LT	3	HS	14	90	20	80	Conifer							
								Hardwood			3				
126	RT	1	HS	30	90	20	80	Conifer							
								Hardwood				3			
126	RT	2	HS	60	100	20	80	Conifer	3			1			
								Hardwood				1			
126	RT	3	HS	50	100	20	80	Conifer				1		1	
								Hardwood							

OREGON DEPT OF FISH AND WILDLIFE
HABITAT INVENTORY

OREGON PLAN MONITORING SITE
SURVEY DATE: 2/14/2011

COMMENT SUMMARY

MONITORING AREA: 2-MC SITE ID: 427 STREAM: BEAR CREEK

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	1	RI	00	20	/LA	START SIGN ALDER LEFT BANK
1	2	LP	00	37	/SS	
1	3	RI	01	87	HS	HS IS WOOD HS IS CREATING DEEP POCKETS WITHIN RIFFLE
1	5	LP	01	109		BEDROCK IS HARDPAN
1	6	RI	01	117		BEDROCK IS HARDPAN
1	8	LP	01	134	HS	HS IS WOOD
1	12	SC	00	165.2		H=.20
1	13	SP	00	180.2	HS	HS IS WOOD
1	17	RI	00	247.2	BV	
1	20	LP	00	315.2	HS	HS IS WOOD
1	21	RI	00	349.2		SPLIT CHANNEL AROUND GRAVEL BAR
1	22	PP	00	355.2	HS	HS IS WOOD

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MONITORING AREA: 2-MC SITE ID: 427 STREAM: BEAR CREEK

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	23	SL	00	355.8		H=.60
1	24	RI	00	374.8	/SS,WL	WL IS MOUSE OR VOLE ON LOG JAM SPAWNING SURVEY SEG2 END SIGN ON RB SPRUCE
1	25	SP	00	386.8	CS,BC	CS IS RIP RAP AT BRIDGE CROSSING
1	26	RI	01	407.8	/TJ	BEAR CREEK #3794 START SURVEY SIGN LB ALDER
1	32	RI	01	513.8	HS	HS IS WOOD AND IS HELD TOGETHER WITH ROPE
1	33	BW	10	513.8	DJ	
1	37	SL	00	551.8		H=.30
1	41	LP	01	600.6	TJ/	UNREADABLE YELLOW SURVEY SIGN AT MOUTH OF TRII
1	42	CB	11	600.6		ACW-1.2 ACH-.25 TEMP-10
1	50	LP	00	726.6		1M UNDERCUT
1	54	RB	01	787.1	HS	THERE ARE MANY BRAIDS BELOW ACH
1	57	SL	02	787.1		H=.80

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REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	58	RI	02	787.1		MANY BRAIDS IN CHANNEL
1	61	SL	03	787.1		H=.30
1	62	LP	00	824.1		METRIC DONE AT TOP OF UNIT
1	63	RI	01	851.6	TJ/	
1	64	SP	11	851.6		ACH .3 ACW-3
1	65	LP	01	861.6	HS	HS IS WOOD
1	66	SL	01	863.6		H=.35
1	68	SC	01	879.6		H=.80
1	71	RI	00	984.6		STREAM ROSE SEVERAL INCHES OVERNIGHT AND VISIB IS ONLY 1 FOOT
1	72	LP	00	995.6	HS	HS IS WOOD
1	75	RB	00	1076.6	SS/	
1	77	RI	00	1122.4	SS/	

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REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	79	RB	00	1201.9	/SS	
1	86	RI	02	1358.4	BV	02 BEGINS AT OLD BEAVER DAM
1	92	RB	00	1526.9	SS/	
1	95	SC	01	1566.9		H=.50
1	96	LP	01	1578.9	HS	HS IS WOOD
1	97	PD	02	1578.9	SS/	1+ COHO IN DEEP POCKET STILL CONNECTED TO MAINS
1	98	RI	01	1631.9	HS	HS IS WOOD
1	99	LP	01	1645.9	HS	BEDROCK IS HARDPAN HS IS WOOD
1	100	RI	01	1755.9	HS	HS IS WOOD
1	103	RI	02	1755.9	SS/	
1	105	SL	02	1755.9		H=.30
1	109	SC	00	1763.9		H=.60

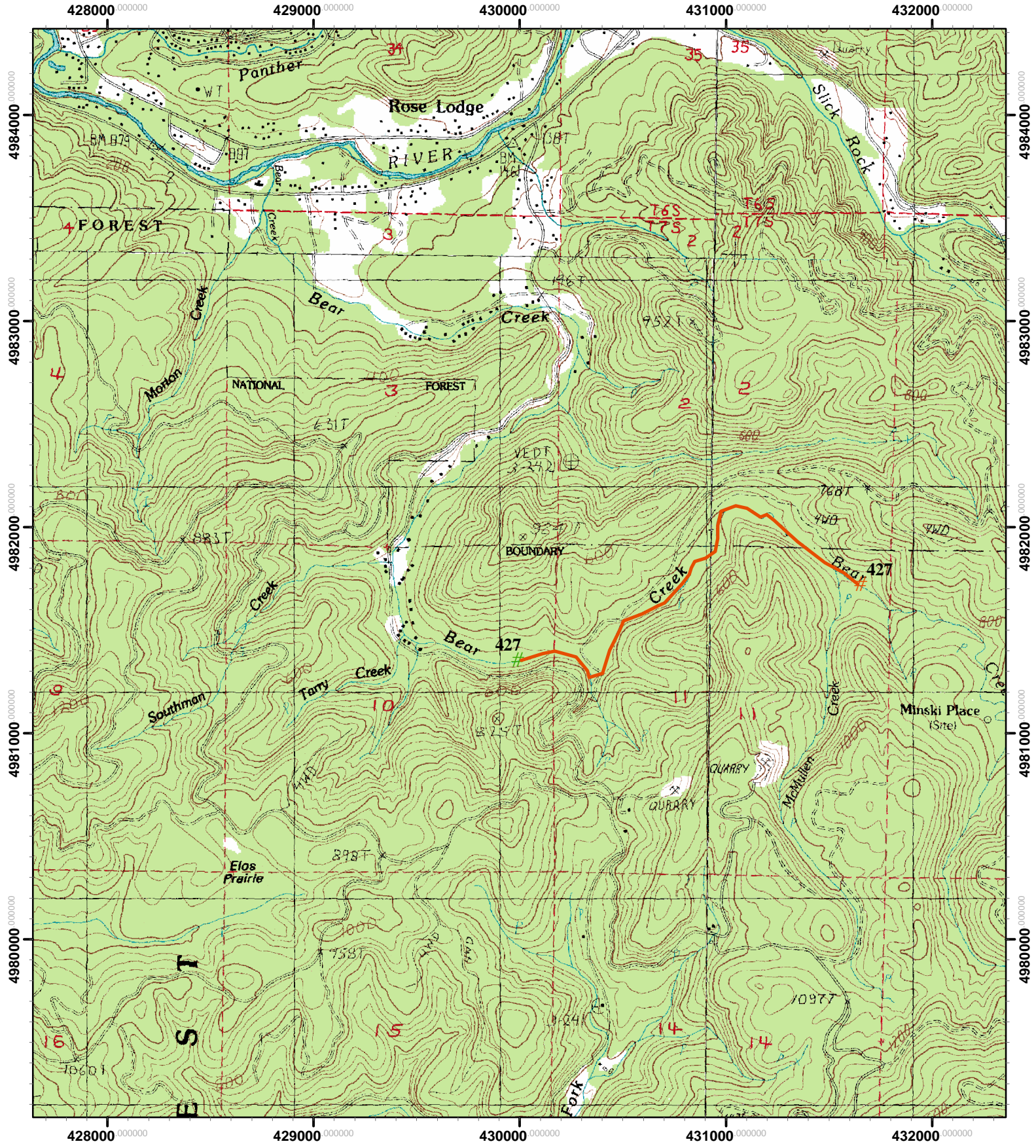
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REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	110	RI	00	1803.9	HS	HS IS WOOD AND IS CREATING DEEP POCKETS IN RIFFL
1	111	SL	00	1804.5		H=.80
1	112	RI	00	1962.5	HS,BV	HS IS WOOD AN O2 CHANNEL IS BEGINNING TO FORM BUT IS STILL DISCONNECTED FROM THE MAINSTEM AT THE UPPER E IS FED BY SEVERAL SS AND HAS MANY RSN BV IS CUT DOWN TREES
1	113	RB	01	2028.5	HS,DJ	HS IS WOOD DJ IS SEPARATE FROM HS
1	116	RI	00	2046.5	SS/	
1	118	RB	00	2101.5	/LA	
1	119	SP	00	2113.5	HS	HS IS WOOD
1	122	RB	01	2233.5	HS,SS/	HS IS WOOD
1	123	BW	10	2233.5	/LA	
1	124	LP	01	2247.5	HS	HS IS WOOD
1	126	RB	01	2337.5	/TJ	POTENTIAL REACH BREAK AT TJ END SPAWNING SURVEY SIGN
1	127	SL	00	2338	HS	H=.70 HS IS WOOD AN HAS BACKED UP 2+FEET OF GRA



Restoration Site ID:427
 Stream: Bear Creek
 T07S - R10W - S10
 USGS Map: Stott Mountain

- # Approximate Start Point
- # Approximate End Point
- Approximate Location of Each Survey

