

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

STREAM: WOLFE CREEK
 GCG: 1-NC
 SITE ID: 367
 BASIN: NESTUCCA
 TREATMENT DATE: 2007
 SURVEY DATE: 7/1/2008
 SURVEY CREW: Gwyn Woolley-Scott / Linda Campbell
 USGS MAPS: BEAVER
 ECOREGION: Volcanics
 REPORT PREPARED BY: Matt Strickland / Sharon Tippery / Charles Stein

SURVEY DESCRIPTION:

Channel morphology: Constrained by high terraces

Dominant landuse(s): Large timber (30-50 cm dbh)

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

Primary channel length (meters) and area (m²): 3,206 : 11,497

Secondary channel length (meters) and area (m²) 160 : 303

VWI average: 10.5 VWI Range: 2 - 20 Average Gradient: 1.8%

Pieces LWD per 100m: 15.0 Wood Volume (m³) per 100m: 22.1

Percent pools: 23% Complex pools (LWD pieces>=3): 20 Pools >=1m deep: 1

Percent substrate (avg):	<u>Silt / organics</u>	<u>Sand</u>	<u>Gravel</u>	<u>Cobble</u>	<u>Boulder</u>	<u>Bedrock</u>
All units	7	18	33	36	3	4
Pool units	14	24	29	28	1	4
Fast water units	2	13	36	41	4	4

COMMENTS:

This is a post-treatment, restoration survey. The crew noted habitat structures throughout the surveyed length consisting primarily of placed logs. They also noted observing juvenile salmonids throughout the survey. The crew noted the first portion of the survey flows through agricultural fields and a rural residential area.

**OREGON DEPARTMENT OF FISH AND WILDLIFE
HABITAT INVENTORY**

**WOLFE CREEK
GCG: 1-NC SITE ID: 367**

Survey Date: 7/1/2008

Report Date: 12/29/2008

T03S-R09W-S289N

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	10.5	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	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	3,206	11,497	0
Secondary	160	303	0

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u> n = 14	<u>First Terrace</u> n = 13
Width: 3.5	Width: 6.2	7.7 (4.2 - 12.5)	10.3 (4.7 - 15)
Depth: 0.27	Height: 0.5	0.9 (0.6 - 1.2)	2.1 (0.9 - 6)

W:D ratio: 14.1

Stream Flow Type: LF

Average Unit Gradient: 1.8%

Water temperature (°C): -

Entrenchment (ACW:FPW ratio): 1.3

Habitat Units/100m (total channel length): 4.8

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

Riparian, Bank, and Wood Summary

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

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding:	2%	Reach avg: 81%
Undercut Banks:	2%	Range: 31 - 100

Large Wood Debris

	<u>Total</u>	<u>Total / 100m primary channel</u>
All pieces (>=3m x 0.15m):	482	15.0
Volume (m ³):	709	22.1
Key pieces (>=12m x 0.60m):	21	0.7

OREGON DEPARTMENT 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	3	24	1.9	0.07	48	0	10	6	32	24	6	22
POOL-BACKWATER	2	7	2.0	0.40	15	0	44	31	15	10	0	0
POOL-LATERAL SCOUR	51	548	3.8	0.52	2,081	19	15	25	29	28	1	2
POOL-PLUNGE	3	22	4.8	0.57	107	0	20	36	25	12	2	6
POOL-STRAIGHT SCOUR	10	115	4.2	0.40	490	7	6	18	30	34	3	9
RAPID/BEDROCK	3	62	3.3	0.13	221	10	0	9	17	18	14	41
RAPID/BOULDERS	16	427	3.1	0.12	1,431	31	1	16	33	43	6	1
RIFFLE	57	2,086	3.3	0.11	7,129	61	2	13	38	43	3	2
STEP/BEDROCK	1	3	4.0	0.05	10	2	0	5	5	0	5	86
STEP/COBBLE	12	69	3.7	0.07	258	0	0	10	38	48	1	1
STEP/LOG	4	3	3.7	0.04	9	0	1	16	49	34	0	0
Total:	162	3,366	3.5	0.27	11,800	130	Avg: 7	18	33	36	3	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	2	7	2.0	0.40	15	0.13%	0	0.0
Scour Pools	64	685	3.9	0.51	2,678	22.69%	26	1.0
Glides	0	0			0	0.00%	0	0.0
Riffles	57	2,086	3.3	0.11	7,129	60.42%	61	0.9
Rapids	19	489	3.1	0.12	1,652	14.00%	41	2.5
Cascades	3	24	1.9	0.07	48	0.40%	0	0.0
Step/Falls	17	74	3.7	0.06	277	2.35%	2	0.7
Dry	0	0			0	0.00%	0	0.0
Culverts	0	0			0	0.00%	0	0.0

POOL SUMMARY

	Total of all Channel Lengths		Primary Channel Length
	<u>Total</u>	<u># / Km</u>	<u># / Km</u>
All Pools:	66	19.6	20.6
Pools >=1m deep:	1	0.3	0.3
Complex pools (LWD pieces>=3):	20	5.9	6.2
Pool frequency (channel widths/pool):	8.2		
Residual pool depth (avg):	0.42		

OREGON DEPARTMENT OF FISH AND WILDLIFE
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RIPARIAN ZONE
VEGETATION SUMMARY

REACH 1

Summary of Riparian Zone (0-30m) 10 transects

Total hardwoods/1000	238
Total conifers/1000 ft	73
Total conifers >20" dbh/1000 ft	0
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	0.2	0.9	0.2	1.1	0.7	0.4	1.1	2.4
15-30cm	0.0	0.4	0.0	0.4	0.1	0.6	0.1	1.4
30-50cm	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
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	0.2	1.4	0.2	1.5	0.8	1.0	0.4	1.3

Canopy closure and ground cover

	Zone 1 0-10 meters (%)	Zone 2 10 - 20 meters (%)	Zone 3 20 - 30 meters (%)
Canopy closure	57	56	57
Shrub cover	56	62	54
Grass/forb cover	44	38	41

Predominant landform in each zone

	Zone 1 0-10 meters (%)	Zone 2 10 - 20 meters (%)	Zone 3 20 - 30 meters (%)
Hillslope	30	45	55
High terrace	60	55	45
Low terrace	0	0	0
Floodplain	10	0	0
Wetland/meadow	0	0	0
Stream channel	0	0	0
Roadbed/Railroad	0	0	0
Riprap	0	0	0
Surface slope (%)	27	23	24

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

10 transects

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

Total hardwoods/1000	238
Total conifers/1000 ft	73
Total conifers >20" dbh/1000 ft	0
Total conifers >35" dbh/1000 ft	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	1.1	2.4
15-30cm	0.1	1.4
30-50cm	0.0	0.1
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		
14	LT	1	FP	10	10	5	95	Conifer							
								Hardwood							
14	LT	2	HT	3	10	0	100	Conifer							
								Hardwood							
14	LT	3	HT	0	0	0	100	Conifer							
								Hardwood							
14	RT	1	FP	5	20	5	95	Conifer							
								Hardwood							
14	RT	2	HT	20	80	60	40	Conifer							
								Hardwood	3						
14	RT	3	HT	5	60	10	90	Conifer							
								Hardwood	1						
37	LT	1	HT	18	15	20	80	Conifer							
								Hardwood							
37	LT	2	HT	3	15	40	60	Conifer							
								Hardwood							
37	LT	3	HT	3	15	0	100	Conifer							
								Hardwood							
37	RT	1	HT	16	20	5	95	Conifer							
								Hardwood							
37	RT	2	HT	3	85	80	20	Conifer							
								Hardwood	3						
37	RT	3	HT	3	55	5	95	Conifer							
								Hardwood	1						
53	LT	1	HT	15	55	0	100	Conifer							
								Hardwood							
53	LT	2	HT	0	0	0	100	Conifer							
								Hardwood							
53	LT	3	HT	0	0	0	100	Conifer							
								Hardwood							
53	RT	1	HT	50	40	10	90	Conifer							
								Hardwood	1						
53	RT	2	HT	3	10	0	100	Conifer							
								Hardwood							
53	RT	3	HT	3	10	0	100	Conifer							
								Hardwood	1						

75	LT	1	HT	9	85	50	50	Conifer		
								Hardwood	3	
75	LT	2	HT	1	0	0	100	Conifer		
								Hardwood		
75	LT	3	HT	0	0	0	0	Conifer		
								Hardwood		
75	RT	1	HS	55	95	90	10	Conifer		
								Hardwood	1	
75	RT	2	HS	30	90	90	10	Conifer	2	
								Hardwood		
75	RT	3	HS	20	90	90	10	Conifer	3	
								Hardwood		
90	LT	1	HS	87	80	90	10	Conifer		
								Hardwood		
90	LT	2	HS	50	80	90	10	Conifer		
								Hardwood	1	
90	LT	3	HS	50	80	90	10	Conifer		
								Hardwood		
90	RT	1	HT	6	95	10	90	Conifer	1	
								Hardwood	1	
90	RT	2	HT	-2	75	5	90	Conifer		
								Hardwood		
90	RT	3	HT	1	90	5	95	Conifer	3	1
								Hardwood		
93	LT	1	HT	8	70	90	10	Conifer		
								Hardwood	1	1
93	LT	2	HT	2	80	90	10	Conifer		
								Hardwood	1	
93	LT	3	HT	5	60	90	10	Conifer	1	
								Hardwood		1
93	RT	1	HS	30	70	90	10	Conifer		
								Hardwood	1	
93	RT	2	HS	30	75	90	10	Conifer		
								Hardwood	1	
93	RT	3	HS	30	90	90	10	Conifer		
								Hardwood	1	
118	LT	1	HT	4	20	10	90	Conifer		
								Hardwood	3	
118	LT	2	HT	1	80	90	10	Conifer		
								Hardwood		
118	LT	3	HS	20	90	90	10	Conifer		
								Hardwood		1
118	RT	1	HS	60	80	90	10	Conifer		
								Hardwood		1
118	RT	2	HS	50	80	90	10	Conifer		
								Hardwood	1	

118	RT	3	HS	50	70	90	10	Conifer		
								Hardwood		
136	LT	1	HT	4	90	90	10	Conifer	1	
								Hardwood		1
136	LT	2	HS	50	85	90	10	Conifer		
								Hardwood	2	
136	LT	3	HS	50	80	90	10	Conifer		
								Hardwood	2	
136	RT	1	HT	15	60	90	10	Conifer		
								Hardwood		
136	RT	2	HS	50	55	90	10	Conifer		
								Hardwood	1	
136	RT	3	HS	50	80	90	10	Conifer		
								Hardwood		
145	LT	1	HS	56	35	95	5	Conifer		
								Hardwood		
145	LT	2	HS	50	35	95	5	Conifer		
								Hardwood		
145	LT	3	HS	50	30	95	5	Conifer		
								Hardwood		
145	RT	1	HT	4	55	95	5	Conifer		
								Hardwood		
145	RT	2	HS	40	70	95	5	Conifer		
								Hardwood	1	
145	RT	3	HS	50	90	95	5	Conifer		
								Hardwood	2	
162	LT	1	HT	14	95	90	10	Conifer		
								Hardwood		
162	LT	2	HT	2	75	50	50	Conifer		
								Hardwood		
162	LT	3	HS	10	85	60	40	Conifer		
								Hardwood		
162	RT	1	HS	67	55	90	10	Conifer		
								Hardwood		
162	RT	2	HS	75	35	95	5	Conifer		
								Hardwood	1	
162	RT	3	HS	70	60	95	5	Conifer		
								Hardwood		

COMMENT SUMMARY

MONITORING AREA: 1-NC SITE ID: 367 STREAM: WOLFE CREEK

UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
4	RB	00	33.6	CC	STREAM PASSES THROUGH LARGE FISH PASSABLE CULVERT
16	RB	00	286.9	HS	INTERLOCKING LOG
17	LP	00	302.9	HS	INTERLOCKING JOG JAM, (1) 6CM FISH
19	LP	00	311.7		(1) 5CM FISH
20	SL	00	312.2		H=0.20M
22	RB	01	333.7	HS	INTERLOCKING LOG JAM
24	SL	00	334.2		H=0.35M
25	LP	00	348.7	HS	INTERLOCKING LOG JAM, LOG CREATES UNDERCUT
28	SC	00	377.9	HS	INTERLOCKING LOG JAM
32	RB	00	450	HS	INTERLOCKING LOG JAM
33	SL	00	450.5		H=0.20M
35	SC	00	465.6	DJ	STREAM FLOWS AROUND JAM OF SMALL WOOD CREATING LP BELOW
36	SP	00	480		(3) 3-6CM FISH
37	RI	00	522.1	HS	INTERLOCKING LOG JAM
40	LP	00	552.7		WATER PUMP IN STREAM HERE
44	LP	00	600.3	HS	BEDROCK IS HARD PAN. INTERLOCKING DJ EXTENDS INTO NEXT TWO UNITS
48	LP	00	638.9	HS	LARGE INTERLOCKING LOG JAM EXTENDS INTO NEXT LOG JAM
50	LP	00	691.8		(1) 20CM TROUT
52	LP	00	736.9	BC	PRIVATE DRIVE, BOULDERS FOR STREAM STABILIZATION
53	RB	00	786.9	SS/	ONE TERRACE FAR HIGHER THAN OTHER (4M)
54	RB	00	806.3		WATER PUMP IN STREAM FOR WATERING COWS, PHOTO
58	RB	00	909.7	HS	INTERLOCKING LOG JAM

COMMENT SUMMARY

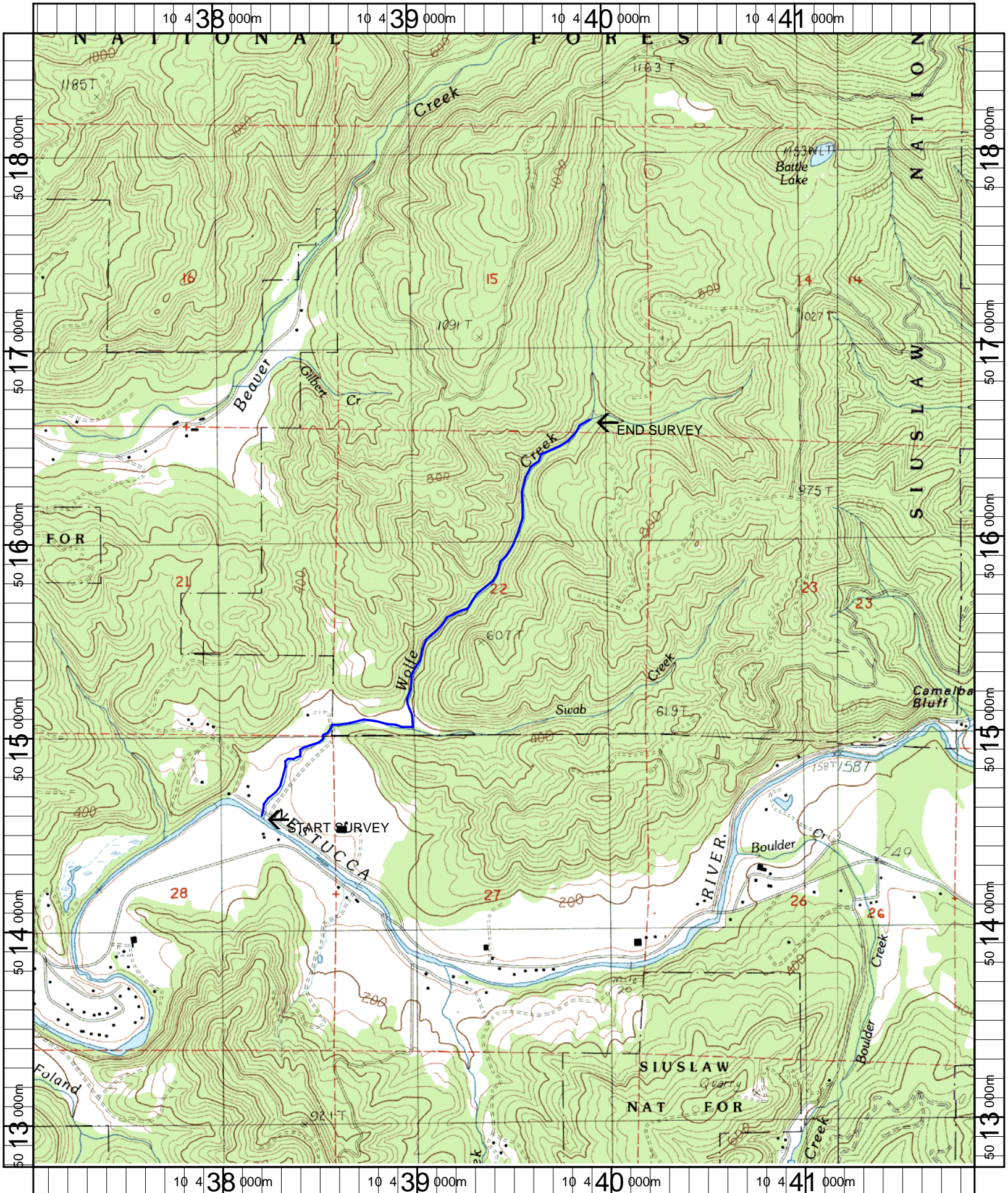
MONITORING AREA: 1-NC SITE ID: 367 STREAM: WOLFE CREEK

UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
59	RI	00	934.7	BC	UNKNOWN PRIVATE ROAD CROSSES HERE
60	LP	00	940.5		(1) 15CM FISH
66	RI	01	1179.1	/TJ	
68	RI	01	1207.1	HS	INTERLOCKING LOG JAM
69	BW	10	1207.1		BW CREATED BY LOG
78	LP	00	1347.6	HS	UNDERCUT CREATED BY LOG, INTERLOCKING LOG JAM EXTENDS INTO U79
79	RI	00	1397.6	BC	UNKNOWN PRIVATE ROAD
80	RI	00	1447.6	HS	INTERLOCKING LOG JAM
81	RI	01	1484.5	HS	INTERLOCKING LOG JAM
98	RI	00	1892.2	HS	INTERLOCKING LOG JAM
104	LP	00	2002.7		(1) 3CM FISH
109	RI	00	2096.7		BLOW DOWN AREA
110	LP	00	2104.8		(3) 5CM FISH
112	LP	00	2117.8		BLOW DOWN AREA
113	RI	00	2167.8	HS	INTERLOCKING LOG JAM
115	PP	00	2179.8		PP CREATED STEP OVER LOG THAT COVERS 30% OF CHANNEL ABOVE.
116	RI	00	2204	HS	INTERLOCKING LOG JAM
118	RI	00	2263.7	HS	BEDROCK IS HARDPAN, INTERLOCKING LOG JAM
122	LP	00	2309.9		(2) 5CM FISH
126	RI	00	2420.1	HS	INTERLOCKING LOG JAM
127	PP	00	2431.1		(6) 3CM FISH
130	RB	00	2486.1		BLOW DOWN AREA

COMMENT SUMMARY

MONITORING AREA: 1-NC SITE ID: 367 STREAM: WOLFE CREEK

UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
131	LP	00	2494.1		(3) 4CM FISH
133	SL	00	2499.1		H=0.30M
135	LP	00	2535.1		UNDERCUT CREATED BY LOG, (1) 10CM FISH, (3) 3CM FISH
137	RB	00	2617.1	HS	INTERLOCKING LOG JAM
141	RI	00	2687.4	HS	INTERLOCKING LOG JAM
143	RI	00	2728.9	/SS	
144	LP	00	2732.9	HS	INTERLOCKING LOG JAM, UNDERCUT CREATED BY LOG
145	RI	01	2782.9	TJ/	INTERLOCKING LOG JAM EXTENDS INTO THIS UNIT FROM BELOW
147	RI	01	2832.9	HS	INTERLOCKING LOG JAM
149	LP	01	2850.9	/TJ	
156	LP	00	3027.4		BEDROCK IS HARDPAN
157	RI	00	3077.4		(3) 5CM FISH
160	LP	00	3144.3		(2) 5CM FISH
162	RI	00	3206.3		PHOTO DOWNSTREAM & UPSTREAM



Name: BEAVER
 Date: 1/9/2007
 Scale: 1 inch equals 2000 feet

Location: 10 439474 E 5015692 N
 Caption: WOLFE CREEK RESTORATION SITE - NESTUCCA BASIN

NC-367 Wolfe Creek (Post-Treatment) 2008 Summer Habitat Survey Photographs



Start of survey



Lower reach: step over log



Cattle at water pump



Large wood habitat structure



Upper reach photo