

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

STREAM: ELK CREEK PHASE 3
 GCG: 3-MS
 SITE ID: 402
 BASIN: MILLACOMA
 TREATMENT DATE: 2008
 SURVEY DATE: 6/25/2008
 SURVEY CREW: Peter Cole / Lisa Biggs
 USGS MAPS: ELK PEAK
 ECOREGION: ??
 REPORT PREPARED BY: Matt Strickland / Sharon Tippery / Charles Stein

SURVEY DESCRIPTION:

Channel morphology: Constrained alternately by high terraces and hillslopes

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

Dominant riparian vegetation: Conifers: size class 50-90cm dbh

Primary channel length (meters) and area (m²): 3,173 : 24,835

Secondary channel length (meters) and area (m²) 214 : 630

VWI average: 3.9 VWI Range: 1 - 15 Average Gradient: 1.8%

Pieces LWD per 100m: 10.1 Wood Volume (m³) per 100m: 11.5

Percent pools: 48% Complex pools (LWD pieces>=3): 24 Pools >=1m deep: 15

Percent substrate (avg):	<u>Silt / organics</u>	<u>Sand</u>	<u>Gravel</u>	<u>Cobble</u>	<u>Boulder</u>	<u>Bedrock</u>
All units	4	8	16	10	9	53
Pool units	6	10	16	10	10	48
Fast water units	1	6	16	11	10	56

COMMENTS:

This is a pre-treatment, restoration survey. The crew noted habitat near the beginning of the survey consisting primarily of boulders. They also noted a fish ladder within the surveyed stream approximately 2625 meters from the start. The crew noted observing various fish species including juvenile coho, steelhead, and resident cutthroat and dace. They also noted observing residual lamprey and steelhead redds. Evidence of wildlife included crayfish, a woodrat, and various animal tracks. Evidence of amphibians included rough-skinned newts, dunn's salamanders, and tadpoles.

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

**ELK CREEK PHASE 3
GCG: 3-MS SITE ID: 402**

Survey Date: 6/25/2008

Report Date: 12/29/2008

T23S-R10W-S07NW

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	3.9	VWI Range:	1 - 15

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	3,173	24,835	0
Secondary	214	630	2

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u> n = 14	<u>First Terrace</u> n = 9
Width: 7.3	Width: 13.3	18.1 (14.3 - 24.3)	18.8 (15.9 - 22.2)
Depth: 0.40	Height: 0.7	1.3 (1.2 - 1.4)	1.6 (1.35 - 2.5)

W:D ratio: 19.9

Stream Flow Type: LF

Average Unit Gradient: 1.8%

Water temperature (°C): 13.0 - 13.0

Entrenchment (ACW:FPW ratio): 1.4

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	ST
Riparian Vegetation:	C50	S

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding:	0%	Reach avg: 86%
Undercut Banks:	12%	Range: 42 - 100

Large Wood Debris

	<u>Total</u>	<u>Total / 100m primary channel</u>
All pieces (>=3m x 0.15m):	319	10.1
Volume (m ³):	365	11.5
Key pieces (>=12m x 0.60m):	16	0.5

OREGON DEPT OF FISH AND WILDLIFE

ELK CREEK PHASE 3

HABITAT INVENTORY

GCG: 3-MS SITE ID: 402

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T23S-R10W-S07NW

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	16	342	7.6	0.24	2,810	200	1	5	7	4	6	78
CASCADE/BOULDERS	3	86	4.5	0.16	451	240	1	6	42	18	20	12
DRY CHANNEL	2	21	1.7	0.00	35	0	5	16	46	22	3	8
POOL-BACKWATER	12	117	3.8	0.40	468	52	16	17	22	8	6	31
POOL-DAMMED	1	50	10.0	0.80	501	30	6	11	11	11	17	44
POOL-ISOLATED	3	13	1.7	0.20	22	4	18	36	33	11	0	2
POOL-LATERAL SCOUR	47	1,287	8.1	0.81	10,548	603	5	10	16	11	10	49
POOL-PLUNGE	6	90	12.4	1.08	1,094	73	7	10	22	7	14	40
RAPID/BEDROCK	13	310	7.0	0.14	2,158	135	1	4	7	6	5	76
RAPID/BOULDERS	9	239	7.5	0.16	1,870	406	1	7	20	29	25	18
RIFFLE	10	426	6.5	0.18	2,734	192	1	9	35	9	8	37
RIFFLE W/ POCKETS	8	286	6.1	0.24	1,758	218	0	8	12	10	9	62
STEP/BEDROCK	23	91	8.2	0.06	758	35	0	0	1	2	2	95
STEP/BOULDERS	4	17	9.0	0.18	168	101	0	5	25	38	30	3
STEP/COBBLE	3	13	5.8	0.09	89	51	0	8	53	27	12	0
STEP/STRUCTURE	1	1	1.1	0.10	1	0	0	0	0	0	0	100
Total:	161	3,387	7.3	0.40	25,466	2,340	Avg: 4	8	16	10	9	53

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	16	180	3.8	0.39	992	3.89%	86	8.7
Scour Pools	53	1,376	8.6	0.84	11,642	45.72%	676	5.8
Glides	0	0			0	0.00%	0	0.0
Riffles	18	711	6.3	0.21	4,492	17.64%	410	9.1
Rapids	22	549	7.2	0.15	4,029	15.82%	541	13.4
Cascades	19	428	7.1	0.23	3,261	12.80%	440	13.5
Step/Falls	31	122	7.9	0.08	1,015	3.99%	187	18.4
Dry	2	21	1.7	0.00	35	0.14%	0	0.0
Culverts	0	0			0	0.00%	0	0.0

OREGON DEPT OF FISH AND WILDLIFE
HABITAT INVENTORY

ELK CREEK PHASE 3
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T23S-R10W-S07NW

REACH 1

POOL SUMMARY

	<u>Total</u>	Total of all Channel Lengths <u># / Km</u>	Primary Channel Length <u># / Km</u>
All Pools:	69	20.4	21.7
Pools >=1m deep:	15	4.4	4.7
Complex pools (LWD pieces>=3):	24	7.1	7.6
Pool frequency (channel widths/pool):	3.7		
Residual pool depth (avg):	0.73		

OREGON DEPARTMENT OF FISH AND WILDLIFE
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ELK CREEK PHASE 3
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RIPARIAN ZONE
VEGETATION SUMMARY

REACH 1

Summary of Riparian Zone (0-30m) 12 transects

Total hardwoods/1000	1153
Total conifers/1000 ft	188
Total conifers >20" dbh/1000 ft	61
Total conifers >35" dbh/1000 ft	25

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	3.3	0.0	5.1	0.6	3.2	0.6	11.6
15-30cm	0.0	1.8	0.3	1.2	0.4	0.7	0.8	3.7
30-50cm	0.0	1.3	0.4	1.1	0.3	0.9	0.8	3.3
50-90cm	0.0	0.1	0.3	0.2	0.3	0.1	0.6	0.3
>90cm	0.2	0.0	0.1	0.0	0.2	0.0	0.4	0.0
Total/100m2	0.2	6.6	1.2	7.5	1.8	4.8	1.0	6.3

Canopy closure and ground cover

	Zone 1 0-10 meters (%)	Zone 2 10 - 20 meters (%)	Zone 3 20 - 30 meters (%)
Canopy closure	76	80	80
Shrub cover	56	49	28
Grass/forb cover	42	50	61

Predominant landform in each zone

	Zone 1 0-10 meters (%)	Zone 2 10 - 20 meters (%)	Zone 3 20 - 30 meters (%)
Hillslope	58	75	67
High terrace	38	25	17
Low terrace	4	0	0
Floodplain	0	0	0
Wetland/meadow	0	0	0
Stream channel	0	0	0
Roadbed/Railroad	0	0	17
Riprap	0	0	0
Surface slope (%)	49	42	22

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

12 transects

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

Total hardwoods/1000	1153
Total conifers/1000 ft	188
Total conifers >20" dbh/1000 ft	61
Total conifers >35" dbh/1000 ft	25

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	11.6
15-30cm	0.8	3.7
30-50cm	0.8	3.3
50-90cm	0.6	0.3
>90cm	0.4	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		
12	LT	1	HS	100	95	30	60	Conifer							VINEMAPLE
								Hardwood	14	1					
12	LT	2	HS	30	90	40	60	Conifer							
								Hardwood	3	1					
12	LT	3	HS	15	90	25	75	Conifer							
								Hardwood		2					
12	RT	1	LT	5	95	35	65	Conifer							2M OF HS
								Hardwood	3						
12	RT	2	HS	20	80	5	90	Conifer						1	
								Hardwood	1			1			
12	RT	3	HS	25	95	5	80	Conifer						2	
								Hardwood	1						
20	LT	1	HT	5	55	50	50	Conifer							
								Hardwood							
20	LT	2	HS	10	70	70	30	Conifer							
								Hardwood			1				
20	LT	3	HS	20	90	10	90	Conifer	1			1			
								Hardwood							
20	RT	1	HS	120	90	55	45	Conifer							
								Hardwood	3						
20	RT	2	HS	100	70	30	70	Conifer				1			VINEMAPLE
								Hardwood	7						
20	RT	3	HS	90	70	20	75	Conifer							VINEMAPLE
								Hardwood	11						
32	LT	1	HS	140	95	30	45	Conifer							
								Hardwood	4		1				
32	LT	2	HS	120	95	15	70	Conifer			1	2			VINEMAPLE
								Hardwood	12						
32	LT	3	HS	10	95	0	80	Conifer			3				ZONE 3 IS RIDGE TOP W/ REVERSE
								Hardwood							
32	RT	1	HT	10	70	70	30	Conifer							
								Hardwood		3	3				
32	RT	2	HT	5	85	25	75	Conifer			1				
								Hardwood							
32	RT	3	HT	0	80	60	40	Conifer			1				
								Hardwood		1	4				

82	RT	3	HT	10	90	30	70	Conifer			1	2M OF HS
								Hardwood	1			
97	LT	1	HS	55	45	55	45	Conifer				
								Hardwood				
97	LT	2	HS	30	30	70	30	Conifer				
								Hardwood		1		
97	LT	3	HS	10	20	80	20	Conifer				
								Hardwood				
97	RT	1	HT	10	60	20	80	Conifer				
								Hardwood	2			
97	RT	2	HT	5	95	20	80	Conifer				
								Hardwood	5	3		
97	RT	3	HT	10	90	40	60	Conifer			1	
								Hardwood	10	1		
114	LT	1	HS	15	50	70	30	Conifer				
								Hardwood		1		
114	LT	2	HS	10	5	100	0	Conifer				
								Hardwood				
114	LT	3	HS	20	95	20	80	Conifer		1	1	
								Hardwood	2			
114	RT	1	HT	5	95	75	20	Conifer				2M OF TRIB CHANNEL
								Hardwood	3	1	1	
114	RT	2	HT	5	95	90	10	Conifer				
								Hardwood				
114	RT	3	RB	0	85	20	40	Conifer				4M OF HT
								Hardwood				
125	LT	1	HS	90	50	80	20	Conifer				
								Hardwood				
125	LT	2	HS	120	70	80	20	Conifer			1	
								Hardwood	7			
125	LT	3	HS	60	80	60	40	Conifer	6		1	
								Hardwood				
125	RT	1	HS	60	95	40	60	Conifer				2
								Hardwood	4			
125	RT	2	HS	80	80	40	60	Conifer				
								Hardwood		1		
125	RT	3	RB	0	20	15	35	Conifer				
								Hardwood	1			
141	LT	1	HS	120	60	85	15	Conifer				
								Hardwood				
141	LT	2	HS	80	70	60	40	Conifer				
								Hardwood	2	1		
141	LT	3	HS	50	95	10	90	Conifer			1	
								Hardwood			1	
141	RT	1	HT	0	80	80	20	Conifer				
								Hardwood	1		1	

141	RT	2	HS	70	95	15	80	Conifer					
								Hardwood	7	1			
141	RT	3	HS	15	80	35	65	Conifer					
								Hardwood	6			1	
155	LT	1	HS	120	55	90	10	Conifer					
								Hardwood	2				
155	LT	2	HS	70	80	90	10	Conifer					
								Hardwood	6			1	
155	LT	3	HS	45	90	70	30	Conifer					
								Hardwood	6				
155	RT	1	HT	0	70	90	10	Conifer					
								Hardwood					
155	RT	2	HT	10	80	80	20	Conifer					4M OF HS
								Hardwood	2		2		
155	RT	3	HS	20	90	30	70	Conifer					
								Hardwood				2	

COMMENT SUMMARY

MONITORING AREA: 3-MS SITE ID: 402 STREAM: ELK CREEK PHASE 3

UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	RR	00	14.2		T=12C @ 11:00AM
2	SR	00	14.9		H=0.35M
4	LP	01	62.4		PHOTO #0713, METRICS
5	BW	10	62.4	SS\	
6	CR	00	92.2	DJ\DJ	DEEP POOLS WITH SALMONIDS
7	LP	00	178.1	WL,HS	DEER & ELK TRACKS, BLDR WEIRS, COHO, DACE, STEELHEAD,CUTTHROAT
8	RI	01	221.1	HS	BOULDER WEIRS
9	BW	10	221.1	HS	CAUSED BY BOULDERS
10	BW	10	221.1		CAUSED BY HS BOULDERS
11	RI	00	271.6	WL,AM	OTTER SCAT, 7.5CM DUNNS SALAMANDER
12	RI	00	322.1		RIPARIAN 1
14	RR	00	423.6		RR WITH POCKETS
16	BW	10	474.4	WL	CRAYFISH, COHO FRY
20	LP	00	545.6	DJ	TRANSITION FROM HILLSLOPE TO HIGH TERRACE, RIPARIAN 2
23	LP	00	672.9	DJ	OLD LAMPREY AND STEELHEAD REDDS THROUGHOUT
24	RI	00	684.1		START DAY 2
29	LP	00	755.3	BC, WL	BC=9000RD, WOOD RAT & 4 NESTS
32	RP	00	814.6		RIPARIAN 3
35	LP	00	895.7	DJ\	
36	SR	00	897.7		H=0.25M
37	LP	00	920.5		INDIAN PLUM WITH LOTS OF PLUMS
40	SR	00	952.6		H=0.70M

COMMENT SUMMARY

MONITORING AREA: 3-MS SITE ID: 402 STREAM: ELK CREEK PHASE 3

UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
42	LP	01	988	\TJ	
43	CB	11	988		GPS, ACW=3.8M, TRIB A
45	LP	01	1053.6		RIPARIAN 4
52	LP	01	1136.5	DJ	
53	BW	10	1136.5		COHO PRESENT
55	LP	00	1181.3	DJ	
58	LP	01	1244.2	HS	BOULDERS\LWD
59	IP	10	1244.2		MURKY
60	RP	01	1260.5	HS	BOULDERS
61	BW	10	1260.5	AM,HS	(3) ROUGH-SKINNED NEWTS, BOULDERS
62	LP	00	1293.6	WL	DEER, RACCOON AND BABIES, SQUIRREL TRACKS, RIPARIAN 5
69	LP	00	1493.4	\SS	PICTURE LOOKING DOWNSTREAM
70	SR	00	1503	WL	COYOTE TRACKS FRESH, RIPARIAN 6
74	LP	00	1659.2		LOTS OF BROWN ALGAE
75	RB	01	1698.2	TJ\	
76	DC	11	1698.2		ACW=1.7M, TRIB B
79	LP	01	1741.6	TJ\	COHO
80	DC	11	1741.6		ACW=1.7M, TRIB C
82	LP	00	1778.6	SS\, HS	LOTS OF BROWN ALGAE, HS=LWD, RIPARIAN 7
83	SR	00	1789.4	SS\	
84	LP	00	1815.1	HS	LWD
87	SR	00	1838.3	HS	LWD

COMMENT SUMMARY

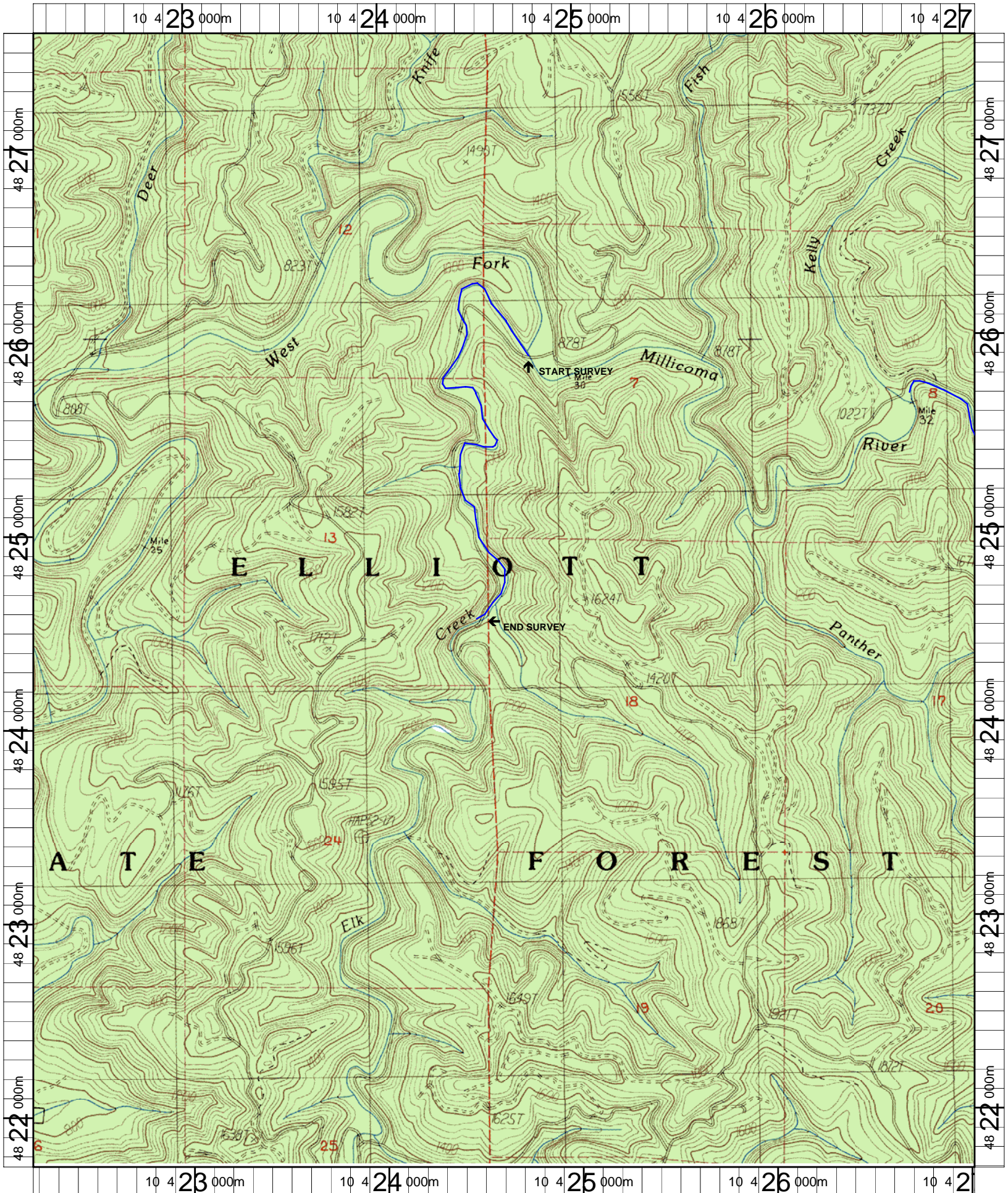
MONITORING AREA: 3-MS SITE ID: 402 STREAM: ELK CREEK PHASE 3

UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
88	LP	00	1847.5		SMALL BUT SIGNIFICANT POOL
92	LP	00	1931.1		TURNS INTO PP AT HEAD
93	SR	00	1932.3		H=0.70M
97	SR	00	2005.4		T=13C @ 10:10AM, RIPARIAN 8
98	LP	01	2035.7	\TJ	
99	CR	11	2035.7		GPS ON UNIT 98, T=9.5C @ 10:45AM, TRIB D
101	LP	00	2076.3	SS\	
102	SR	00	2078.9	SS\	
104	CR	00	2122.8	SS\ X3	
108	SR	00	2167.6		H=0.60M
112	LP	01	2247.9	\TJ, \SS	
113	RB	11	2247.9		ACW=1.7M, T=9.5C @ 11:44AM, TRIB E
114	RP	01	2291.2		RIPARIAN 9
115	IP	10	2291.2		SALMONID PRESENT
116	CR	00	2339.2	SS\	
118	CB	00	2396.9	DJ	
119	LP	00	2418.9	AM	7.5CM PACIFIC GIANT SALAMANDER
120	CR	00	2434.9	SS\	
123	LP	00	2493.9	WL	CRAYFISH
125	CR	00	2515		MAX POOL DEPTH=1.0M, 15CM CUTTHROAT TROUT, RIPARIAN 10
127	SR	00	2537.7		H=0.80M
129	RP	01	2607.4		PHOTO #0716 TAKEN AT END OF UNIT LOOKING UPSTREAM

COMMENT SUMMARY

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UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
130	BW	10	2607.4	AM	15CM ADULT DUNNS SALAMANDER
131	PP	01	2623.4		FISH LADDER EXITS INTO THIS POOL, GPS COORDINATES FOLLOWING PAGE
132	BW	10	2623.4	SS\	
133	CR	00	2659	AM,SS\	2 SPECIES OF TADPOLES @ SS\, JUVENILE SALMONDIDS IN POCKETS
134	SS	00	2659.5		H=0.50M, CADDIS FLY LARVAE OUT OF SHELL, PHOTO #0717
135	DP	00	2709.6		ENTRANCE TO SPILLWAY OF FISH LADDER OFF OF TAIL OF POOL
136	RP	00	2723.8		T=13C @ 10:00AM
138	IP	10	2737.3		NO FISH SEEN
139	SR	00	2738.6		H=0.60M
141	LP	01	2772.2	\SS,TJ\	RIPARIAN 11
142	CR	11	2772.2		T=11C @ 10:30AM, TRIB F
150	RB	00	2934.7	\SS	
151	CR	00	2951.1		25CM CUTTHROAT TROUT
155	RB	01	3047.9	TJ\	RIPARIAN 12
156	CR	11	3047.9		ACW=5.2M, TRIB G
161	SB	00	3173		H=0.70M, END SURVEY



Name: ELK PEAK
 Date: 1/5/2009
 Scale: 1 inch equals 2000 feet

Location: 10 0424622 E 4824648 N NAD 83
 Caption: ELK CREEK PHASE 3 RESTORATION SITE - MILLICOMA BASIN