

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

STREAM: COUGAR CREEK
 GCG: 2-MC
 SITE ID: 305
 BASIN: YAQUINA
 TREATMENT DATE: 2005
 SURVEY DATE: 2/10/2011
 SURVEY CREW: Nick Chambers and Aaron McAlexander
 USGS MAPS: HARLAN
 ECOREGION: Mid-Coastal Sedimentary
 REPORT PREPARED BY: Matt Strickland / Charles Stein

REACH: 1 LOCATION: T12S-R08W-S15SE

SURVEY DESCRIPTION:

Channel morphology: Constrained alternately by high terraces and hillslopes

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

Dominant riparian vegetation: Annual grasses, herbs, and forbs.

Primary channel length (meters) and area (m²): 945 : 2,021

Secondary channel length (meters) and area (m²): 56 : 67

VWI average: 4.5 VWI Range: 3 - 7 Average Gradient: 1.4%

Pieces LWD per 100m: 7.1 Wood Volume (m³) per 100m: 12.7

Percent pools: 39% Complex pools (LWD pieces>=3): 5 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	6	33	51	5	1	5
Pool units	7	38	42	5	1	6
Fast water units	2	25	63	5	1	5

SURVEY COMMENTS:

This is a post treatment restoration survey. Reach 1 encompassed approximately 1000 meters and ended just downstream of a salmon spawning survey end sign. The crew noted numerous large wood stream habitat structures within the reach. They also noted observing several adult coho salmon carcasses, cutthroat trout, and a steelhead. The crew noted observing several salmon redds as well.

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 USGS MAPS: HARLAN
 ECOREGION: Mid-Coastal Sedimentary
 REPORT PREPARED BY: Matt Strickland / Charles Stein

REACH: 2 LOCATION: T12S-R08W-S15SE

SURVEY DESCRIPTION:

Channel morphology: Constrained by hillslopes
 Dominant landuse(s): Large timber (30-50 cm dbh)
 Dominant riparian vegetation: Shrubs (willow, salmonberry, some small alder)
 Primary channel length (meters) and area (m²): 647 : 1,465
 Secondary channel length (meters) and area (m²): 18 : 12
 VWI average: 2.0 VWI Range: 1.5 - 2.5 Average Gradient: 3.1%
 Pieces LWD per 100m: 11.3 Wood Volume (m³) per 100m: 15.1
 Percent pools: 5% Complex pools (LWD pieces>=3): 1 Pools >=1m deep:0
Percent substrate (avg):

	<u>Silt / organics</u>	<u>Sand</u>	<u>Gravel</u>	<u>Cobble</u>	<u>Boulder</u>	<u>Bedrock</u>
All units	6	24	36	25	6	3
Pool units	6	26	48	18	1	0
Fast water units	2	18	36	34	9	0

SURVEY COMMENTS:

Reach 2 of the Cougar Creek post treatment restoration survey encompassed approximately 400 meters. The crew noted numerous large wood stream habitat structures within the reach. The crew noted a recent salmon redd and an adult coho salmon carcass. A salmon spawning sign was noted within the reach.

Survey Date: 2/10/2011

Report Date: 9/14/2011

T12S-R08W-S15SE

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	4.5	VWI Range:	3 - 7

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	945	2,021	0
Secondary	56	67	1

Channel Dimensions (m)

Wetted	Active	Floodprone <i>n</i> = 4	First Terrace <i>n</i> = 4
Width: 2.1	Width: 3.9	5.5 (4.1 - 7.4)	8.3 (5.8 - 13)
Depth: 0.33	Height: 0.4	0.8 (0.6 - 0.8)	1.2 (1 - 1.4)

W:D ratio: 10.4

Stream Flow Type: MF

Average Unit Gradient: 1.4%

Water temperature (°C): -

Entrenchment (ACW:FPW ratio): 1.6

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

Habitat Units/100m (primary channel length): 8.7

Riparian, Bank, and Wood Summary

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

Bank Condition and Shade

Bank Status	Percent Reach Length	Shade (% of 180)
Actively Eroding:	9%	Reach avg: 81%
Undercut Banks:	13%	Range: 56 - 100

Large Wood Debris

	Total	Total / 100m primary channel
All pieces (>=3m x 0.15m):	67	7.1
Volume (m ³):	120	12.7
Key pieces (>=12m x 0.60m):	11	1.2

Survey Date: 2/10/2011

Report Date: 9/14/2011

T12S-R08W-S15SE

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	0%
Open V-shape	100%	Wide Floodplain	0%
Valley Width Index	2.0	VWI Range:	1.5 - 2.5

Channel Morphology (Percent Reach Length)

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

Channel Characteristics

Type	Length (m)	Area (m ²)	Dry Units
Primary	647	1,465	0
Secondary	18	12	1

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u> n = 3	<u>First Terrace</u> n = 2
Width: 2.5	Width: 3.9	5.0 (4.5 - 5.7)	6.9 (5.5 - 8.3)
Depth: 0.20	Height: 0.4	0.7 (0.7 - 0.8)	1.2 (1.1 - 1.2)

W:D ratio: 10.5

Stream Flow Type: MF

Average Unit Gradient: 3.1%

Water temperature (°C): -

Entrenchment (ACW:FPW ratio): 1.3

Habitat Units/100m (total channel length): 3.2

Habitat Units/100m (primary channel length): 3.2

Riparian, Bank, and Wood Summary

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

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding:	3%	Reach avg: 95%
Undercut Banks:	3%	Range: 78 - 100

Large Wood Debris

	<u>Total</u>	<u>Total / 100m primary channel</u>
All pieces (>=3m x 0.15m):	73	11.3
Volume (m ³):	97	15.1
Key pieces (>=12m x 0.60m):	3	0.5

HABITAT INVENTORY

GCG: 2-MC SITE ID: 305

Survey Date: 2/10/2011

Report Date: 9/14/2011

T12S-R08W-S15SE

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	1	12	3.0	0.20	36	15	0	21	5	11	0	63	
DRY UNIT	1	6	0.6	0.00	3	0	5	79	16	0	0	0	
POOL-BACKWATER	7	22	1.7	0.36	39	0	16	38	39	6	0	0	
POOL-LATERAL SCOUR	32	307	2.4	0.49	710	11	7	38	41	5	2	7	
POOL-PLUNGE	1	3	3.2	0.50	8	0	0	35	55	10	0	0	
POOL-STRAIGHT SCOUR	4	39	2.6	0.56	97	0	9	40	48	3	0	0	
RAPID/BOULDERS	3	24	1.6	0.06	24	0	4	17	54	23	0	2	
RIFFLE	29	588	1.9	0.18	1,167	13	2	26	65	4	1	3	
STEP/COBBLE	1	0	3.1	0.10	1	0	9	45	45	0	0	0	
STEP/LOG	3	1	1.9	0.06	2	0	4	35	58	4	0	0	
Total:		82	1,001	2.1	0.33	2,088	39	Avg: 6	33	51	5	1	5

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	7	22	1.7	0.36	39	1.87%	0	0.0
Scour Pools	37	348	2.4	0.50	815	39.04%	11	1.3
Glides	0	0			0	0.00%	0	0.0
Riffles	29	588	1.9	0.18	1,167	55.89%	13	1.1
Rapids	3	24	1.6	0.06	24	1.14%	0	0.0
Cascades	1	12	3.0	0.20	36	1.74%	15	41.3
Step/Falls	4	1	2.2	0.07	3	0.15%	0	0.0
Dry	1	6	0.6	0.00	3	0.16%	0	0.0
Culverts	0	0			0	0.00%	0	0.0

HABITAT INVENTORY

GCG: 2-MC SITE ID: 305

Survey Date: 2/10/2011

Report Date: 9/14/2011

T12S-R08W-S15SE

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	2	1.1	0.30	2	0	22	61	17	0	0	0
POOL-LATERAL SCOUR	2	12	3.2	0.40	38	0	5	30	43	21	0	0
POOL-PLUNGE	2	6	5.0	0.40	31	1	7	22	54	15	3	0
PUDDLED UNIT	1	10	0.8	0.15	8	0	16	63	21	0	0	0
RAPID/BOULDERS	8	384	2.2	0.18	859	37	1	17	32	38	12	0
RIFFLE	5	249	1.9	0.11	532	16	5	20	42	28	4	1
STEP/BEDROCK	1	2	4.5	0.10	7	0	0	0	16	11	11	63
STEP/LOG	1	0	2.5	0.05	1	0	22	44	33	0	0	0
Total:	21	664	2.5	0.20	1,478	54	Avg: 6	24	36	25	6	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	2	1.1	0.30	2	0.13%	0	0.0
Scour Pools	4	18	4.1	0.40	69	4.68%	1	1.4
Glides	0	0			0	0.00%	0	0.0
Riffles	5	249	1.9	0.11	532	36.00%	16	3.0
Rapids	8	384	2.2	0.18	859	58.13%	37	4.3
Cascades	0	0			0	0.00%	0	0.0
Step/Falls	2	2	3.5	0.08	8	0.51%	0	0.0
Dry	1	10	0.8	0.15	8	0.54%	0	0.0
Culverts	0	0			0	0.00%	0	0.0

OREGON DEPT OF FISH AND WILDLIFE
HABITAT INVENTORY

COUGAR CREEK
GCG: 2-MC SITE ID: 305

Survey Date: 2/10/2011

Report Date: 9/14/2011

T12S-R08W-S15SE

REACH 1

POOL SUMMARY

	<u>Total</u>	Total of all Channel Lengths <u># / Km</u>	Primary Channel Length <u># / Km</u>
All Pools:	44	44.0	46.5
Pools >=1m deep:	0	0.0	0.0
Complex pools (LWD pieces>=3):	5	5.0	5.3
Pool frequency (channel widths/pool):	5.9		
Residual pool depth (avg):	0.37		

Survey Date: 2/10/2011

Report Date: 9/14/2011

T12S-R08W-S15SE

REACH 2

POOL SUMMARY

	<u>Total</u>	Total of all Channel Lengths <u># / Km</u>	Primary Channel Length <u># / Km</u>
All Pools:	5	7.5	7.7
Pools >=1m deep:	0	0.0	0.0
Complex pools (LWD pieces>=3):	1	1.5	1.5
Pool frequency (channel widths/pool):	34.4		
Residual pool depth (avg):	0.33		

Survey Date 7/1/2005

RIPARIAN ZONE
VEGETATION SUMMARY

REACH 1

Report Date: 9/14/2011

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

Total hardwoods/1000	142
Total conifers/1000 ft	41
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 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	0.0	0.0	0.3	0.0	1.7	0.0	2.0
15-30cm	0.0	0.0	0.0	0.0	0.7	0.3	0.7	0.3
30-50cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	0.3	0.7	2.0	0.2	0.8

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Canopy closure	60		63		80	
Shrub cover	35		47		56	
Grass/forb cover	65		50		41	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Hillslope	50		83		100	
High terrace	50		17		0	
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 (%)	19		32		38	

Survey Date 2/9/2011
Report Date: 9/14/2011

**RIPARIAN ZONE
VEGETATION SUMMARY**

REACH 2

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

Total hardwoods/1000	213
Total conifers/1000 ft	122
Total conifers >20" dbh/1000 f	30
Total conifers >35" dbh/1000 f	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-30cm	0.0	0.5	0.5	0.0	0.0	0.0	0.5	0.5
30-50cm	0.0	0.0	0.0	0.5	1.0	1.5	1.0	2.0
50-90cm	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0
>90cm	0.0	0.0	0.0	0.5	0.0	0.5	0.0	1.0
Total/100m2	0.0	0.5	1.0	1.0	1.0	2.0	0.7	1.2

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Canopy closure	78		85		83	
Shrub cover	65		34		28	
Grass/forb cover	30		66		68	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Hillslope	50		100		100	
High terrace	50		0		0	
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 (%)	32		30		24	

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

5 transects

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

Total hardwoods/1000	427
Total conifers/1000 ft	183
Total conifers >20" dbh/1000 f	30
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	0.0	3.0
15-30cm	1.5	1.0
30-50cm	1.0	2.0
50-90cm	0.5	0.0
>90cm	0.0	1.0

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		
83	LT	1	HT	3	70	80	20	Conifer							
								Hardwood	1						
83	LT	2	HS	30	70	90	10	Conifer							
								Hardwood							
83	LT	3	HS	30	100	40	60	Conifer			2				
								Hardwood							
83	RT	1	HS	50	100	80	20	Conifer							OLD ROAD BED
								Hardwood							
83	RT	2	HS	45	100	20	80	Conifer							
								Hardwood							
83	RT	3	HS	45	90	50	50	Conifer							
								Hardwood					1		
91	LT	1	HS	65	100	40	40	Conifer							20%BARE GROUND
								Hardwood							
91	LT	2	HS	30	70	5	95	Conifer	1			1			
								Hardwood					1		
91	LT	3	HS	20	60	20	80	Conifer							
								Hardwood							
91	RT	1	HT	10	40	60	40	Conifer							
								Hardwood							
91	RT	2	HS	15	100	20	80	Conifer							
								Hardwood			1				
91	RT	3	HS	0	80	0	80	Conifer							20%BARE GROUND
								Hardwood			3				

OREGON DEPT OF FISH AND WILDLIFE
HABITAT INVENTORY

OREGON PLAN MONITORING SITE
SURVEY DATE: 2/7/2011

COMMENT SUMMARY

MONITORING AREA: 2-MC SITE ID: 305 STREAM: COUGAR CREEK

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	3	RI	01	32.1		ABANDONED ROAD CROSSING
1	5	SL	00	41.9		H=.20
1	6	RI	00	60.6		COHO CARCASS
1	11	LP	00	124.76		ONE STEELHEAD AND SEVERAL CUTTHROAT IN POOL
1	19	RI	01	264.36		COHO CARCASS
1	22	LP	01	278.76	TJ/	
1	23	RI	11	278.76		BEDROCK IS HARDPAN
1	24	LP	00	298.66	HS	
1	27	LP	00	340.46	HS	
1	28	RI	00	355.86	HS	
1	29	LP	00	367.26	HS	BEDROCK IS HARDPAN
1	30	RI	00	392.26	SS,HS/SS	COHO CARCASS

OREGON DEPT OF FISH AND WILDLIFE
HABITAT INVENTORY

OREGON PLAN MONITORING SITE
SURVEY DATE: 2/7/2011

COMMENT SUMMARY

MONITORING AREA: 2-MC SITE ID: 305 STREAM: COUGAR CREEK

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	31	LP	01	404.26	TJ/HS,AM	2M UNDERCUT ROUGH SKIN NEWT
1	33	LP	00	410.96		BEDROCK IS HARDPAN
1	35	LP	00	424.46		BEDROCK IS HARDPAN
1	38	RI	01	475.66	BV	
1	42	RI	00	505.56		BEDROCK IS HARDPAN
1	43	LP	00	509.56		BEDROCK IS HARDPAN
1	44	RI	01	545.26	/TJ	REDD IN UNIT OLD LOG BRIDGE WITH REMNANT LOGS AND BOULDERS
1	46	LP	00	551.26		OLD ROAD CROSSING COHO CARCASS
1	50	LP	00	587.26		COHO REDD
1	52	SL	00	598.16		H=.25
1	53	RI	00	640.06	/SS	
1	57	RI	00	703.26	HS	HS IS LARGE WOOD COHO CARCASS AND REDD

OREGON DEPT OF FISH AND WILDLIFE
HABITAT INVENTORY

OREGON PLAN MONITORING SITE
SURVEY DATE: 2/7/2011

COMMENT SUMMARY

MONITORING AREA: 2-MC SITE ID: 305 STREAM: COUGAR CREEK

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	58	RI	00	753.26	HS	HS IS WOOD
1	61	LP	00	771.66		CUTTHROAT IN POOL
1	62	RI	01	786.66	HS	HS IS WOOD
1	63	BW	10	786.66	HS	HS IS WOOD
1	64	LP	00	794.16	HS	HS IS WOOD
1	65	RI	01	815.36	HS	HS IS WOOD
1	66	DU	02	815.36	HS	HS IS WOOD
1	67	SL	00	815.66		H=.20
1	68	SP	00	822.76		COHO CARCASS
1	69	RI	00	832.66	HS	HS IS WOOD
1	70	PP	00	835.26	HS	HS IS WOOD
1	71	SC	00	835.66		H=.30

OREGON DEPT OF FISH AND WILDLIFE
HABITAT INVENTORY

OREGON PLAN MONITORING SITE
SURVEY DATE: 2/7/2011

COMMENT SUMMARY

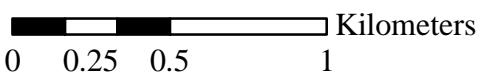
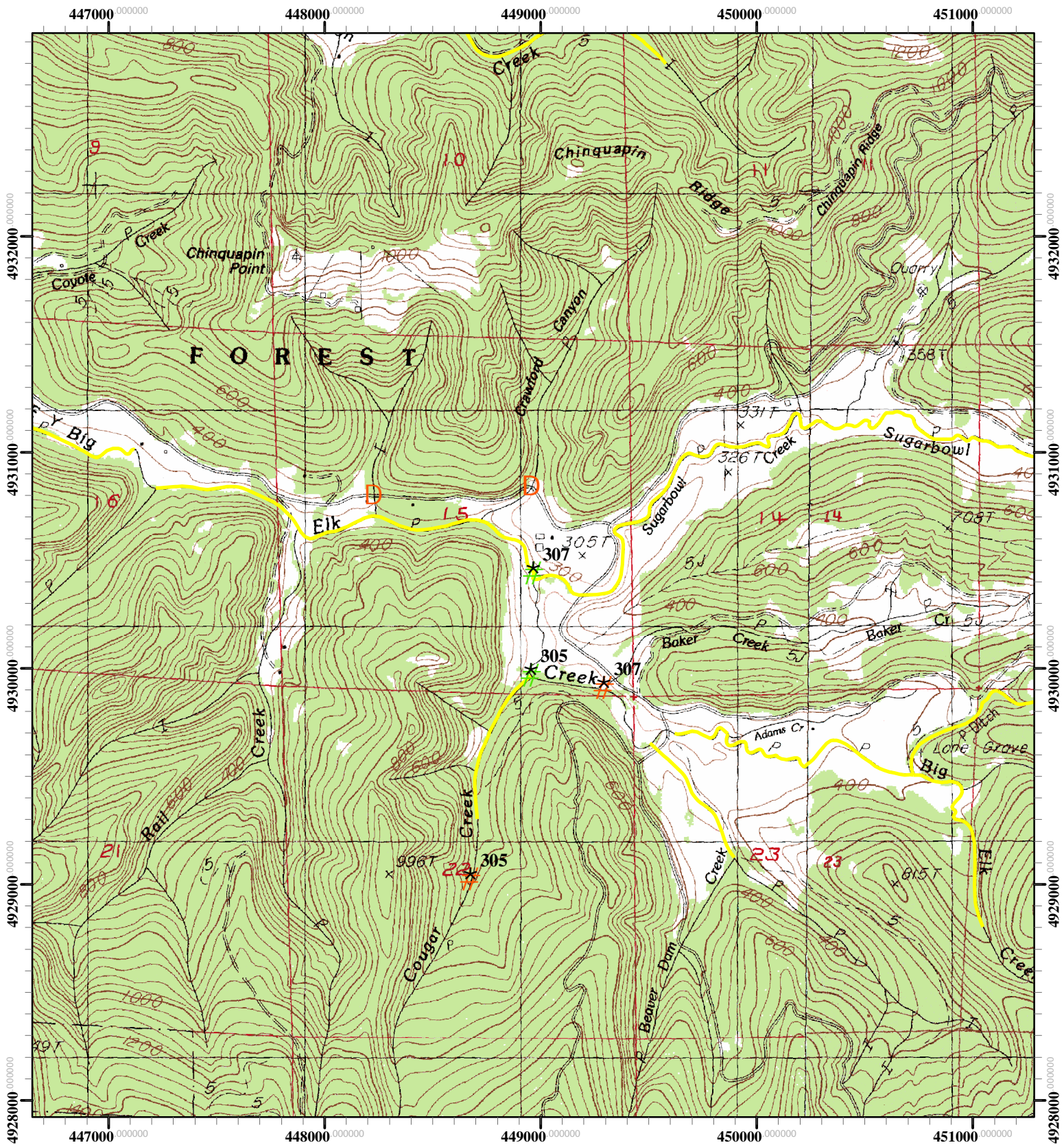
MONITORING AREA: 2-MC SITE ID: 305 STREAM: COUGAR CREEK

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	72	LP	01	847.86	HS	HS IS WOOD
1	73	BW	10	847.86	HS	HS IS WOOD BW IS SEPARATED BY SANDBAR, NEARLY 02 CHANNEL
1	74	RI	00	879.06	SS/HS	BEDROCK IS HARDPAN HS IS WOOD
1	76	RI	00	901.46	HS	HS IS 1 LOG
1	77	LP	01	905.46	/TJ	
1	78	RB	11	905.46		ACH-.2 ACW-1.2
2	83	RI	00	1045.46		FRESH REDD REACH BREAK AT END OF UNIT
2	88	RI	00	1199.16		SPAWNING SURVEY SIGN END COUGAR CREEK #24984.(1
2	90	SL	00	1201.46		H=.25
2	91	RI	01	1251.46	TJ/	
2	92	RI	11	1251.46		ACH-.1 ACW-1.1
2	94	RB	01	1351.46	SS,LA/	





COMMENT SUMMARY

MONITORING AREA: 2-MC SITE ID: 305 STREAM: COUGAR CREEK

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
2	99	SR	00	1454.76		H=.50



Restoration Site ID: 305
 Stream: Cougar Creek
 T12S- R08W - S15
 USGS Map: Harlan
 Basin: Yaquina

-  Restoration Start Point
-  Restoration End Point
-  Potential Barrier
-  Spawning Survey Segments

