

ODFW AQUATIC INVENTORY PROJECT
OREGON PLAN FOR SALMON & WATERSHEDS
STREAM RESTORATION HABITAT REPORT

STREAM: Deer Creek (#NC 121)
 BASIN: Nehalem River
 SURVEY TYPE: Post-Tx
 DATE: October 30, 2003
 REPORT PREPARED BY: Paul Jacobsen

The Deer Creek restoration project was treated in 1995, and then monitored in 1996 and again in 2001 for post-treatment conditions. There is also baseline information available from two years prior to treatment. This site has a companion reference reach located just upstream. In comparing the pre-treatment data with both of the post-treatment surveys, it is notable that the reach has become very pool-rich, that complex pools have increased, and that pool frequency has improved. Riffle gravel has increased slightly while riffle fines have decreased somewhat. Large wood pieces, volume, and key pieces have all decreased through time, however.

Habitat Variable	ODFW Benchmark		AQI Survey	Post Project	Post Project
	Desirable	Undesirable	8/12/93	7/8/96	7/30/01
Pool Area	>35%	<10%	23.2	60.9	71.9
Pool Frequency	5-8	>20%	10.8	3.4	6.4
Residual Pool Depth	.5-1m	.2-.5m	.51	.42	.46
Complex Pools/km	>2.5	<1	0.0	14.0	14.9
Width/Depth Ratio	<15	>30	8.1	11.1	7.5
Riffle Gravel % area	>35%	<15%	56	67	65
Silt-Sand-Organic %	<8%	>15%	43	33	34
Shade %	>70%	< 60%	95	98	100
LWD - pieces/100m	>20	<10	40.9	17.9	21.2
LWD - Volume/100m	>30	<20	56.2	32.8	32.7
LWD - Key pieces/ 100m	>3	<1	1.9	1.1	0.8

COMMENTS:

There were no potential barriers to upstream fish migration in the surveyed length.

The crew noted evidence of beaver activity during the survey. The 1996 survey crew recorded fifteen habitat structures, while the 2001 crew found eleven.

**ODFW AQUATIC INVENTORY PROJECT
OREGON PLAN FOR SALMON & WATERSHEDS
STREAM RESTORATION HABITAT REPORT**

STREAM: Deer Creek (NC-121)
BASIN: Nehalem River
SURVEY TYPE: Post-Tx
DATE: July 30, 2001
SURVEY CREW: Rachel Werner, Sean Allen
REPORT PREPARED BY: Paul Jacobsen
BASIN AREA: 32.8 km²
USGS MAPS: Birkenfeld
ECOREGION: Coast Range Astoria Willapa

GENERAL DESCRIPTION:

The Deer Creek habitat survey extended 1004 meters. The channel was unconstrained a broad valley floor. The average valley width index was 22.0 (range: 6.0 – 50.0). Land use for the reach was young (3-15 cm dbh) trees. The average unit gradient was 1.3 percent. Slackwater pools (37%) and scour pools (35%) dominated stream habitat. Sand (45%) and gravel (44%) dominated stream substrate. Wood volume was low at 32.7 m³/100m.

COMMENTS:

There were no potential barriers to upstream fish migration in the surveyed length.

The crew noted several habitat structures during the survey.

ODFW AQUATIC INVENTORY PROJECT
OREGON PLAN FOR SALMON & WATERSHEDS
STREAM RESTORATION HABITAT REPORT

STREAM: Deer Creek (#NC 121)
 BASIN: Nehalem River
 SURVEY TYPE: Post-Tx
 DATE: September 9, 2002
 SURVEY CREW: Sean Allen, Rachel Werner
 REPORT PREPARED BY: Paul Jacobsen
 BASIN AREA: 32.8 km²
 USGS MAPS: Birkenfeld
 ECOREGION: Coast Range Astoria Willapa

GENERAL DESCRIPTION:

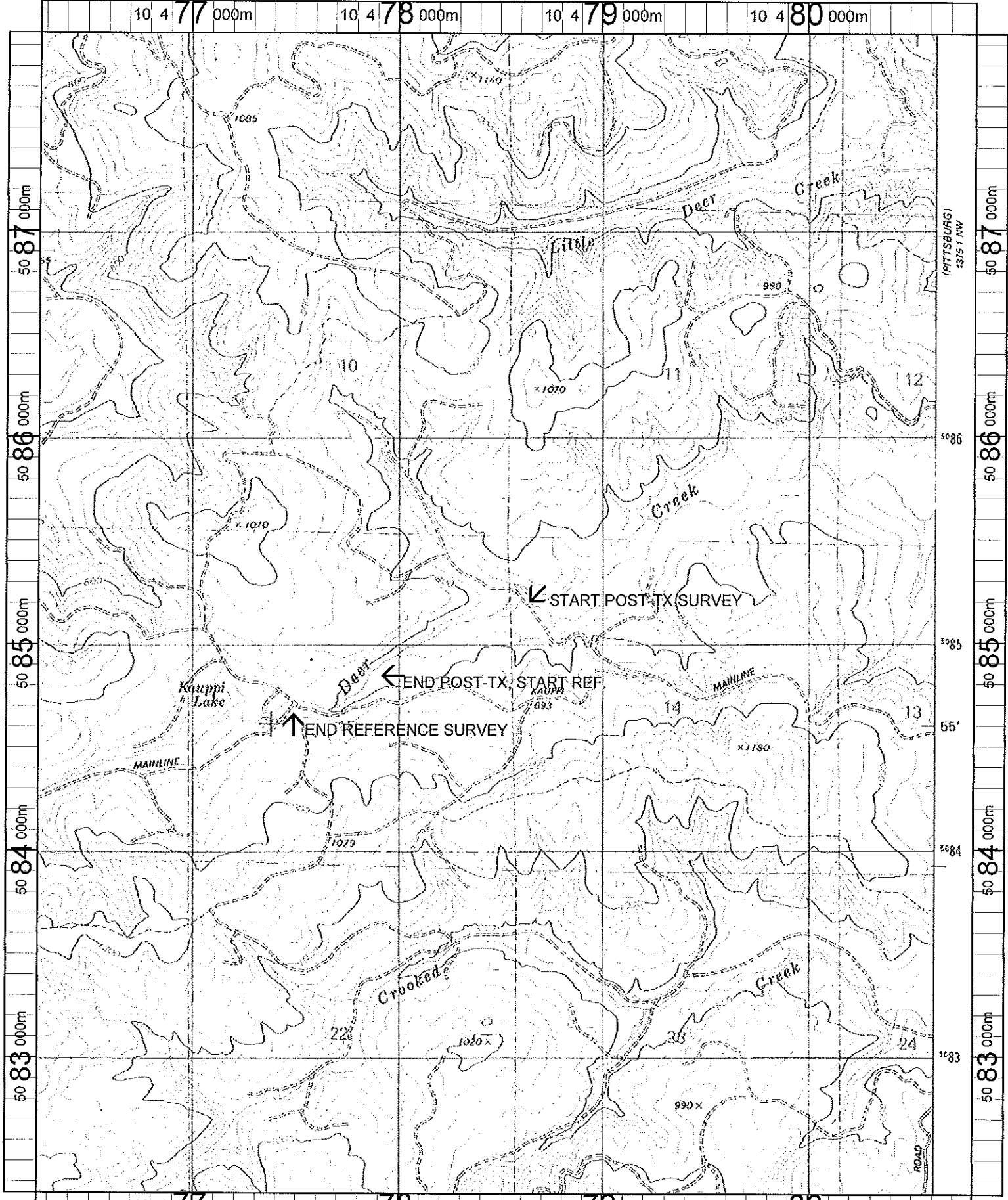
The Deer Creek habitat survey extended 1,004 meters. The channel was unconstrained in a broad valley floor. The average valley width index was 22.0 (range: 6.0-50.0). Land use for the reach was young (3-15 cm dbh) trees. The average unit gradient was 1.3 percent. Beaver pools (37%) and scour pools (35%) dominated stream habitat.

	ODFW	Benchmark		AQI Survey	Post Project	Post Project	Post Project
Habitat Variable	Desirable	Undesirable		8/12/93	7/8/96	7/30/01	2/5/02
Pool Area	>35%	<10%		23.2	60.9	71.9	83.7
Pool Frequency	5-8	>20%		10.8	3.4	6.4	2.5
Residual Pool Depth	.5-1m	.2-.5m		.51	.42	.46	.71
Complex Pools/km	>2.5	<1		0.0	14.0	14.9	27.0
Width/Depth Ratio	<15	>30		8.1	11.1	7.5	16.9
Riffle Gravel % area	>35%	<15%		56	67	65	72
Silt-Sand-Organic %	<8%	>15%		43	33	34	19
Shade %	>70%	< 60%		95	98	100	
LWD - pieces/100m	>20	<10		40.9	17.9	21.2	22.5
LWD - Volume/100m	>30	<20		56.2	32.8	32.7	34.7
LWD - Key pieces/ 100m	>3	<1		1.9	1.1	0.8	1.8

COMMENTS:

There were no potential barriers to upstream fish migration in the surveyed length.

The crew noted evidence of beaver activity during the survey.



Name: BIRKENFELD
 Date: 1/10/2002
 Scale: 1 inch equals 2000 feet

Location: 10 478533 E 5085147 N
 Caption: 4-6 YEAR POST-TX AND REFERENCE SURVEYS -
 DEER CREEK - NEHALEM BASIN

REACH 1

T5N-R5W-S15NE

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 avg: 22.0 range: 6.0-50.0

Channel Morphology (Percent Reach Length)

<u>Constrained</u>		<u>Unconstrained</u>	
Hillslope	0	Single Channel	100
Bedrock	0	Multiple Channel	0
Terrace	0	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	1,004	2,565	0
Secondary	4	12	0

Channel Dimensions (m)

<u>Wetted</u>		<u>Active</u>		<u>Floodprone</u>	<u>First Terrace</u>
Width	2.5	Width	4.4	20.0	7.9
Depth	0.28	Height	0.6	1.1	1.1
		W:D ratio	7.5	Entrenchment	5.0

Stream Flow Type: LF Water Temp: 13.0-13.0°C
 Avg. Unit Gradient: 1.3% Habitat Units/100m: 6.8

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	YT	
Riparian Vegetation:	D3	D15

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding	14%	Reach avg: 100%
Undercut Banks	6%	Range: 94-100

Large Woody Debris

	<u>Total</u>	<u>Total/100m</u>
All pieces ($\geq 3m \times 0.15m$)	213	21.2
Volume (m ³)	328	32.7
Key pieces ($\geq 10m \times 0.6m$)	8	0.8

REACH 1

T5N-R5W-S15NE

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	Cbbl	Bldr	Bdrk
CULVERT CROSSING	1	13	0.3	0.01	4	0	5	20	75	0	0	0
POOL-BEAVER DAM	5	205	4.2	0.76	945	0	19	57	24	0	0	0
POOL-ISOLATED	1	4	2.8	0.30	12	0	30	70	0	0	0	0
POOL-LATERAL SCOUR	26	301	2.9	0.46	806	0	9	52	38	1	0	0
POOL-STRAIGHT SCOUR	4	30	2.9	0.44	90	0	14	59	28	0	0	0
RIFFLE	23	351	1.4	0.04	490	0	5	29	65	1	0	0
RIFFLE W/ POCKETS	4	95	2.0	0.04	171	0	5	44	51	0	0	0
STEP/BEAVER DAM	4	9	5.4	0.03	57	0	25	64	11	0	0	0
STEP/LOG	1	1	1.8	0.02	1	0	15	70	15	0	0	0
Total:	69	1,008	2.5	0.28	2,577	0	Avg:10	45	44	0	0	0

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m ²)	Percent	Large Boulders Number	#/100m ²
Dammed & BW Pools	6	209	4.0	0.68	957	37.15	0	0.0
Scour Pools	30	331	2.9	0.46	896	34.78	0	0.0
Glides	0	0	-	-	0	0.00	0	0.0
Riffles	27	446	1.5	0.04	661	25.65	0	0.0
Rapids	0	0	-	-	0	0.00	0	0.0
Cascades	0	0	-	-	0	0.00	0	0.0
Step/Falls	5	9	4.7	0.03	58	2.26	0	0.0
Dry	0	0	-	-	0	0.00	0	0.0

POOL SUMMARY

All Pools	<u>Total</u>	<u>#/Km</u>
	36	35.7
Pools ≥1m deep:	1	1.0
Complex pools (LWD pieces ≥3):	15	14.9
Pool Frequency (channel widths/pool):	6.4	
Residual pool depth (avg)	0.46m	

STREAM SUMMARY

DEER CREEK POST-TX (#121)

Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Substrate Percent Wetted Area					Total Large Boulder	
					S/O	Sand	Grvl	Cbbl	Bldr		Bdrk
69	1,008	2.5	0.28	2,577	10	45	44	0	0	0	0

Wetted Area

Habitat Group	(m ²)	Percent
Scour Pool	896	34.8
Backwater Pools	957	37.2
Glide	0	0.0
Riffle	661	25.7
Rapid	0	0.0
Cascade	0	0.0
Step	58	2.3
Dry	0	0.0

REACH 1

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

Summary of Riparian Zone (0-30m) (4 transects)

Total hardwoods/1000 ft	1,753
Total conifers/1000 ft	320
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	0.3	4.8	1.0	6.5	3.3	10.0	4.5	21.3
15-30cm	0.0	3.8	0.5	1.0	0.3	0.0	0.8	4.8
30-50cm	0.0	0.8	0.0	0.8	0.0	0.3	0.0	1.8
50-90cm	0.0	0.3	0.0	0.8	0.0	0.0	0.0	1.0
>90cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total/100m ²	0.3	9.5	1.5	9.0	3.5	10.3	1.8	9.6

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	(%)		(%)		(%)	
Canopy closure	91		81		69	
Shrub cover	24		26		36	
Grass/forb cover	67		50		57	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	Hillslope	0		25		38
High terrace	25		50		63	
Low terrace	75		25		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 (%)	4		21		26	

Summary of Riparian Zone (0-30m) for all reaches (4 transects)

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

Total hardwoods/1000 ft	1,753
Total conifers/1000 ft	320
Total conifers >20" dbh/1000 ft	0

Average number of trees in a 5-meter wide band

<u>Diameter</u> <u>class (cm)</u>	<u>Zones 1-3</u>	
	<u>Conifer</u>	<u>Hardwood</u>
3-15cm	4.5	21.3
15-30cm	0.8	4.8
30-50cm	0.0	1.8
50-90cm	0.0	1.0
>90cm	0.0	0.0

RIPARIAN ZONE VEGETATION

Reach 1

Reach 1

VEGETATION DETAIL

Unit	Side	Zone	Surface	Slope	Cover (percent)			Diameter class (cm)					Notes	
					Canopy	Shrub	Grass	3-15	15-30	30-50	50-90	>90		
12	LF	1	HT	0.0	85	10	80	Conifer	1	0	0	0	0	
								Hardwood	5	3	1	0	0	
12	LF	2	HT	15.0	95	5	75	Conifer	3	2	0	0	0	
								Hardwood	1	0	0	0	0	
12	LF	3	HT	12.0	20	35	65	Conifer	1	0	0	0	0	
								Hardwood	0	0	0	0	0	
12	RT	1	LT	5.0	95	10	85	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
12	RT	2	HT	23.0	30	10	90	Conifer	0	0	0	0	0	
								Hardwood	0	3	1	0	0	
12	RT	3	HT	7.0	95	5	85	Conifer	5	0	0	0	0	
								Hardwood	1	0	0	0	0	
23	LF	1	LT	0.0	95	10	60	Conifer	0	0	0	0	0	
								Hardwood	1	0	0	0	0	
23	LF	2	LT	22.0	90	15	10	Conifer	0	0	0	0	0	
								Hardwood	10	0	0	0	0	
23	LF	3	HS	34.0	95	70	10	Conifer	1	0	0	0	0	
								Hardwood	8	0	0	0	0	VINE MAPLE
23	RT	1	HT	10.0	85	50	45	Conifer	0	0	0	0	0	
								Hardwood	1	5	2	0	0	
23	RT	2	HT	25.0	90	70	25	Conifer	0	0	0	0	0	
								Hardwood	2	0	1	0	0	
23	RT	3	HT	3.0	40	0	95	Conifer	4	1	0	0	0	
								Hardwood	5	0	0	0	0	
31	LF	1	LT	5.0	95	60	35	Conifer	0	0	0	0	0	
								Hardwood	1	2	0	0	0	
31	LF	2	HS	25.0	80	80	10	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
31	LF	3	HS	25.0	70	45	55	Conifer	1	0	0	0	0	
								Hardwood	2	0	0	0	0	
31	RT	1	LT	1.0	90	30	65	Conifer	0	0	0	0	0	
								Hardwood	4	4	0	1	0	
31	RT	2	LT	5.0	80	5	35	Conifer	0	0	0	0	0	
								Hardwood	5	0	0	0	0	
31	RT	3	HT	35.0	65	65	20	Conifer	0	0	0	0	0	
								Hardwood	14	0	0	0	0	
47	LF	1	LT	2.0	90	25	70	Conifer	0	0	0	0	0	
								Hardwood	2	1	0	0	0	
47	LF	2	HT	1.0	90	10	80	Conifer	1	0	0	0	0	
								Hardwood	6	0	0	3	0	
47	LF	3	HT	30.0	80	10	80	Conifer	1	0	0	0	0	
								Hardwood	7	0	0	0	0	
47	RT	1	LT	7.0	95	0	95	Conifer	0	0	0	0	0	
								Hardwood	5	0	0	0	0	
47	RT	2	HS	48.0	90	15	75	Conifer	0	0	0	0	0	
								Hardwood	2	1	1	0	0	
47	RT	3	HS	65.0	90	55	45	Conifer	0	0	0	0	0	
								Hardwood	3	0	1	0	0	