

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

STREAM: Bergsvick Creek (#NC 116)  
 BASIN: Necanicum River  
 SURVEY TYPE: Reference  
 DATE: October 29, 2002  
 REPORT PREPARED BY: Paul Jacobsen

The Bergsvick reference site is located just downstream of the companion Bergsvick Creek treatment site. This site was surveyed for reference conditions in 1992, 1996 and 2001. It is notable that this reach is pool-rich and, while showing some variation through time, has basically the amount of pool area and number of complex pools as nine years earlier. Pool frequency has improved, and riffle fines have decreased. However, riffle gravel has decreased over time. This may be due to the upstream structures trapping substrate. Large wood pieces, volume, and key pieces are also reduced and this also may be due to the habitat structures upstream of this reach.

	ODFW	Benchmark		AQI Survey	Post Project	Post Project	
Habitat Variable	Desirable	Undesirable		8/19/92	7/25/96	7/17/01	
Pool Area	>35%	<10%		78.4	58.2	77.0	
Pool Frequency	5-8	>20%		3.5	3.9	2.7	
Residual Pool Depth	.5-1m	.2-.5m		.51	.69	.60	
Complex Pools/km	>2.5	<1		4.9	2.8	4.0	
Width/Depth Ratio	<15	>30		9.4	15.8	19.3	
Riffle Gravel % area	>35%	<15%		40	53	34	
Silt-Sand-Organic %	<8%	>15%		27	8	8	
Shade %	>70%	< 60%		80	96	96	
LWD - pieces/100m	>20	<10		9.5	4.2	4.1	
LWD - Volume/100m	>30	<20		27.0	6.4	6.0	
LWD - Key pieces/ 100m	>3	<1		1.4	.3	.3	

COMMENTS:

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

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

STREAM: Bergsvick Creek (NC-116)  
BASIN: Necanicum River  
SURVEY TYPE: Reference  
DATE: July 17, 2001  
SURVEY CREW: Rachel Werner, Sean Allen  
REPORT PREPARED BY: Paul Jacobsen  
BASIN AREA: 12.1 km<sup>2</sup>  
USGS MAPS: Necanicum Junction  
ECOREGION: Coast Range Sitka Spruce

**GENERAL DESCRIPTION:**

The Bergsvick Creek habitat survey extended 688 meters. The channel was constrained by terraces in a broad valley floor. The average valley width index was 28.0 (range: 20.0 – 30.0). Land use for the reach was second growth (15-30 cm dbh) trees and rural residential. The average unit gradient was 0.8 percent. Scour pools (77%) dominated stream habitat. Cobble (38%), gravel (21%) and bedrock (20%) dominated stream substrate. Wood volume was low at 6.0 m<sup>3</sup>/100m.

**COMMENTS:**

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

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

STREAM: Bergsvick Creek (#NC 116)  
 BASIN: Necanicum River  
 SURVEY TYPE: Reference  
 DATE: September 9, 2002  
 SURVEY CREW: Sean Allen, Rachel Werner  
 REPORT PREPARED BY: Paul Jacobsen  
 BASIN AREA: 12.1 km<sup>2</sup>  
 USGS MAPS: Necanicum Junction  
 ECOREGION: Coast Range Sitka Spruce

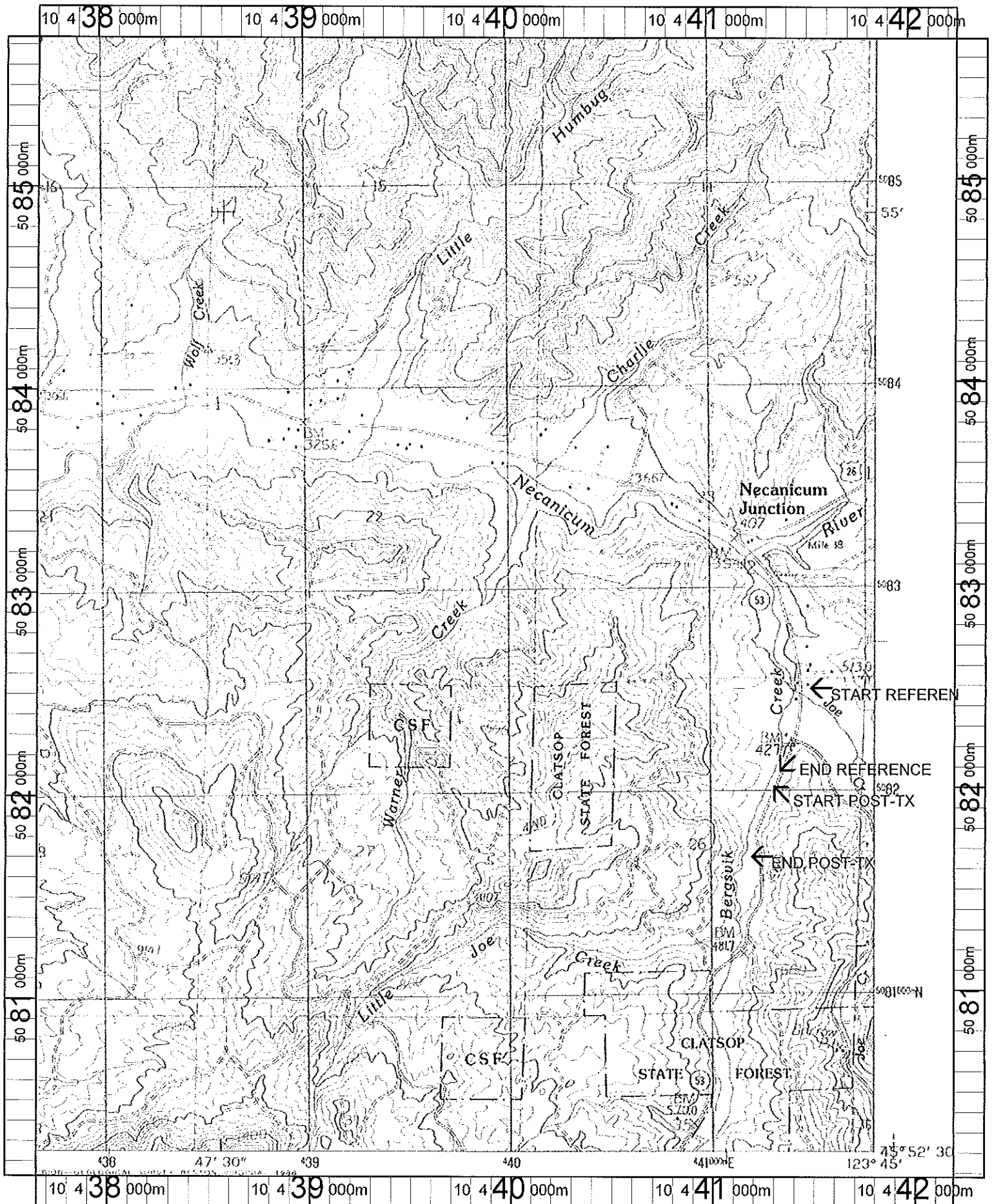
**GENERAL DESCRIPTION:**

The Bergsvick Creek habitat survey extended 688 meters. The channel was constrained by terraces in a broad valley floor. The average valley width index was 28 (range: 20 – 30). Land uses for the reach were second growth (15-30 cm dbh) trees and rural residential. The average unit gradient was 0.8 percent. Scour pools (77%) and riffles (10%) dominated stream habitat.

Habitat Variable	ODFW Benchmark		AQI Survey	Post Project	Post Project	Post Project
	Desirable	Undesirable	8/19/92	7/25/96	7/17/01	2/20/02
Pool Area	>35%	<10%	78.4	58.2	77.0	73.6
Pool Frequency	5-8	>20%	3.5	3.9	2.7	2.5
Residual Pool Depth	.5-1m	.2-.5m	.51	.69	.60	.71
Complex Pools/km	>2.5	<1	4.9	2.8	4.0	2.9
Width/Depth Ratio	<15	>30	9.4	15.8	19.3	20.0
Riffle Gravel % area	>35%	<15%	40	53	34	39
Silt-Sand-Organic %	<8%	>15%	27	8	8	1
Shade %	>70%	< 60%	80	96	96	
LWD - pieces/100m	>20	<10	9.5	4.2	4.1	4.2
LWD - Volume/100m	>30	<20	27.0	6.4	6.0	2.7
LWD - Key pieces/ 100m	>3	<1	1.4	.3	.3	0.0

**COMMENTS:**

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



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

Location: 10 439948 E 5082908 N  
 Caption: 4-6 YEAR POST-TX AND REFERENCE SURVEY -  
 BERGSVICK CREEK - NECANICUM BASIN

REACH 1

R5N-R9W-S26NE

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 avg: 28.0 range: 20.0-30.0

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	688	3,272	0
Secondary	60	85	1

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u>	<u>First Terrace</u>
Width 4.4	Width 12.8	15.9	19.6
Depth 0.49	Height 0.7	1.3	1.7
	W:D ratio 19.3	Entrenchment 1.3	

Stream Flow Type: LF Water Temp: 11.0-11.0°C  
 Avg. Unit Gradient: 0.8% Habitat Units/100m: 4.9

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	ST	RR
Riparian Vegetation:	D15	C90

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding	10%	Reach avg: 96%
Undercut Banks	11%	Range: 69-100

Large Woody Debris

	<u>Total</u>	<u>Total/100m</u>
All pieces ( $\geq 3m \times 0.15m$ )	28	4.1
Volume (m <sup>3</sup> )	41	6.0
Key pieces ( $\geq 10m \times 0.6m$ )	2	0.3

REACH 1

R5N-R9W-S26NE

REACH 1

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m <sup>2</sup> )	Large Boulders (#>0.5m)	Substrate Percent Wetted Area					
							S/O	Snd	Grvl	Cbbl	Bldr	Bdrk
CASCADE/BEDROCK	1	7	0.3	0.10	2	0	5	16	11	11	5	53
POOL-BACKWATER	1	4	1.5	0.30	6	0	0	5	15	80	0	0
POOL-LATERAL SCOUR	19	490	4.6	0.67	2,341	0	2	8	17	30	11	32
POOL-STRAIGHT SCOUR	2	53	4.0	1.05	238	0	3	8	30	33	18	10
PUDDLED CHANNEL	1	26	1.8	0.45	47	0	5	10	60	25	0	0
RAPID/BEDROCK	1	18	3.3	0.25	60	2	0	5	10	15	10	60
RAPID/BOULDERS	4	51	5.2	0.11	273	0	0	3	23	50	25	0
RIFFLE	6	92	4.2	0.25	338	0	1	7	34	52	5	1
STEP/COBBLE	2	7	7.1	0.05	53	0	0	3	15	65	18	0
<b>Total:</b>	<b>37</b>	<b>748</b>	<b>4.4</b>	<b>0.49</b>	<b>3,357</b>	<b>2</b>	<b>Avg: 2</b>	<b>7</b>	<b>21</b>	<b>38</b>	<b>11</b>	<b>20</b>

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m <sup>2</sup> )	Percent	Large Boulders Number	Boulders #/100m <sup>2</sup>
Dammed & BW Pools	1	4	1.5	0.30	6	0.17	0	0.0
Scour Pools	21	543	4.5	0.71	2,580	76.85	0	0.0
Glides	0	0	-	-	0	0.00	0	0.0
Riffles	6	92	4.2	0.25	338	10.06	0	0.0
Rapids	5	69	4.8	0.14	332	9.90	2	0.6
Cascades	1	7	0.3	0.10	2	0.06	0	0.0
Step/Falls	2	7	7.1	0.05	53	1.57	0	0.0
Dry	1	26	1.8	0.45	47	1.39	0	0.0

POOL SUMMARY

	Total	#/Km
All Pools	22	29.4
Pools ≥1m deep:	2	2.7
Complex pools (LWD pieces ≥3):	3	4.0
Pool Frequency (channel widths/pool):	2.7	
Residual pool depth (avg)	0.60m	

STREAM SUMMARY

BERGSVICK CR REFERENCE (#116)

Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m <sup>2</sup> )	Substrate Percent Wetted Area						Total Large Boulder
					S/O	Sand	Grvl	Cbbl	Bldr	Bdrk	
37	748	4.4	0.49	3,357	2	7	21	38	11	20	2

Wetted Area

Habitat Group	(m <sup>2</sup> )	Percent
Scour Pool	2,580	76.9
Backwater Pools	6	0.2
Glide	0	0.0
Riffle	338	10.1
Rapid	332	9.9
Cascade	2	0.1
Step	53	1.6
Dry	47	1.4

---

REACH 1

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

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

Total hardwoods/1000 ft	549
Total conifers/1000 ft	81
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	0.0	1.0	1.3	1.3	0.0	1.3	1.3	3.7
15-30cm	0.0	1.3	0.0	0.3	0.0	1.3	0.0	3.0
30-50cm	0.0	1.3	0.0	0.0	0.0	1.0	0.0	2.3
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/100m <sup>2</sup>	0.0	3.7	1.3	1.7	0.0	3.7	0.4	3.0

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	(%)		(%)		(%)	
Canopy closure	88		83		78	
Shrub cover	38		44		30	
Grass/forb cover	58		51		61	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	Hillslope	0		0		17
High terrace	67		100		67	
Low terrace	33		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 (%)	8		3		8	



---

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

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

Total hardwoods/1000 ft	549
Total conifers/1000 ft	81
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	1.3	3.7
15-30cm	0.0	3.0
30-50cm	0.0	2.3
50-90cm	0.0	0.0
>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	
9	LF	1	HT	5.0	80	15	85	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	FIELD
9	LF	2	HT	0.0	95	5	95	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	FIELD
9	LF	3	HT	2.0	95	5	95	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	FIELD
9	RT	1	HT	8.0	85	5	95	Conifer	0	0	0	0	0	
								Hardwood	0	2	1	0	0	
9	RT	2	HT	5.0	90	65	30	Conifer	0	0	0	0	0	
								Hardwood	1	0	0	0	0	
9	RT	3	HS	35.0	95	80	15	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
18	LF	1	LT	20.0	70	10	85	Conifer	0	0	0	0	0	
								Hardwood	0	0	2	0	0	YARD, TRAIL
18	LF	2	HT	8.0	30	80	15	Conifer	2	0	0	0	0	
								Hardwood	0	0	0	0	0	
18	LF	3	HT	5.0	40	10	90	Conifer	0	0	0	0	0	
								Hardwood	0	2	0	0	0	
18	RT	1	HT	8.0	100	80	10	Conifer	0	0	0	0	0	
								Hardwood	3	1	0	0	0	
18	RT	2	HT	0.0	95	75	20	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
18	RT	3	HT	0.0	100	35	60	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
30	LF	1	LT	0.0	95	55	40	Conifer	0	0	0	0	0	
								Hardwood	0	1	1	0	0	
30	LF	2	HT	4.0	90	25	75	Conifer	0	0	0	0	0	
								Hardwood	0	1	0	0	0	
30	LF	3	HT	2.0	90	10	85	Conifer	0	0	0	0	0	
								Hardwood	2	2	3	0	0	
30	RT	1	HT	9.0	95	65	30	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
30	RT	2	HT	0.0	95	15	70	Conifer	2	0	0	0	0	
								Hardwood	3	0	0	0	0	
30	RT	3	RB	2.0	50	40	20	Conifer	0	0	0	0	0	
								Hardwood	2	0	0	0	0	LINDA LANE