

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

STREAM: North Fork Rock Creek - Upper (#NC 104)  
 BASIN: Nehalem River  
 SURVEY TYPE: Reference  
 DATE: November 3, 2003  
 REPORT PREPARED BY: Paul Jacobsen

The North Fork Rock Creek reference site is located just downstream of the companion North Fork Rock Creek treatment site. This site was surveyed for reference conditions in 1993, 1996 and 2001. Pool area has remained static through time, while complex pools have doubled, and pools now occur more frequently. Riffle gravel is slightly higher and riffle fines have increased. Large wood pieces are at similar levels from eight years prior while wood volume and key pieces have dropped dramatically..

	ODFW	Benchmark		AQI Survey	Post Project	Post Project	
Habitat Variable	Desirable	Undesirable		7/15/93	7/17/96	7/10/01	
Pool Area	>35%	<10%		29.4	36.1	31.9	
Pool Frequency	5-8	>20%		5.5	2.4	3.0	
Residual Pool Depth	.5-1m	.2-.5m		.51	.31	.46	
Complex Pools/km	>2.5	<1		8.7	14.4	15.8	
Width/Depth Ratio	<15	>30		13.6	19.1	18.0	
Riffle Gravel % area	>35%	<15%		26	38	33	
Silt-Sand-Organic %	<8%	>15%		0	23	14	
Shade %	>70%	< 60%		100	92	85	
LWD - pieces/100m	>20	<10		25.5	17.7	25.7	
LWD - Volume/100m	>30	<20		64.0	27.2	21.9	
LWD - Key pieces/ 100m	>3	<1		3.4	0.5	0.0	

**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: North Fork Rock Creek Upper (NC-104)  
BASIN: Nehalem River  
SURVEY TYPE: Reference  
DATE: July 10, 2001  
SURVEY CREW: Rachel Werner, Sean Allen  
REPORT PREPARED BY: Paul Jacobsen  
BASIN AREA: 17.9 km<sup>2</sup>  
USGS MAPS: Sunset Spring  
ECOREGION: Coast Range Volcanic

**GENERAL DESCRIPTION:**

The North Fork Rock Creek habitat survey extended 494 meters. The channel was alternately constrained by hillslopes and terraces in a broad valley floor. The average valley width index was 7.2 (range: 1.0 – 20.0). Land use for the reach was young (3-15 cm dbh) trees. The average unit gradient was 1.8 percent. Riffles (53%) and scour pools (30%) dominated stream habitat. Cobble (27%) and gravel (26%) dominated stream substrate. Wood volume was moderate at 21.9 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: North Fork Rock Creek - Upper (#NC 104)  
 BASIN: Nehalem River  
 SURVEY TYPE: Reference  
 DATE: September 9, 2002  
 SURVEY CREW: Sean Allen, Rachel Werner  
 REPORT PREPARED BY: Paul Jacobsen  
 BASIN AREA: 17.9 km<sup>2</sup>  
 USGS MAPS: Sunset Spring  
 ECOREGION: Coast Range Volcanic

**GENERAL DESCRIPTION:**

The North Fork Rock Creek habitat survey extended 494 meters. The channel was alternately constrained by hillslopes and terraces in a broad valley floor. The average valley width index was 7.2 (range: 1.0-20.0). Land use for the reach was young (3-15 cm dbh) trees. The average unit gradient was 1.8 percent. Riffles (53%) and scour pools (30%) dominated stream habitat.

Habitat Variable	ODFW Benchmark		AOI Survey	Post Project	Post Project	Post Project
	Desirable	Undesirable	7/15/93	7/17/96	7/10/01	3/15/02
Pool Area	>35%	<10%	29.4	36.1	31.9	12.1
Pool Frequency	5-8	>20%	5.5	2.4	3.0	4.4
Residual Pool Depth	.5-1m	.2-.5m	.51	.31	.46	.65
Complex Pools/km	>2.5	<1	8.7	14.4	15.8	5.9
Width/Depth Ratio	<15	>30	13.6	19.1	18.0	21.2
Riffle Gravel % area	>35%	<15%	26	38	33	28
Silt-Sand-Organic %	<8%	>15%	0	23	14	18
Shade %	>70%	< 60%	100	92	85	
LWD - pieces/100m	>20	<10	25.5	17.7	25.7	23.9
LWD - Volume/100m	>30	<20	64.0	27.2	21.9	32.3
LWD - Key pieces/ 100m	>3	<1	3.4	0.5	0.0	0.6

**COMMENTS:**

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

REACH 1

T4N-R6W-S8SW

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: 7.2 range: 1.0-20.0

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	494	2,726	0
Secondary	77	144	0

Channel Dimensions (m)

<u>Wetted</u>		<u>Active</u>		<u>Floodprone</u>	<u>First Terrace</u>
Width	4.5	Width	11.2	18.9	17.4
Depth	0.31	Height	0.6	1.2	1.4
		W:D ratio	18.0	Entrenchment	1.7

Stream Flow Type: LF Water Temp: 12.0-12.0°C  
 Avg. Unit Gradient: 1.8% Habitat Units/100m: 6.5

Riparian, Bank, and Wood Summary

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

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding	2%	Reach avg: 85%
Undercut Banks	7%	Range: 67-100

Large Woody Debris

	<u>Total</u>	<u>Total/100m</u>
All pieces (≥3m x 0.15m)	127	25.7
Volume (m <sup>3</sup> )	108	21.9
Key pieces (≥10m x 0.6m)	0	0.0

REACH 1 T4N-R6W-S8SW 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
GLIDE	1	23	8.1	0.20	185	0	0	10	60	25	5	0
POOL-BACKWATER	5	18	2.0	0.31	38	2	11	26	18	35	6	4
POOL-ISOLATED	2	10	3.2	0.45	24	0	20	53	15	8	5	0
POOL-LATERAL SCOUR	6	97	5.4	0.52	533	0	8	19	28	18	7	19
POOL-PLUNGE	1	7	6.2	0.80	42	1	0	0	5	15	15	65
POOL-STRAIGHT SCOUR	3	53	5.2	0.60	279	0	2	10	25	22	13	28
RAPID/BEDROCK	1	19	3.6	0.25	67	2	0	5	10	10	15	60
RAPID/BOULDERS	2	36	4.4	0.15	159	0	0	0	23	43	30	5
RIFFLE	12	263	4.9	0.17	1,340	0	4	10	33	37	10	6
RIFFLE W/ POCKETS	2	42	4.8	0.25	193	2	0	10	45	30	10	5
STEP/BEDROCK	2	3	3.7	0.10	10	0	0	0	3	0	0	98
<b>Total:</b>	<b>37</b>	<b>571</b>	<b>4.5</b>	<b>0.31</b>	<b>2,870</b>	<b>7</b>	<b>Avg: 5</b>	<b>14</b>	<b>26</b>	<b>27</b>	<b>10</b>	<b>17</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	7	28	2.3	0.35	62	2.16	2	3.2
Scour Pools	10	157	5.4	0.57	854	29.76	1	0.1
Glides	1	23	8.1	0.20	185	6.44	0	0.0
Riffles	14	305	4.9	0.18	1,533	53.42	2	0.1
Rapids	3	55	4.1	0.18	226	7.87	2	0.9
Cascades	0	0	-	-	0	0.00	0	0.0
Step/Falls	2	3	3.7	0.10	10	0.36	0	0.0
Dry	0	0	-	-	0	0.00	0	0.0

POOL SUMMARY

All Pools	<u>Total</u>	<u>#/Km</u>
	17	29.8
Pools ≥1m deep:	0	0.0
Complex pools (LWD pieces ≥3):	9	15.8
Pool Frequency (channel widths/pool):	3.0	
Residual pool depth (avg)	0.46m	

STREAM SUMMARY

NF ROCK UPPER REFERENCE (#104)

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	571	4.5	0.31	2,870	5	14	26	27	10	17	7

Wetted Area

Habitat Group	(m <sup>2</sup> )	Percent
Scour Pool	854	29.8
Backwater Pools	62	2.2
Glide	185	6.4
Riffle	1,533	53.4
Rapid	226	7.9
Cascade	0	0.0
Step	10	0.4
Dry	0	0.0

REACH 1

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

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

Total hardwoods/1000 ft	1,097
Total conifers/1000 ft	224
Total conifers >20" dbh/1000 ft	41
Total conifers >35" dbh/1000 ft	20

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	1.0	8.3	1.0	8.3
15-30cm	0.0	3.0	0.0	1.3	1.7	4.3	1.7	8.7
30-50cm	0.0	0.3	0.3	0.3	0.0	0.3	0.3	1.0
50-90cm	0.0	0.0	0.3	0.0	0.0	0.0	0.3	0.0
>90cm	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0
Total/100m <sup>2</sup>	0.0	3.3	0.7	1.7	3.0	13.0	1.2	6.0

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	(%)		(%)		(%)	
Canopy closure	38		53		73	
Shrub cover	33		13		7	
Grass/forb cover	67		83		88	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	Hillslope	50		67		83
High terrace	17		33		17	
Low terrace	33		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 (%)	28		39		47	

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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	1,097
Total conifers/1000 ft	224
Total conifers >20" dbh/1000 ft	41

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	1.0	8.3
15-30cm	1.7	8.7
30-50cm	0.3	1.0
50-90cm	0.3	0.0
>90cm	0.3	0.0

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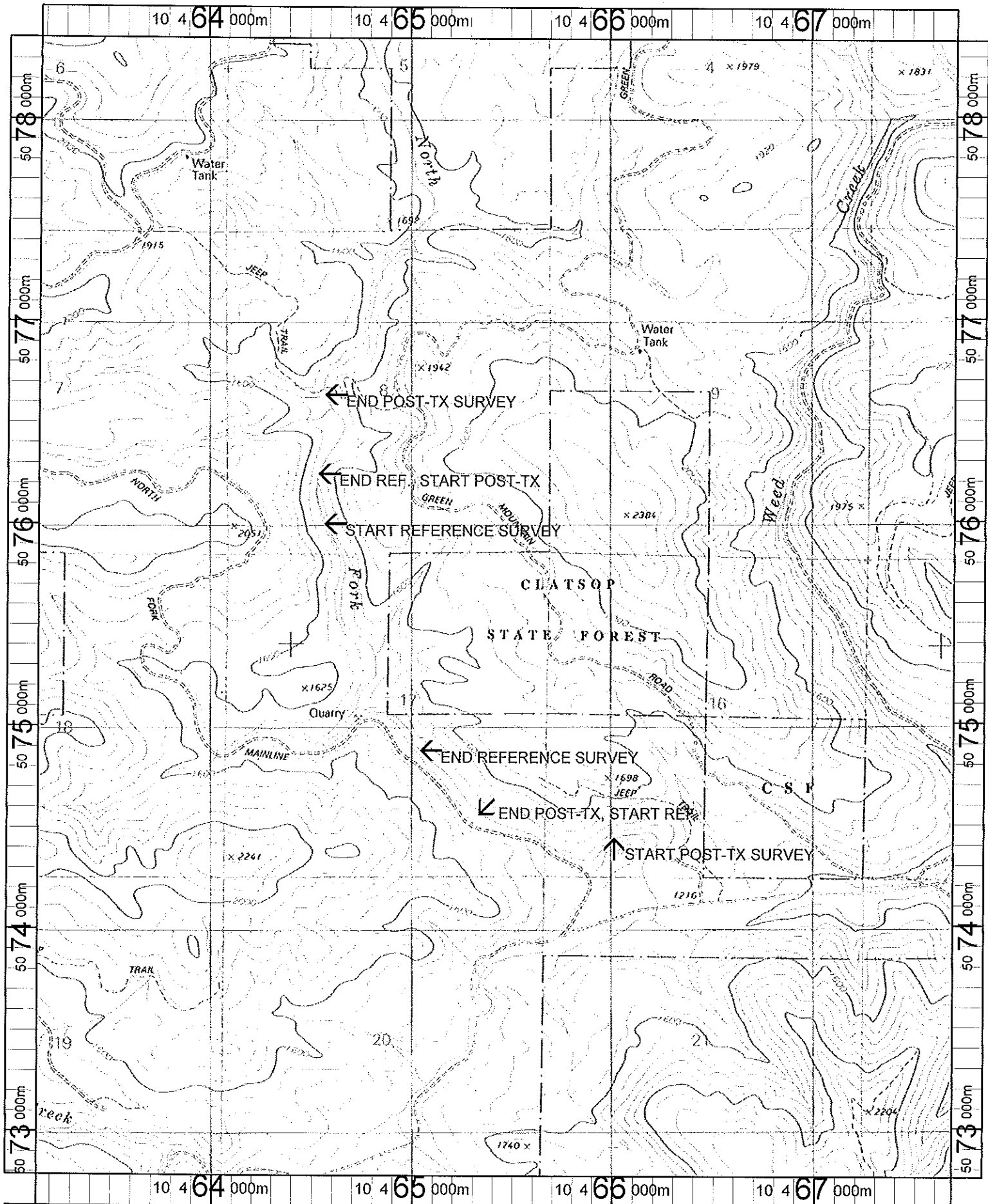
RIPARIAN ZONE VEGETATION

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	
7	LF	1	HS	34.0	70	35	65	Conifer	0	0	0	0	0	
								Hardwood	0	6	0	0	0	
7	LF	2	HS	67.0	60	10	90	Conifer	0	0	0	1	0	
								Hardwood	0	0	1	0	0	
7	LF	3	HS	70.0	85	0	100	Conifer	2	1	0	0	1	
								Hardwood	0	3	0	0	0	
7	RT	1	HS	63.0	70	5	95	Conifer	0	0	0	0	0	
								Hardwood	0	3	0	0	0	
7	RT	2	HS	70.0	65	0	100	Conifer	0	0	1	0	0	
								Hardwood	0	0	0	0	0	
7	RT	3	HS	62.0	50	10	90	Conifer	0	3	0	0	0	
								Hardwood	0	2	0	0	0	
19	LF	1	HS	50.0	20	80	20	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
19	LF	2	HS	65.0	65	10	70	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	MOUNTAIN BEAVER COL
19	LF	3	HS	65.0	90	5	85	Conifer	0	0	0	0	0	
								Hardwood	4	3	0	0	0	
19	RT	1	LT	5.0	0	70	30	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
19	RT	2	HT	9.0	10	0	100	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
19	RT	3	HS	68.0	70	10	90	Conifer	1	1	0	0	0	
								Hardwood	5	0	0	0	0	
33	LF	1	LT	2.0	10	5	95	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
33	LF	2	HS	12.0	60	50	50	Conifer	0	0	0	0	0	
								Hardwood	0	1	0	0	0	
33	LF	3	HS	15.0	80	10	70	Conifer	0	0	0	0	0	
								Hardwood	15	0	0	0	0	
33	RT	1	HT	15.0	60	5	95	Conifer	0	0	0	0	0	
								Hardwood	0	0	1	0	0	
33	RT	2	HT	9.0	60	10	90	Conifer	0	0	0	0	0	
								Hardwood	0	3	0	0	0	
33	RT	3	HT	3.0	60	5	95	Conifer	0	0	0	0	0	
								Hardwood	1	5	1	0	0	NETTLES



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

Location: 10 465427 E 5075582 N  
 Caption: 4-6 YEAR POST-TX AND REFERENCE SURVEYS -  
 UPPER AND LOWER ROCK CREEK - NEHALEM  
 BASIN