

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

STREAM: North Fork Rock Creek - Lower (#NC 103)
 BASIN: Nehalem River
 SURVEY TYPE: Post-Tx
 DATE: November 3, 2003
 REPORT PREPARED BY: Paul Jacobsen

The North Fork Rock Creek Lower 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 1993, two years prior to treatment. This site has a companion reference reach located just upstream. While pool area has remained about the same through time, complex pools are higher when compared to pre-treatment conditions. Riffle gravel is higher while riffle fines are lower. Large wood pieces have remained the same while volume and key pieces have decreased.

	ODFW	Benchmark		AQI Survey	Post Project	Post Project	
Habitat Variable	Desirable	Undesirable		7/12/93	7/15/96	7/9/01	
Pool Area	>35%	<10%		36.3	42.3	36.2	
Pool Frequency	5-8	>20%		1.7	2.0	3.3	
Residual Pool Depth	.5-1m	.2-.5m		.5	.46	.49	
Complex Pools/km	>2.5	<1		3.5	8.9	6.4	
Width/Depth Ratio	<15	>30		29.7	22.8	18.2	
Riffle Gravel % area	>35%	<15%		28	48	50	
Silt-Sand-Organic %	<8%	>15%		6	40	11	
Shade %	>70%	< 60%		99	97	91	
LWD - pieces/100m	>20	<10		21.8	20.7	21.1	
LWD - Volume/100m	>30	<20		46.6	36.0	30.7	
LWD - Key pieces/ 100m	>3	<1		2.5	3.1	1.4	

COMMENTS:

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

The 1996 survey crew recorded twelve habitat structures while the 2001 crew noted sixteen.

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STREAM RESTORATION HABITAT REPORT

STREAM: North Fork Rock Creek Lower (NC-103)
BASIN: Nehalem River
SURVEY TYPE: Post-Tx
DATE: July 9 2001
SURVEY CREW: Rachel Werner, Sean Allen
REPORT PREPARED BY: Paul Jacobsen
BASIN AREA: 17.9 km²
USGS MAPS: Sunset Spring
ECOREGION: Coast Range Volcanic

GENERAL DESCRIPTION:

The North Fork Rock Creek habitat survey extended 657 meters. The channel was constrained by terraces in a broad valley floor. The average valley width index was 3.2 (range: 1.0 – 5.0). Land use for the reach was second growth (15-30 cm dbh) trees. The average unit gradient was 2.0 percent. Riffles (38%) and scour pools (36%) dominated stream habitat. Gravel (37%) and cobble (21%) dominated stream substrate. Wood volume was high at 30.7 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.

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STREAM RESTORATION HABITAT REPORT

STREAM: North Fork Rock Creek - Lower (#NC 103)
 BASIN: Nehalem River
 SURVEY TYPE: Post-Tx
 DATE: September 9, 2002
 SURVEY CREW: Sean Allen, Rachel Werner
 REPORT PREPARED BY: Paul Jacobsen
 BASIN AREA: 17.9 km²
 USGS MAPS: Sunset Spring
 ECOREGION: Coast Range Volcanic

GENERAL DESCRIPTION:

The North Fork Rock Creek habitat survey extended 657 meters. The channel was constrained by terraces in a broad valley floor. The average valley width index was 3.2 (range: 1.0-5.0). Land use for the reach was second growth (15-30 cm dbh) trees. The average unit gradient was 2.0 percent. Riffles (38%) and scour pools (36%) dominated stream habitat.

	ODFW	Benchmark		AQI Survey	Post Project	Post Project	Post Project
Habitat Variable	Desirable	Undesirable		7/12/93	7/15/96	7/9/01	2/12/02
Pool Area	>35%	<10%		36.3	42.3	36.2	54.8
Pool Frequency	5-8	>20%		1.7	2.0	3.3	2.8
Residual Pool Depth	.5-1m	.2-.5m		.5	.46	.49	.80
Complex Pools/km	>2.5	<1		3.5	8.9	6.4	10.8
Width/Depth Ratio	<15	>30		29.7	22.8	18.2	28.9
Riffle Gravel % area	>35%	<15%		28	48	50	61
Silt-Sand-Organic %	<8%	>15%		6	40	11	9
Shade %	>70%	< 60%		99	97	91	
LWD - pieces/100m	>20	<10		21.8	20.7	21.1	19.1
LWD - Volume/100m	>30	<20		46.6	36.0	30.7	17.8
LWD - Key pieces/ 100m	>3	<1		2.5	3.1	1.4	0.3

COMMENTS:

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

REACH 1

T4N-R6W-S16SW

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: 3.2 range: 1.0-5.0

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	657	3,947	0
Secondary	285	1,082	2

Channel Dimensions (m)

<u>Wetted</u>		<u>Active</u>		<u>Floodprone</u>	<u>First Terrace</u>
Width	5.0	Width	11.3	17.2	20.2
Depth	0.33	Height	0.6	1.2	1.4
		W:D ratio	18.2	Entrenchment	1.5

Stream Flow Type: LF Water Temp: 11.0-11.0°C
 Avg. Unit Gradient: 2.0% Habitat Units/100m: 6.6

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	ST	
Riparian Vegetation:	D30	C50

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding	5%	Reach avg: 91%
Undercut Banks	9%	Range: 64-100

Large Woody Debris

	<u>Total</u>	<u>Total/100m</u>
All pieces ($\geq 3m \times 0.15m$)	139	21.1
Volume (m ³)	202	30.7
Key pieces ($\geq 10m \times 0.6m$)	9	1.4

REACH 1

T4N-R6W-S16SW

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
GLIDE	1	12	8.5	0.30	103	0	5	30	60	5	0	0
POOL-BACKWATER	3	12	1.4	0.33	15	0	27	67	5	2	0	0
POOL-LATERAL SCOUR	15	246	5.3	0.65	1,348	3	7	20	35	21	7	9
POOL-PLUNGE	3	14	7.5	0.53	113	3	7	31	30	15	13	3
POOL-STRAIGHT SCOUR	4	79	3.9	0.63	347	4	10	34	34	8	5	10
PUDDLED CHANNEL	2	43	11.2	0.30	482	0	18	28	25	20	10	0
RAPID/BEDROCK	2	42	6.6	0.28	280	0	0	3	18	15	15	50
RAPID/BOULDERS	6	87	3.7	0.14	368	9	2	5	18	37	31	7
RIFFLE	17	341	4.4	0.13	1,721	14	1	10	50	27	11	1
RIFFLE W/ POCKETS	3	56	3.3	0.28	181	1	6	12	44	23	15	0
STEP/BEDROCK	1	2	4.4	0.20	8	1	0	0	0	10	40	50
STEP/BOULDERS	1	1	12.4	0.10	7	0	0	0	10	20	50	20
STEP/COBBLE	1	4	12.4	0.05	45	0	0	5	85	10	0	0
STEP/LOG	3	3	4.0	0.06	12	0	3	20	70	7	0	0
Total:	62	943	5.0	0.33	5,029	35	Avg: 6	18	37	21	12	7

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m ²)	Percent	Large Number	Boulders #/100m ²
Dammed & BW Pools	3	12	1.4	0.33	15	0.30	0	0.0
Scour Pools	22	339	5.3	0.63	1,807	35.94	10	0.6
Glides	1	12	8.5	0.30	103	2.05	0	0.0
Riffles	20	398	4.2	0.15	1,902	37.82	15	0.8
Rapids	8	130	4.4	0.17	648	12.89	9	1.4
Cascades	0	0	-	-	0	0.00	0	0.0
Step/Falls	6	9	6.9	0.09	72	1.43	1	1.4
Dry	2	43	11.2	0.30	482	9.58	0	0.0

POOL SUMMARY

All Pools	<u>Total</u>	<u>#/Km</u>
	25	26.5
Pools ≥1m deep:	1	1.1
Complex pools (LWD pieces ≥3):	6	6.4
Pool Frequency (channel widths/pool):	3.3	
Residual pool depth (avg)	0.49m	

STREAM SUMMARY

NF ROCK LOWER POST-TX (#103)

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	
62	943	5.0	0.33	5,029	6	18	37	21	12	7	35

Wetted Area

Habitat Group	(m ²)	Percent
Scour Pool	1,807	35.9
Backwater Pools	15	0.3
Glide	103	2.0
Riffle	1,902	37.8
Rapid	648	12.9
Cascade	0	0.0
Step	72	1.4
Dry	482	9.6

REACH 1

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

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

Total hardwoods/1000 ft	1,158
Total conifers/1000 ft	81
Total conifers >20" dbh/1000 ft	41
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	0.3	0.0	7.7	0.0	6.7	0.0	14.7
15-30cm	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3
30-50cm	0.0	2.3	0.0	0.7	0.7	0.3	0.7	3.3
50-90cm	0.0	0.3	0.3	0.3	0.3	0.0	0.7	0.7
>90cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total/100m ²	0.0	3.0	0.3	8.7	1.0	7.3	0.4	6.3

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	(%)		(%)		(%)	
Canopy closure	61		60		55	
Shrub cover	26		27		16	
Grass/forb cover	74		72		73	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	Hillslope	33		67		67
High terrace	50		33		17	
Low terrace	17		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 (%)	20		23		23	

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	1,158
Total conifers/1000 ft	81
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	0.0	14.7
15-30cm	0.0	0.3
30-50cm	0.7	3.3
50-90cm	0.7	0.7
>90cm	0.0	0.0

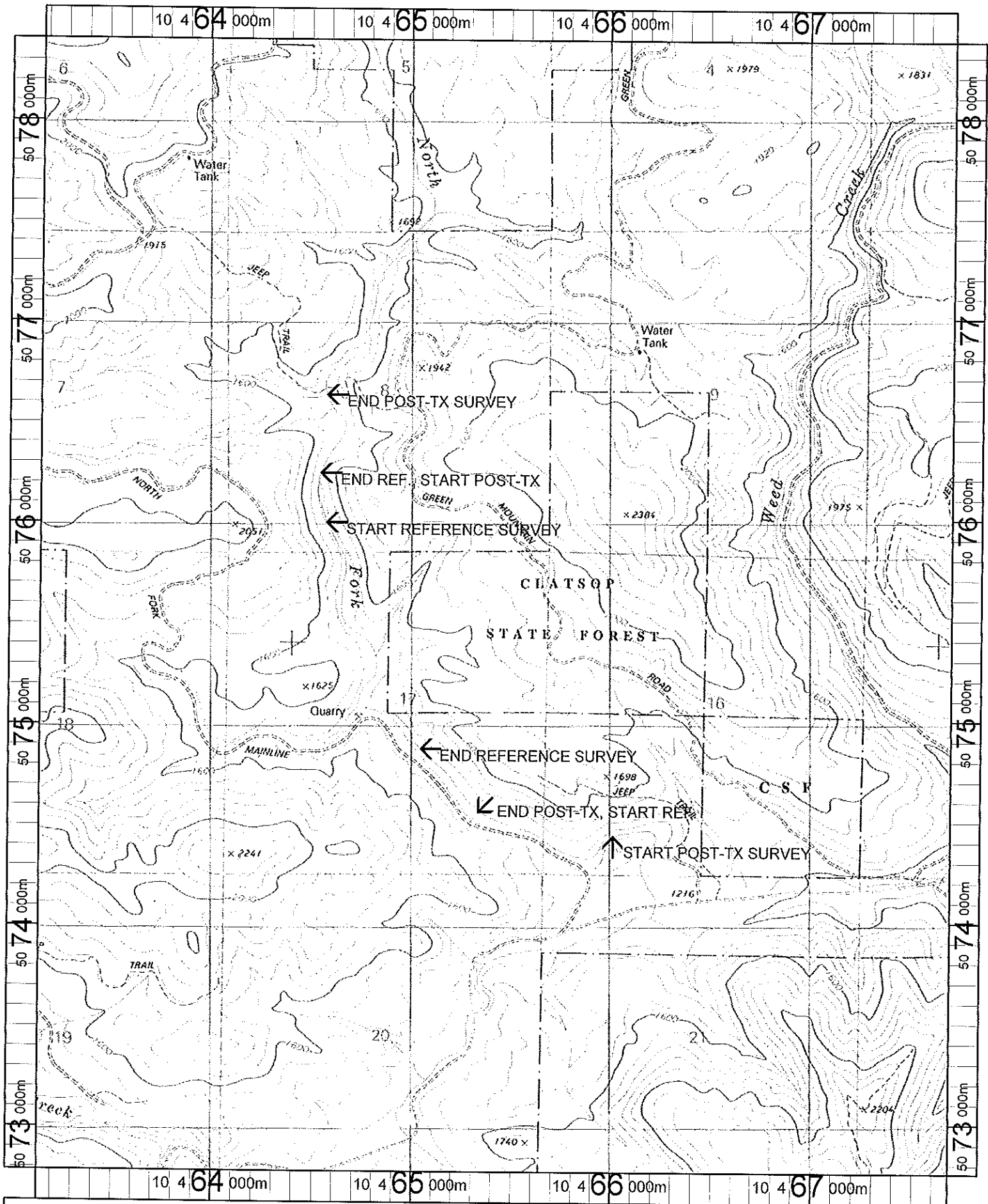
RIPARIAN ZONE VEGETATION

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		
19	LF	1	HT	2.0	80	35	65	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
19	LF	2	HS	36.0	50	30	70	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
19	LF	3	RB	0.0	15	0	35	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
19	RT	1	LT	1.0	75	20	80	Conifer	0	0	0	0	0	
								Hardwood	1	0	2	0	0	
19	RT	2	HT	3.0	75	45	55	Conifer	0	0	0	0	0	
								Hardwood	0	0	2	1	0	
19	RT	3	HT	0.0	70	10	90	Conifer	0	0	0	1	0	
								Hardwood	0	0	0	0	0	
27	LF	1	HS	68.0	70	70	30	Conifer	0	0	0	0	0	
								Hardwood	0	0	2	0	0	
27	LF	2	HS	39.0	75	75	25	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
27	LF	3	HS	8.0	70	20	80	Conifer	0	0	0	0	0	
								Hardwood	0	0	1	0	0	
27	RT	1	HS	40.0	0	25	75	Conifer	0	0	0	0	0	
								Hardwood	0	0	1	1	0	
27	RT	2	HS	42.0	85	0	90	Conifer	0	0	0	1	0	
								Hardwood	8	0	0	0	0	VINEMAPLE, ELK TRAI
27	RT	3	HS	30.0	55	10	90	Conifer	0	0	0	0	0	
								Hardwood	15	0	0	0	0	VINE MAPLE
39	LF	1	HT	4.0	60	0	100	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	NETTLES
39	LF	2	HT	0.0	0	10	90	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
39	LF	3	HS	65.0	40	50	50	Conifer	0	0	0	0	0	
								Hardwood	2	1	0	0	0	
39	RT	1	HT	6.0	80	5	95	Conifer	0	0	0	0	0	
								Hardwood	0	0	2	0	0	
39	RT	2	HS	20.0	75	0	100	Conifer	0	0	0	0	0	
								Hardwood	15	0	0	0	0	
39	RT	3	HS	34.0	80	5	95	Conifer	0	0	2	0	0	
								Hardwood	3	0	0	0	0	



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