APPENDIX C TERRESTRIAL

C1. Soils of the Little North Santiam Watershed

Little North Santiam Watershed Soils

Soils Groups	Acres	% of watershed	Description
Keel, Hummington, Highcamp	38,369	53.17	Cryic cold soils
Winopee, Dinzer, Talapus	8,759	12.14	Cryic cold soils
Peavine, Honeygrove, Orford	10,445	14.48	Silty clay loams, Clay loams
Klickatat, Kinney, McCully	13,920	19.29	Gravelly, cobbly loams
Chehalis, Cloquato, Newberg	2		Hydric soils
Malabon, Coburg, Salem	662	0.92	Silt loams
	72,157	100.00	

65.31 % of the watershed (nearly 2 out of 3) lie in the cryic soil temperature zones, which are defined (for the purpose of this analysis) as the snow dominated zones and field studies conducted by William Power have shown to be nitrogen limiting.

Cryic/Udic Soil Temperature/Moisture Zones

Cryic soil groups of Little North Santiam Watershed. 38,369 acres or 53.17 % of watershed)

Soil Series	Texture	Effective soil depth	Available water holding capacity (AWHC) (inches)	Site index
Keel	Gravelly silt loam	20 - 40 inches	5 - 8 inches total 5 - 6 top 20 inches	130
Hummington	Very gravelly loam	20 - 40 inches	7-11 total 5 top 20 inches	145
Highcamp	very gravelly loam	40 - 60 inches	3.5 - 9 total 2.5 top twenty inches	110

Cryic soil groups of Little North Santiam Watershed. (8,760 acres or 12.14 % of watershed)

Soil Series	Texture	Effective soil depth	AWHC (inches)	Site index
Talapus	Very gravelly loam	60+ inches	5 - 10 inches total 2 1/4 - 3 1/2 top 20 inches	98
Winopee	Loamy sand - gravelly sand - gravelly loam	40 - 60 inches	7-19 total	? (Hardpan at 40 inches)
Dinzer	very gravelly loam	60+ inches (solum 12 - 24 inches)	3.5 - 9 total 2.5 top twenty inches	?

Mesic/Udic Soil Temperature/Moisture Zones (10,445 acres/14.48%)

Soil Series	Texture	Effective soil depth	AWHC (inches)	Site index
Peavine	Silty clay loam	20 - 40 inches	5 - 7 inches total 3 -3 1/2 top 20 inches	160
Honeygrove	Silty clay loam	60+ inches	8 - 10 total; 2 3/4 - 3 1/4 first 20 inches	155 - 165
Orford	silty clay loam over silty clay	60+ inches	9- 10 1/2 total 3 1/2 - 4 top twenty inches	175

Mesic/Udic Soil Temperature/Moisture Zones (13,920 acres/19.29%)

Soil Series	Texture	Effective soil depth	AWHC (inches)	Site index
Klickatat	Stony loam - gravelly clay loam	40 - 60 inches	3 - 5 inches total 1 1/2 - 2 top 20 inches	145
Kinny	Cobbly loam over cobbly clay loam	40 - 60 inches	8 - 12 total; 3 - 4 1/2 first 20 inches	150 - 180
McCully	gravelly loam over silty clay over clay	40 - 60 inches	6 - 10 total 3 - 3 1/2 top twenty inches	162

Mesic/Xeric Soil Temperature/Moisture Zones for Soils on Floodplains (2 acres/0.0033 % of watershed)

Soil Series	Texture	Soil depth	AWHC (inches)	Site Index
Chehalis	Silty clay loam	60+	10 - 13 total; 3 3/4 - 4 1/4 top 20 inches	130

Cloquato	Silt loam	60+	9 - 11 total; 4 - 4 1/2 top 20 inches	125
Newberg	Fine sandy loam	60+	6 - 9 total; 2 1/2 - 3 inches top 20 inches	147

Mesic/Xeric Soil Temperature/Moisture Zones for Soils on alluvial stream terraces (662 acres / 0.92% of watershed)

Soil Series	Texture	Soil depth	AWHC (inches)	Site index
Malabon	Silty clay loam	60+	10 - 12 total; 3 1/2 - 4 top 20 inches	166
Coburg	Silty clay loam	60+	10 - 12 total; 3 1/2 - 4 top 20 inches	None given
Salem	Gravelly silt loam	60 +	3 - 8 inches total; 2 - 3 1/2 top 20 inches	155

APPENDIX C2. DENSITY MANAGEMENT STAND TABLES AND TOTAL ACRES AVAILABLE FOR TREATMENT

Density Management Stand Tables: ages 0 to 70 years

The following tables approximate growth that could be achieved through density management treatments at various ages. The source is U.S. Forest Service General Technical Report PNW-135, Jan 1982, Yield Tables for Managed Stands of Coast Douglas-fir by Robert O. Curtis, Gary W. Clendenen, Donald L. Reukema and Donald J. Demars. The assumptions are an average site index for Douglas-fir of 105 at 50 years (King); initial planting of 400 trees per acre, density management at age 13 to 300 trees per acre and subsequent density management treatments at ages 37, 49, and 65 to an approximate 40 relative density (Curtis). Actual results would vary depending on site specific prescriptions and environmental conditions.

Site Index 105, King					
No Treatment					
		Basal Area			Relative
Age	Trees/Acre	/Acre	DBH	Ht	Density
1	400				
30	392	104	6.98	51.5	39
40	348	157.1	9.09	68.9	52
50	301	197.4	10.96	83.1	60
60	261	230.1	12.7	95.1	65
70	230	256.4	14.31	105.3	67
Density Management					
Treatment at Age 13					
		Basal Area			Relative
Age	Trees/Acre	/Acre	DBH	Ht	Density
1	400				
13	300				
30	296	111.4	8.3	53.6	39
40	279	172.1	10.64	70.9	53
50	250	218.7	12.66	85	61

60	223	255.1	14.5	97.1	67
70	197	280.1	16.16	107.2	70
Density Management					
Treatments at ages 13,37,49,65					
		Basal Area			Relative
Age	Trees/Acre	/Acre	DBH	Ht	Density
1	400				
13	300				
30	296	111.4	8.3	53.6	39
37	286	155.7	9.99	66.1	49
Treat 37	200	115.3	10.28	66.6	36
40	199	134.2	11.12	71.9	40
49	192	181.1	13.15	85.6	50
Treat 49	129	139.1	14.06	86	37
50	129	144.4	14.34	87.5	38
60	127	190.6	16.61	100.2	47
65	125	210.4	17.6	105.6	50
Treat 65	90	171.6	18.72	106	40
70	89	193.5	19.95	111.2	43

Total Acres Available for Treatment: ages 10 to 150 years

The following table summarizes **total** conifer/hardwood acres in BLM administered riparian reserves and District Designated Reserve, and USFS administered Late Successional Reserve by age class. Acres actually available for treatment would be considerably less based on the criteria outlined in Chapter 7, Recommendation #5.

CONIFER STANDS					
			Area in Acres by Age Class		
Allocation			10 to 30 yrs	30 to 70 yrs	70 to 150 yrs
BLM	Riparian Reserves		447	1803	1192
			10 to 30 yrs	30 to 80 yrs	
BLM	DDR		7	111	

USFS	LSR		205	515	851
HARDWOOD STANDS					
			20 yrs plus		
BLM	Riparian Reserves		519		
BLM	DDR		101		