

APPENDIX 10 -- CULL TABLES, SCALING DEDUCTION METHODS AND SLOPE CORRECTION TABLES

PERCENT OF CUBIC-FOOT CULL VOLUME FOR ALL TREES BY 4-FT SECTIONS & LOCATION IN THE TREE									
LENGTH (FT)	1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH	9TH
8	57	43							
12	42	32	26						
16	30	26	23	21					
20	26	23	21	19	11				
24	24	21	18	17	10	10			
28	21	19	17	16	10	9	8		
32	20	18	16	14	10	8	7	7	
36	19	16	14	13	9	8	8	7	6
40	17	15	13	12	9	8	7	7	6
44	16	14	12	11	9	7	7	7	6
48	15	13	12	10	8	7	7	6	6
52	14	12	11	9	8	7	6	6	6
56	13	11	10	9	8	6	6	6	6
60	12	11	10	9	7	6	6	6	6
64	11	10	9	9	7	6	6	6	5
68	10	10	9	8	6	6	6	5	5
72	10	9	8	8	6	6	6	5	5
	10TH	11TH	12TH	13TH	14TH	15TH	16TH	17TH	18TH
40	6								
44	6	5							
48	6	5	5						
52	6	5	5	5					
56	6	5	5	5	4				
60	5	5	5	5	4	4			
64	5	5	5	5	4	4	4		
68	5	5	5	4	4	4	4	4	
72	5	4	4	4	4	4	4	4	4

PERCENT OF BOARD-FOOT CULL OF <i>HARDWOOD SAWTIMBER</i> BY 4-FT SECTIONS & LOCATION IN THE TREE								
LOG (FT)	1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH
1 (16)	29	26	24	21				
1-1/2 (24)	19	18	16	16	16	15		
2 (32)	15	14	13	13	12	12	11	10
2-1/2 (40)	12	12	11	11	10	10	9	9
3 (48)	12	10	10	9	9	9	8	7
3-1/2 (56)	10	10	9	9	9	8	8	7
4 (64)	9	9	9	8	8	7	7	7
	9TH	10TH	11TH	12TH	13TH	14TH	15TH	16TH
2-1/2 (40)	8	8						
3 (48)	7	7	6	5				
3-1/2 (56)	7	6	5	5	4	3		
4 (64)	6	6	5	5	4	4	3	3

PERCENT OF BOARD-FOOT CULL OF <i>SOFTWOOD SAWTIMBER</i> BY 4-FT SECTIONS & LOCATION IN THE TREE								
LOG (FT)	1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH
1 (16)	33	27	21	19				
1-1/2 (24)	26	20	16	15	12	11		
2 (32)	21	17	14	12	10	9	9	8
2-1/2 (40)	19	15	12	10	9	8	7	7
3 (48)	16	13	11	10	8	7	7	6
3-1/2 (56)	13	12	10	9	7	7	6	6
4 (64)	10	9	9	8	7	7	6	6
	9TH	10TH	11TH	12TH	13TH	14TH	15TH	16TH
2-1/2 (40)	7	6						
3 (48)	6	6	5	5				
3-1/2 (56)	6	5	5	5	5	4		
4 (64)	6	5	5	5	5	4	4	4

METHODS OF DETERMINING SCALING DEDUCTION (Examples based on an 8-foot log with 20-inch scaling diameter)	
<p>If <u>section</u> of hole is affected, deduct percent of log length affected.</p> <p>Example: $\frac{2}{8} = 25$ percent cull</p>	
<p>If <u>sector</u> is affected, multiply percent of circle times percent of length.</p> <p>Example: $\frac{60^{\circ}}{360^{\circ}} \times \frac{3}{8} = 6\%$ cull</p>	
<p>For a <u>crook</u>, multiply proportion of diameter displaced times proportion of log length affected by crook.*</p> <p>Example: $\frac{10}{20} \times \frac{2}{8} = 12\%$ b.f. cull</p>	
<p>For a <u>sweep</u>, determine sweep departure and subtract 1" for 8' logs or 2" for 16' logs. Divide by log diameter.</p> <p>Example: $\frac{8-1}{20} = 35\%$ b.f. cull**</p>	
<p>For <u>interior cull</u>, square out interior cull as a percent of total volume of the section. For bd. ft. cull, add 1" to width and to thickness; for cu. ft. cull, use actual dimensions of rot. For bd. ft. cull divide width and thickness by the scaling diameter (ave. d.i.b., small end) minus 1; for cu. ft. cull, divide by scaling diameter. Multiply fractions by percent of log affected.</p> <p>Example: $\frac{8 \times 10}{(20-1)^2} \times \frac{2}{8} = 6\%$ cubic-foot cull</p>	

* No reduction of cubic-foot volume will be made.

** If a straight line between A and B falls outside the bark, the affected section is over 50% cull in board feet.

SLOPE CORRECTION TABLE									
% SLOPE	Chaining Distances								
	120.0	100.0	98.4	60.0	52.7	49.0	37.2	34.6	24.0
1 - 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
6	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0
8	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1
10	0.6	0.5	0.5	0.3	0.3	0.2	0.2	0.2	0.1
12	0.9	0.7	0.7	0.4	0.4	0.4	0.3	0.2	0.2
14	1.2	1.0	1.0	0.6	0.5	0.5	0.4	0.3	0.2
16	1.5	1.3	1.2	0.8	0.7	0.6	0.5	0.4	0.3
18	1.9	1.6	1.6	1.0	0.8	0.8	0.6	0.6	0.4
20	2.4	2.0	1.9	1.2	1.0	1.0	0.7	0.7	0.5
22	2.9	2.4	2.4	1.4	1.3	1.2	0.9	0.8	0.6
24	3.4	2.8	2.8	1.7	1.5	1.4	1.1	1.0	0.7
26	4.0	3.3	3.3	2.0	1.7	1.6	1.2	1.1	0.8
28	4.6	3.8	3.8	2.3	2.0	1.9	1.4	1.3	0.9
30	5.3	4.4	4.3	2.6	2.3	2.2	1.6	1.5	1.1
32	6.0	5.0	4.9	3.0	2.6	2.5	1.9	1.7	1.2
34	6.7	5.6	5.5	3.4	3.0	2.8	2.1	1.9	1.3
36	7.5	6.3	6.2	3.8	3.3	3.1	2.3	2.2	1.5
38	8.4	7.0	6.9	4.2	3.7	3.4	2.6	2.4	1.7
40	9.2	7.7	7.6	4.6	4.1	3.8	2.9	2.7	1.8
42	10.2	8.5	8.3	5.1	4.5	4.1	3.1	2.9	2.0
44	11.1	9.3	9.1	5.6	4.9	4.5	3.4	3.2	2.2
46	12.1	10.1	9.9	6.0	5.3	4.9	3.7	3.5	2.4
48	13.1	10.9	10.7	6.6	5.8	5.4	4.1	3.8	2.6
50	14.2	11.8	11.6	7.1	6.2	5.8	4.4	4.1	2.8
52	15.3	12.7	12.5	7.6	6.7	6.2	4.7	4.4	3.1
54	16.4	13.7	13.4	8.2	7.2	6.7	5.1	4.7	3.3
56	17.5	14.6	14.4	8.8	7.7	7.2	5.4	5.1	3.5
58	18.7	15.6	15.4	9.4	8.2	7.6	5.8	5.4	3.7
60	19.9	16.6	16.4	10.0	8.8	8.1	6.2	5.8	4.0
62	21.2	17.7	17.4	10.6	9.3	8.7	6.6	6.1	4.2
64	22.5	18.7	18.4	11.2	9.9	9.2	7.0	6.5	4.5
66	23.8	19.8	19.5	11.9	10.4	9.7	7.4	6.9	4.8
68	25.1	20.9	20.6	12.6	11.0	10.3	7.8	7.2	5.0
70	26.5	22.1	21.7	13.2	11.6	10.8	8.2	7.6	5.3
72	27.9	23.2	22.8	13.9	12.2	11.4	8.6	8.0	5.6
74	29.3	24.4	24.0	14.6	12.9	12.0	9.1	8.4	5.9
76	30.7	25.6	25.2	15.4	13.5	12.5	9.5	8.9	6.1
78	32.2	26.8	26.4	16.1	14.1	13.1	10.0	9.3	6.4
80	33.7	28.1	27.6	16.8	14.8	13.7	10.4	9.7	6.7
82	35.2	29.3	28.9	17.6	15.5	14.4	10.9	10.1	7.0
84	36.7	30.6	30.1	18.4	16.1	15.0	11.4	10.6	7.3
86	38.3	31.9	31.4	19.1	16.8	15.6	11.7	11.0	7.7
88	39.8	33.2	32.7	19.9	17.5	16.3	12.4	11.5	8.0
90	41.4	34.5	34.0	20.7	18.2	16.9	12.8	12.0	8.3
92	43.1	35.9	35.3	21.5	18.9	17.6	13.3	12.4	8.6
94	44.7	37.2	36.6	22.3	19.6	18.2	13.9	12.9	8.9
96	46.3	38.6	38.0	23.2	20.4	18.9	14.4	13.4	9.3
98	48.0	40.0	39.4	24.0	21.1	19.6	14.9	13.8	9.6
100	49.7	41.4	40.8	24.9	21.8	20.3	15.4	14.3	9.9