Old Forest Assessment - Procedures Version 1.5 March 26, 2024

Plot Selection:

Old forest assessment plot selection is completed based on a random selection of points within forest inventory stands (polygons). Assessment will normally only be completed on forest inventory stands of >= 1 ha. The following number of plots are recommended based on the area of the inventory polygon:

Stand Size	Plots to be Sampled
1-5 ha	3 Plots
5-10 ha	5 plots
10+ ha	Plot per 2 ha, max.
	10 plots

Plots are meant to be representative but randomly placed, and therefore generally represent the stand. In the field, if the random plot is not representative of the predominant stand conditions – such as wet areas (poorly drained soils, vernal pools, springs, small streams), small inclusions (of clearly different species mix), rock outcrops, etc. or anthropomorphic disturbances – such as roads, trails, landings, boundary lines, or any small, harvested area included within a larger stand; plots should be moved to another area in the stand randomly chosen in the field (either from a pre-chosen list or moved randomly approximately 25 m to avoid to not representative occurrence). Plots should also be selected to be at least 20 m from the edge of the stand boundary.

Plot Measurements:

1. Use a 2 BAF prism sample to tally live trees by species in 2 cm dbh classes.

2. During the prism sample, tally all snags that have a dbh \geq 20 cm in 2 cm classes. Estimate the top diameter and height.

3. Measure the age of one tree at each plot. If you are in a stand that is only 1-2 ha, sample at least 3 trees even if you only complete 1 or 2 plots. The tree selected to age should be from the most dominate LIT/LT species in the plot and should be representative of the top 20% of the basal area. If the identified tree is not a late-successional species or is rotten, select another tree in the plot (or near the plot but still in the stand) that is late successional and is the same diameter class or slightly larger.

In some rare cases it may be necessary to core a none LIT /LT species. This may be the case if conducting a plot in an early successional vegetation type, or in a mid to late successional vegetation type with a cohort of non-LIT/LT species which comprises most of the basal area.

4. Establish three 20-metre line transects in a triangular shape (see example below) at each plot to determine the length of downed tree bole (m/ha) by diameter class. Tally each piece of wood intersected by the transect under the diameter classes corresponding to the diameter of the bole at the point of intersection. For example, a tree bole with a diameter of 42 cm at the point where it is crossed by the transect line will be given 1 dot tally under each of the ≥ 20 cm, ≥ 30 cm, and ≥ 40 cm classes.

Note: A dead tree is considered to be a snag if it is standing at 45 degrees or more from horizontal, in which case it will be sampled using the prism plot. If it is laying horizontally at less than 45 degrees, it is considered "downed" and will be measured using the line transect plot. All deadwood is sampled regardless of its state of decay and length.

5. Record Primal Value (document date of previous harvest if known), Crown Closure, Understory Structure, and Presence of Old-Growth Ecological Features and score based on visual assessment after completion of cruise.

6. List the most appropriate FEC vegetation type (Neily et al. 2022).

Stand Level Assessments

If more than 30% of the plots in a stand are represented by vegetation types that are eligible to be considered old growth, the lowest reference age of these will be used for the stand. If less than 30% of the plots are vegetation types eligible to be considered old growth, the stand will not be considered old-growth forest.

Stand age should be assessed starting with the average and the variance of the plot ages. One very old plot or very young plot should not be used the determine if the stand is old-growth or not. Large variances in vegetation types (i.e., distinct boundaries between forest groups) and ages can be used to consider splitting a stand. Stand splitting can only be considered with consultation with the regional forester. Each portion of a stand split must be at least 1 ha in area (ideally at least 2 ha).

When determining the old growth score for categories that have measured and calculated values (tree age, live stem density and volume of deadwood), the score is based on the stand level averages for each category. The final score is not an average of the scores for each plot. For categories that are based on observations (human disturbance, overstory crown closure and ecological features), the final score is the highest score obtained at any plot.

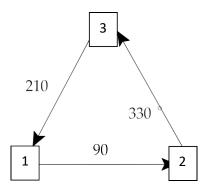
If you have any questions about the procedures, or if the determination of Old-Growth forest is not obvious based on the information collected, or is close to the threshold, please consult Peter Bush, Old-Growth Forest Coordinator, peter.bush@novascotia.ca

Forest Group	Vegetation Type	Old - Growth Reference Age
Tolerant	TH1, TH2, TH3, TH4, TH5, TH6,	ngc
Hardwood	TH7, TH8, TH9	140
Spruce-Hemlock	SH3, SH4, SH5, SH7	125
Spruce-Hemlock	SH1, SH2	140
Mixedwood	MW1, MW2, MW3, MW4, MW11, MW13	125
Spruce-Pine	SP4, SP5, SP7, SP8	125
Wet Mixedwood	WM1, WM2	115
Wet Coniferous	WC1, WC2, WC5, WC8, WC10	100
Coastal Boreal	CB1, CB3	100
Coastal Acadian	CA1	125
Highland	HL1, HL2, HL6	100
Highland	HL3, HL4	140
Wet Deciduous	WD3, WD4,	115
Floodplain	FP1, FP2, FP3	125
Karst	KA1, KA2, KA3	125

Old-Growth Vegetation Types and References Ages

(Neily et al., 2022)

Line-transect plot layout diagram for CWD measurement



Top 20% Basal Area Tree to Sample

TREE TO AGE			
	Тор		
TOTAL	20%		
TREES*	Tree		
< 11	2		
11 - 15	3		
16 - 20	4		
21 - 25	5		
26 - 30	6		
31 - 35	7		
36 - 40	8		
40 - 45	9		
> 45	10		

*Note includes all trees in prism sweep

Long-Lived Intermediate–Tolerant (LIT) species or Late-Successional (LT) Species

LIT/LT SPECIES	Acadian	Maritime Boreal
Sugar Maple	Х	
Yellow Birch	Х	Х
American Beech	Х	
Red Spruce	Х	
Eastern Hemlock	Х	
Red Oak	Х	
White Ash	Х	
White Pine	Х	
Red Maple	Х	Х
White Spruce	Х	Х
Black Spruce	Х	Х
Balsam Fir		Х

$\begin{array}{c c} cm & cm$	4	3 .071 3 .425 3 .778 1 .132 1 .485 1 .839 2 .548 2 .900 3 .253 3 .607 3 .960 4 .314 4 .621 5 .375 5 .728 6 .062 8 .608 9 .7.142 7 .496 8 .516 8 .516 8 .516 9 .264 9 .264	3 107 480 814 1.187 1.521 1.874 2.288 2.581 2.935 3.289 3.642 3.996 4.349 4.349 4.703 5.056 5.410 5.763 8.117 8.471 6.824 7.531 7.855 8.236 8.945 9.299 9.853 10.006	4 .142 .495 .849 1.203 1.566 1.910 2.263 2.817 2.970 3.324 3.677 4.031 4.031 4.031 4.031 4.035 5.092 5.445 5.799 8.152 6.506 8.859 7.213 7.567 7.920 8.274 8.961 9.334 9.6666 9.334	5 .177 .531 .884 1.238 1.591 1.945 2.299 2.852 3.006 3.309 3.303 4.066 4.420 4.473 5.127 5.481 5.834 8.541 5.834 8.541 8.895 7.248 7.802 7.955 8.309 8.663 9.070 9.370 9.370	6 213 566 920 1.273 1.627 1.627 2.334 2.688 3.041 3.395 3.748 4.102 4.455 4.693 5.162 5.569 5.269 5.869 5.223 8.577 6.930 7.284 7.637 7.991 7.284 7.637 7.991 8.344 8.638 9.051	7 248 602 955 1309 2018 2.369 2.723 3.740 3.740 3.740 3.744 4.137 4.941 4.844 4.137 4.941 4.844 4.137 5.905 6.258 6.612 6.905 6.258 6.612 6.905 6.258 6.612 6.905 6.258 6.612 6.905 8.026 8.030 9.087 9.087 9.794	8 283 .837 .990 1.344 1.698 2.051 2.405 2.758 3.112 3.465 3.112 3.465 3.819 4.172 4.526 4.520 4.286 4.286 4.286 4.286 5.587 5.5845 5.5845 5.5845 5.5845555555555	311 67 1.02 1.37 2.78 2.44 2.79 2.44 2.56 2.44 3.55 2.44 2.56 2.44 3.55 5.66 5.66 5.67 5.87 8.33 6.66 6.66 6.66 8.42 7.73 7.74 8.84 8.84 8.91 1.95
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9 3.16; 0 3.533 1 3.89 2 4.24; 3 4.59 5 5.30 6 5.65; 7 6.01; 8 6.366; 9 6.711; 0 7.772; 1 7.42; 2 7.773; 8 13; 4 8.48; 5 8.83; 6 9.16; 7 9.54; 8 9.90; 9 10.25; 1 10.96; 2 12.375; 6 12.728; 7 13.082; 8 13.436; 9 13.768; 1 14.496; 2 14.850; 1 14.496; 2 14.850; 3 15.203; 4 15.203; 4 15.203; <t< td=""><td>2 3,218 3,327 3,322 4,2777 4,2777 4,2777 4,2777 4,2777 4,2777 4,27777 4,27777 4,27</td><td>3,607 3,607 4,314 4,667 5,021 5,375 5,728 6,082 8,435 6,789 7,142 7,496 7,499 8,203 8,556 6,910 9,264 9,817 9,971</td><td>3 289 3 642 3 996 4 349 4 703 5 056 5 410 5 763 8 117 8 471 6 824 7 178 7 885 8 236 8 945 9 299 9 8 945 9 299 9 853 10.006</td><td>3.324 3.677 4.031 4.385 5.092 5.445 5.799 8.152 6.506 8.859 7.213 7.567 7.920 8.274 8.8627 8.981 9.334 9.666 10.041</td><td>3.359 3.713 4.066 4.420 4.773 5.127 5.481 5.834 8.186 8.541 8.895 7.248 7.845 7.248 7.802 7.955 8.309 8.663 9.016 9.370</td><td>3.748 4.102 4.455 4.809 5.162 5.516 5.869 8.223 8.577 6.930 7.284 7.637 7.991 8.344 8.698 9.051 9.404</td><td>3,430 3,784 4,137 4,491 4,844 5,551 5,505 6,558 6,612 6,966 7,319 7,673 8,026 8,380 8,733 9,087 9,0440</td><td>3.465 3.819 4.172 4.526 4.880 5.233 5.587 5.940 8.647 7.001 7.354 7.001 7.354 7.001 7.354 8.062 8.415 8.769 9.122 9.476</td><td>3.50 3.85 4.20 4.56 4.91 5.20 5.67 5.97 8.32 6.66 7.03 7.73 7.77 8.00 8.44 8.89 9.11</td></t<>	2 3,218 3,327 3,322 4,2777 4,2777 4,2777 4,2777 4,2777 4,2777 4,27777 4,27777 4,27	3,607 3,607 4,314 4,667 5,021 5,375 5,728 6,082 8,435 6,789 7,142 7,496 7,499 8,203 8,556 6,910 9,264 9,817 9,971	3 289 3 642 3 996 4 349 4 703 5 056 5 410 5 763 8 117 8 471 6 824 7 178 7 885 8 236 8 945 9 299 9 8 945 9 299 9 853 10.006	3.324 3.677 4.031 4.385 5.092 5.445 5.799 8.152 6.506 8.859 7.213 7.567 7.920 8.274 8.8627 8.981 9.334 9.666 10.041	3.359 3.713 4.066 4.420 4.773 5.127 5.481 5.834 8.186 8.541 8.895 7.248 7.845 7.248 7.802 7.955 8.309 8.663 9.016 9.370	3.748 4.102 4.455 4.809 5.162 5.516 5.869 8.223 8.577 6.930 7.284 7.637 7.991 8.344 8.698 9.051 9.404	3,430 3,784 4,137 4,491 4,844 5,551 5,505 6,558 6,612 6,966 7,319 7,673 8,026 8,380 8,733 9,087 9,0440	3.465 3.819 4.172 4.526 4.880 5.233 5.587 5.940 8.647 7.001 7.354 7.001 7.354 7.001 7.354 8.062 8.415 8.769 9.122 9.476	3.50 3.85 4.20 4.56 4.91 5.20 5.67 5.97 8.32 6.66 7.03 7.73 7.77 8.00 8.44 8.89 9.11
0 3.531 1 3.890 2 4.24 3 4.593 4 4.955 5 5.300 6 5.655 7 6.01 8 6.364 9 6.71 0 7.072 1 7.422 2 7.773 3 8.132 4 8.486 5 8.832 5 9.900 9 10.254 8 9.900 9 10.254 2 1.346 2 1.2375 5 12.375 5 12.3789 0 13.436 3 15.203 4 4.850 3 15.201 5 15.910 5 16.264 7 16.618 3 16.971 6 16.264 <td< td=""><td>3.571 3.925 4.275 4.632 4.966 5.339 5.632 6.046 6.404 6.400 6.7.814 8.166 7.107 7.460 7.814 8.165 9.226 9.522 9.522 9.522</td><td>3.607 3.967 4.314 4.667 5.021 5.375 5.375 8.435 8.435 8.435 8.435 8.789 7.142 7.496 8.203 8.556 8.910 9.264 9.817 9.971</td><td>3.996 4.349 4.703 5.056 5.410 5.763 8.117 8.471 6.824 7.178 7.531 7.685 8.236 8.592 8.945 9.299 9.853 9.299 9.853 10.006</td><td>4.031 4.385 4.738 5.092 5.445 5.799 8.152 6.506 8.859 7.213 7.567 7.920 8.274 8.274 8.981 9.334 9.666 10.041</td><td>4.066 4.420 4.773 5.127 5.481 5.834 8.895 7.248 7.802 7.955 8.309 8.663 9.016 9.370 9.723</td><td>4,102 4,455 4,809 5,162 5,516 5,869 8,223 8,577 6,930 7,284 7,637 7,991 8,344 8,698 9,051 9,404</td><td>4,137 4,491 4,844 5,198 5,551 5,905 6,258 6,612 6,966 7,319 7,673 8,026 8,360 8,733 9,087 9,440</td><td>3.819 4.172 4.526 4.880 5.233 5.587 5.940 8.294 8.647 7.001 7.354 7.708 8.647 7.001 7.354 7.708 8.062 8.415 8.769 9.122 9.476</td><td>3.85 4.20 4.50 4.95 5.21 5.95 8.33 6.60 7.33 7.7 8.00 8.44 8.8 9.1</td></td<>	3.571 3.925 4.275 4.632 4.966 5.339 5.632 6.046 6.404 6.400 6.7.814 8.166 7.107 7.460 7.814 8.165 9.226 9.522 9.522 9.522	3.607 3.967 4.314 4.667 5.021 5.375 5.375 8.435 8.435 8.435 8.435 8.789 7.142 7.496 8.203 8.556 8.910 9.264 9.817 9.971	3.996 4.349 4.703 5.056 5.410 5.763 8.117 8.471 6.824 7.178 7.531 7.685 8.236 8.592 8.945 9.299 9.853 9.299 9.853 10.006	4.031 4.385 4.738 5.092 5.445 5.799 8.152 6.506 8.859 7.213 7.567 7.920 8.274 8.274 8.981 9.334 9.666 10.041	4.066 4.420 4.773 5.127 5.481 5.834 8.895 7.248 7.802 7.955 8.309 8.663 9.016 9.370 9.723	4,102 4,455 4,809 5,162 5,516 5,869 8,223 8,577 6,930 7,284 7,637 7,991 8,344 8,698 9,051 9,404	4,137 4,491 4,844 5,198 5,551 5,905 6,258 6,612 6,966 7,319 7,673 8,026 8,360 8,733 9,087 9,440	3.819 4.172 4.526 4.880 5.233 5.587 5.940 8.294 8.647 7.001 7.354 7.708 8.647 7.001 7.354 7.708 8.062 8.415 8.769 9.122 9.476	3.85 4.20 4.50 4.95 5.21 5.95 8.33 6.60 7.33 7.7 8.00 8.44 8.8 9.1
3 4.59; 4 495; 5 5.30; 6 5.65; 7 6.01; 8 6.36; 9 6.71; 1 7.42; 2 7.77; 3 8.13; 4 8.65; 6 9.19; 7 9.54; 8 9.90; 9 10.255; 6 9.90; 9 10.256; 0 10.667; 1 10.961; 2 1.34; 3 11.34; 1 10.666; 12 12.378; 0 13.785; 1 14.43; 1 14.496; 2 14.850; 3 15.203; 4 15.557; 5 15.910; 6 16.264; 7 16.618; 8 16.971;	4.276 4.632 4.632 5.693 6.040 6.400 7.614 8.640 7.814 8.521 8.875 9.226 9.582	4.314 4.667 5.021 5.375 8.082 8.435 8.082 8.435 8.789 7.142 7.496 7.496 7.849 8.203 8.556 8.910 9.264 9.817 9.971	4.349 4.703 5.056 5.410 5.763 8.117 8.471 6.824 7.178 7.178 7.531 7.885 8.236 8.592 8.945 9.299 9.653 10.006	4.385 4.738 5.092 5.445 5.799 8.152 6.506 8.859 7.213 7.567 7.920 8.274 8.627 8.981 9.334 9.666 10.041	4.420 4.773 5.481 5.834 8.583 8.541 8.895 7.248 7.602 7.955 8.309 8.663 9.016 9.370 9.723	4.455 4.809 5.162 5.516 5.869 8.223 8.577 6.930 7.284 7.637 7.991 8.344 8.698 9.051 9.404	4.491 4.844 5.198 5.551 5.905 6.258 6.612 6.966 7.319 7.673 8.026 8.360 8.733 9.087 9.440	4.526 4.880 5.233 5.587 5.940 8.294 8.647 7.001 7.354 7.708 8.062 8.415 8.769 9.122 9.476	4.50 4.9 5.2(5.9 8.3 6.6 7.0 7.3 7.7 8.0 8.4 8.8 9.1
3 4.59; 4 455; 5 5.30; 6 5.65; 7 6.01; 8 6.36; 9 6.71; 1 7.42; 2 7.77; 3 8.13; 4 8.65; 5 9.90; 5 9.90; 9 10.255; 6 12.37; 7 9.544; 3 9.90; 9 10.256; 0 10.265; 1 10.96; 2 1.346; 4 12.02; 5 12.375; 6 12.378; 9 13.465; 1 14.43; 1 14.485; 3 15.203; 4 15.557; 5 15.910; 5 16.264; 7 16.618; 3 16.971; <	4.632 4.986 5.339 6.046 6.400 6.753 7.107 7.460 7.814 8.168 8.521 8.875 9.226 9.582	4,667 5,021 5,375 6,082 8,435 8,082 8,435 8,435 7,142 7,496 7,496 7,496 7,496 7,496 7,496 7,496 8,203 8,556 8,910 4,9,264 9,817 9,9971	4.703 5.056 5.410 5.763 8.117 8.471 7.531 7.685 8.236 8.592 8.945 9.299 9.653 10.006	4.738 5.092 5.445 5.799 8.152 6.506 8.859 7.213 7.567 7.920 8.274 8.627 8.981 9.334 9.666 10.041	4,773 5,127 5,481 5,834 8,188 8,541 8,895 7,248 7,602 7,955 8,309 8,663 9,016 9,370 9,370	4.809 5.162 5.516 5.869 8.223 8.577 6.930 7.284 7.637 7.991 8.344 8.698 9.051 9.404	4.844 5.198 5.551 5.905 6.258 6.612 6.966 7.319 7.673 8.026 8.360 8.360 8.733 9.087 9.440	4.880 5.233 5.587 5.940 8.294 8.647 7.001 7.354 7.708 8.062 8.415 8.769 9.122 9.476	4.9 5.2 5.9 8.3 6.6 7.0 7.3 7.7 8.0 8.4 8.8 9.1
4 4 95 5 5.30 6 5.65 7 6.01 8 6.365 9 6.711 0 7.072 1 7.422 2 7.773 8 8.33 6 9.546 5 9.546 8 9.900 9 10.254 0 10.607 1 10.961 2 12.375 6 12.728 7 13.082 9 13.766 9 13.766 1 14.496 2 14.850 1 14.496 2 14.850 1 15.203 1 14.496 2 14.850 1 14.496 2 14.850 1 14.800 2 14.850 1 16.911	0 4.986 5.339 5.693 6.046 6.400 6.753 7.107 7.460 7.814 8.521 8.521 8.521 9.226 9.582	5 5.021 5.375 5.728 8 8.082 8 435 8 8.789 7.142 7.496 4 7.849 8 8.203 8 .556 8 .910 4 9.264 9.817 9.9971	5.056 5.410 5.763 8.117 8.471 7.531 7.885 8.236 8.592 8.945 9.299 9.653 10.006	5.445 5.799 8.152 6.506 8.859 7.213 7.567 7.920 8.274 8.627 8.981 9.334 9.666 10.041	5.481 5.834 8.188 8.895 7.248 7.602 7.955 8.309 8.663 9.016 9.370 9.723	5.516 5.869 8.223 8.577 6.930 7.284 7.637 7.991 8.344 8.698 9.051 9.404	5.551 5.905 6.258 6.612 6.966 7.319 7.673 8.026 8.360 8.733 9.087 9.440	5.233 5.587 5.940 8.294 8.647 7.001 7.354 7.708 8.062 8.415 8.769 9.122 9.476	5.2(5.6) 8.3 6.6 7.0 7.3 7.7 8.0 8.4 8.8 9.1
$\begin{array}{c} 6 & 5.65; \\ 7 & 6.01; \\ 8 & 6.364 \\ 9 & 6.716 \\ 0 & 7.072 \\ 1 & 7.425 \\ 2 & 7.773 \\ 3 & 8.132 \\ 4 & 8.486 \\ 5 & 8.833 \\ 6 & 9.192 \\ 7 & 9.546 \\ 8 & 9.900 \\ 9 & 10.254 \\ 0 & 10.667 \\ 1 & 10.961 \\ 2 & 11.314 \\ 3 & 11.666 \\ 4 & 12.021 \\ 5 & 12.726 \\ 6 & 12.728 \\ 7 & 13.062 \\ 8 & 13.436 \\ 9 & 13.785 \\ 0 & 14.143 \\ 1 & 14.496 \\ 2 & 14.850 \\ 1 & 15.557 \\ 5 & 15.910 \\ 6 & 16.264 \\ 7 & 16.618 \\ 8 & 16.971 \\ 9 & 17.325 \\ 0 & 17.825 \\ 0 & 18.835 \\ 0 & 18.738 \\ 0 & 18.738 \\ 0 & 18.738 \\ 0 & 18.738 \\ 0 & 18.835 \\ 0 & 18.738 $	5.693 6.046 6.400 6.753 7.107 7.460 7.814 8.166 8.521 8.875 9.226 9.582	5.728 8.082 8.435 8.789 7.142 7.496 7.849 8.203 8.556 8.910 4.9.264 9.817 9.971	5.763 8.117 8.471 6.824 7.178 7.531 7.885 8.236 8.592 8.945 9.299 9.653 10.006	5.799 8.152 6.506 8.859 7.213 7.567 7.920 8.274 8.627 8.981 9.334 9.666 10.041	5.834 8.188 8.541 8.895 7.248 7.602 7.955 8.309 8.663 9.016 9.370 9.370	5.869 8.223 8.577 6.930 7.284 7.637 7.991 8.344 8.698 9.051 9.404	5.905 6.258 6.612 6.966 7.319 7.673 8.026 8.360 8.733 9.087 9.440	5.940 8.294 8.647 7.001 7.354 7.708 8.062 8.415 8.769 9.122 9.476	5.9 8.3 6.6 7.0 7.3 7.7 8.0 8.4 8.8 9.1
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8 6.36. 9 6.711 0 7.072 1 7.422 2 7.773 3 8.132 4 8.484 5 8.833 6 9.193 7 9.544 8 9.900 9 10.254 0 10.607 1 10.961 2 11.314 3 11.866 4 12.021 5 12.375 6 12.728 7 13.082 8 13.436 9 13.748 0 14.143 1 14.4850 3 15.203 4 15.557 5 15.910 6 16.264 7 16.618 8 16.971 9 17.826 0 17.876 0 17.876	6.400 6.753 7.107 7.460 7.814 8.166 8.521 8.875 9.226 9.582	8.435 8.789 7.142 7.496 7.849 8.203 8.556 8.910 9.264 9.817 9.971	8.471 6.824 7.178 7.531 7.885 8.236 8.592 8.945 9.299 9.653 10.006	6.506 8.859 7.213 7.567 7.920 8.274 8.627 8.981 9.334 9.666 10.041	8.541 8.895 7.248 7.602 7.955 8.309 8.663 9.016 9.370 9.723	8.577 6.930 7.284 7.637 7.991 8.344 8.698 9.051 9.404	6.612 6.966 7.319 7.673 8.026 8.380 8.733 9.087 9.440	7.001 7.354 7.708 8.062 8.415 8.769 9.122 9.476	6.6 7.0 7.3 7.7 8.0 8.4 8.8 9.1
0 7.072 1 7.422 2 7.773 3 8.132 4 8.465 5 8.833 6 9.192 7 9.544 8 9.900 9 10.254 6 9.900 9 10.254 1 10.961 2 11.314 3 11.666 4 12.021 5 12.375 6 12.726 7 13.062 8 13.436 9 13.769 0 14.143 1 14.496 2 14.850 3 15.203 4 15.557 5 15.910 6 16.264 7 16.618 8 16.971 9 17.325 0 17.876 0 17.876	7.107 7.460 7.814 8.168 8.521 8.875 9.228 9.582	7.142 7.496 7.849 8.203 8.556 8.910 9.264 9.817 9.971	7.178 7.531 7.885 8.236 8.592 8.945 9.299 9.653 10.006	7.213 7.567 7.920 8.274 8.627 8.981 9.334 9.666 10.041	7.248 7.602 7.955 8.309 8.663 9.016 9.370 9.723	7.284 7.637 7.991 8.344 8.698 9.051 9.404	7.319 7.673 8.026 8.380 8.733 9.087 9.440	7.354 7.708 8.062 8.415 8.769 9.122 9.476	7.3 7.7 8.0 8.4 8.8 9.1
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2 7.77 3 8.13 4 8.486 5 8.833 6 9.192 7 9.546 8 9.900 9 10.254 0 10.607 1 10.961 2 11.314 3 11.666 4 12.021 5 12.375 6 12.728 7 13.082 8 13.436 9 13.768 9 13.768 9 14.433 1 14.496 2 14.850 3 15.203 4 15.575 5 15.910 6 16.264 7 16.616 8 16.971 9 17.325 9 17.876 9 17.826 9 17.826 9 17.825 <tr< td=""><td>7.814 8.168 8.521 8.875 9.228 9.582</td><td>7.849 8.203 8.556 8.910 9.264 9.817 9.971</td><td>7.885 8.236 8.592 8.945 9.299 9.653 10.006</td><td>7.920 8.274 8.627 8.981 9.334 9.666 10.041</td><td>7.955 8.309 8.663 9.016 9.370 9.723</td><td>7.991 8.344 8.698 9.051 9.404</td><td>8.026 8.380 8.733 9.087 9.440</td><td>8.062 8.415 8.769 9.122 9.476</td><td>8.0 8.4 8.8 9.1</td></tr<>	7.814 8.168 8.521 8.875 9.228 9.582	7.849 8.203 8.556 8.910 9.264 9.817 9.971	7.885 8.236 8.592 8.945 9.299 9.653 10.006	7.920 8.274 8.627 8.981 9.334 9.666 10.041	7.955 8.309 8.663 9.016 9.370 9.723	7.991 8.344 8.698 9.051 9.404	8.026 8.380 8.733 9.087 9.440	8.062 8.415 8.769 9.122 9.476	8.0 8.4 8.8 9.1
3 8, 13; 4 8, 46; 5 8, 83; 6 9, 19; 7 9, 54; 8 9, 90; 9 10, 254; 0 10, 60; 2 11, 314; 3 11, 66; 4 12, 02; 5 12, 37; 6 12, 728; 7 13, 082; 8 13, 446; 9 13, 448; 9 13, 748; 0 14, 143; 1 14, 496; 2 14, 850; 3 15, 203; 4 15, 557; 5 15, 910; 6 16, 264; 7 16, 618; 8 16, 971; 9 17, 825; 0 17, 876; 0 17, 876; 0 17, 876; 0 17, 876; 0 17, 876;	8.168 8.521 8.875 9.228 9.582	8.203 8.556 8.910 9.264 9.817 9.971	8.236 8.592 8.945 9.299 9.653 10.006	8.274 8.627 8.981 9.334 9.666 10.041	8.309 8.663 9.016 9.370 9.723	8.344 8.698 9.051 9.404	8.380 8.733 9.087 9.440	8.415 8.769 9.122 9.476	8.4 8.8 9.1
5 6.833 6 9.193 7 9.544 8 9.900 9 10.254 0 10.607 1 10.961 2 11.314 3 11.666 4 12.021 5 12.375 6 12.726 7 13.062 8 13.436 9 13.769 0 14.143 1 14.496 2 14.850 3 15.203 4 15.557 5 15.910 6 16.264 7 16.618 8 16.971 9 17.325 0 17.876 0 17.876 0 17.876 0 17.876 0 17.876 0 17.876 0 17.876 0 17.876	8.875 9.228 9.582	8.910 9.264 9.817 9.971	8.945 9.299 9.653 10.006	8.981 9.334 9.666 10.041	9.016 9.370 9.723	9.051 9.404	9.087	9.122 9.476	9.1
6 9.193 7 9.544 8 9.900 9 10.254 0 10.607 1 10.961 2 11.314 3 11.666 4 12.021 5 12.375 6 12.726 7 13.062 8 13.436 9 13.768 20 14.143 1 14.496 2 14.803 1 14.651 3 15.557 5 15.910 6 16.264 7 16.618 8 16.971 9 17.325 0 17.876 1 18.032 2 18.363 3 18.733	9.228	9.264 9.817 9.971	9.299 9.653 10.006	9.334 9.666 10.041	9.370 9.723	9.404	9.440	9.476	
7 9,544 8 9,900 9 10,254 0 10,067 1 10,961 2 11,314 3 11,666 4 12,021 5 12,375 6 12,726 7 13,062 8 13,436 9 13,769 14,143 14,496 2 14,850 3 15,203 4 15,557 5 15,910 6 16,264 7 16,618 3 16,971 9 17,325 9 17,325 9 17,876 1 18,032 2 18,365 3 18,739	9.582	9.817 9.971	9.653 10.006	9.666 10.041	9.723	9.759	0.704	0.000	
9 10,254 0 10,607 1 10,961 2 11,314 3 11,666 4 12,021 5 12,375 6 12,728 7 13,062 8 13,436 9 13,769 0 14,143 1 14,496 0 14,143 1 14,496 0 14,143 1 5,557 5 15,910 6 16,264 7 16,618 8 15,557 5 15,910 6 16,264 7 16,618 8 16,971 9 17,325 0 18,353 0 18,35	0 036	9.971		10.041	10.077		9.794	9.829	9.8
0 10.607 1 10.961 2 11.314 3 11.666 4 12.021 5 12.375 6 12.728 7 13.062 8 13.436 9 13.789 0 14.143 1 14.496 2 14.850 3 15.203 4 15.557 5 15.910 6 16.264 7 16.616 8 16.971 9 17.325 0 17.876 1 8.032 2 18.365 3 18.739						10.112	10.147	10.183	10.2
1 10.961 2 11.314 3 11.666 4 12.021 5 12.375 6 12.728 7 13.082 8 13.436 9 13.768 0 14.143 1 14.496 2 14.850 3 15.203 4 15.557 5 15.910 6 16.264 7 16.618 8 16.971 9 17.325 0 17.876 1 18.032 2 18.363 3 18.733	10.289		10.360 10.713	10.395	10.430 10.784	10.486 10.819	10.501 10.855	10.536 10.890	10.5
2 11,314 3 11,666 4 12,021 5 12,375 6 12,728 7 13,062 8 13,436 9 13,768 0 14,143 1 14,496 2 14,850 3 15,203 4 15,557 5 15,910 6 16,264 7 16,618 8 16,971 9 17,325 0 17,878 1 8,032 2 18,365 3 18,739 1 8,052 2 18,365 3 18,759 1 8,052 1 8,052	10.996		11.067	11.102	11.137	11.173	11.208	11.243	11.2
4 12.021 5 12.375 6 12.726 7 13.082 8 13.436 9 13.769 0 14.143 1 14.496 2 14.850 3 15.203 4 15.557 5 15.910 6 16.264 7 16.618 8 16.971 9 17.325 0 17.825 0 17.845 1 8.032 2 18.365 3 18.739	11.350	11.385	11.420	11.458	11.491	11.528	11.562	11.597	11.6
5 12.375 6 12.726 7 13.082 8 13.436 9 13.766 0 14.143 1 14.496 2 14.850 3 15.203 4 15.557 5 15.910 6 16.264 7 16.616 8 16.971 9 17.325 0 17.876 1 18.032 2 18.365 3 18.739	11.703 12.057	11.738	11.774 12.127	11.809 12.183	11.845 12.198	11.880 12.233	11.915 12.269	11.951 12.304	11.9
7 13.082 8 13.436 9 13.769 0 14.143 1 14.496 2 14.850 3 15.203 4 15.557 5 15.910 6 16.264 7 16.618 8 16.971 9 17.325 0 17.825 0 17.845 1 18.032 2 18.365 3 18.739	12.410	12.466	12.481	12.516	12.552	12.587	12.622	12.658	12.6
8 13,436 9 13,789 0 14,143 1 14,496 2 14,850 3 15,203 4 15,557 5 15,910 6 16,264 7 16,616 8 16,971 9 17,325 0 17,876 1 18,032 2 18,365 3 18,739	12.764	12.799	12.834	12.870	12.905	12.941	12.978	13.011	13.0
9 13,789 0 14,143 1 14,490 2 14,850 3 15,203 4 15,557 5 15,910 6 16,264 7 16,618 8 16,971 9 17,325 0 17,878 1 18,032 2 18,365 3 18,739	13.117	13.153 13.506	13.188	13.223	13.259	13.294	13.329	13.365	13.4
0 14.143 1 14.496 2 14.850 3 15.203 4 15.557 5 15.910 6 16.264 7 16.618 8 16.971 9 17.325 0 17.876 1 18.032 2 18.365 3 18.739	13.471 13.824	13.860	13.542 13.895	13.577 13.931	13.612 13.966	13.648 14.001	13.683 14.037	13.718 14.072	13.7
2 14.850 3 15.203 4 15.557 5 15.910 6 16.264 7 16.618 8 16.971 9 17.325 0 17.878 1 18.032 2 18.365 3 18.739	14.178	14.213	14.249	14.284	14.319	14.355	14.390	14.425	14.4
3 15,203 4 15,557 5 15,910 6 16,264 7 16,618 8 16,971 9 17,325 0 17,876 1 18,032 2 18,365 3 18,739	14.532	14.567	14.802	14.638	14.873	14.708	14.744	14.779	14.8
4 15.557 5 15.910 6 16.264 7 16.618 8 16.971 9 17.325 0 17.875 1 18.032 2 18.385 3 18.739	14.685 15.239	14.920 15.274	14.956 15.309	14.991 15.345	15.027 15.380	15.062	15.097 15.451	15.133 15.486	15.1
5 15.910 6 16.264 7 16.618 8 16.971 9 17.325 0 17.878 1 18.032 2 18.385 3 18.739	15.592	15.628	15.883	15.698	15.734	15.415 15.769	15.504	15.840	15.8
7 16.618 8 16.971 9 17.325 0 17.876 1 18.032 2 18.385 3 18.739	15.946	15.981	18.016	16.052	16.087	18.123	16.158	18.193	18.2
8 16.971 9 17.325 0 17.876 1 18.032 2 18.385 3 18.739	18.299	16.335	16.370	16.405	16.441	16.476	18.511	18.547	18.5
17.325 17.878 18.032 2 18.385 3 18.739	18.653 17.006	16.688 17.042	18.724 17.077	18.759 17.112	18.794 17.143	18.830 17.183	16.865 17.219	16.900 17.254	16.9
0 17.878 1 18.032 2 18.385 3 18.739	17.360	17.395	17.431	17.488	17.501	17.537	17.572	17.807	17.6
2 18.385 3 18.739	17.714	17.749	17.784	17.820	17.855	17.890	17.926	17.961	17.9
3 18.739	18.067	18.102	18.138	18.173	18.208	18.244	18.279	18.315 18.668	18.3
	18.421 18.774	18.456 18.810	18.491 18.845	18.527 18.880	18.562 18.918	15.597 18.951	18.633 18.986	19.022	19.0
19.092	19.128	19.183	19.198	19.234	19.269	19.305	19.340	19.022 19.375	19.4
19.446	19.481	19.517	19.552	19.587	19.623	19.858	19.693	19.729	19.7
6 19.799 7 20.153		19.870 20.224	19.906 20.259	19.941 20.294	19.976 20.330	20.012	20.047 20.401	20.082 20.436	20.1
20.153	19.835	20.224	20.259	20.294	20.330	20.365 20.719	20.754	20.789	20.8
20.860	20.188	20.931	20.966	21.002	21.037	21.072	21.108	21.143	21.1
21.214		21.284	21.320	21.355	21.390	21.426	21.461	21.497	21.5

Horizontal Limiting Distance^{*} for Trees of a Given Diameter Basal Area Factor 2.0

Calculations

Tree Density Factor:

$$TDF = \frac{BAF}{(0.0000785) \times (DBH)^2}$$

Where:

TDF = Tree density factor for diameter class

BAF = Basal area factor of prism

DBH = Diameter at breast height, in centimeters

Trees per Hectare for Diameter Class:

$$TPH = TDF \times (\# \text{ of Trees Tallied in Diameter Class})$$

Where:

TPH = Trees per hectare TDF = Tree density factor for diameter class

Snag Volume (taken from Government of British Columbia 2011):

$$\mathbf{V} = \left[\left(\frac{\pi T^2}{10000} + \frac{\pi B^2}{10000} \right) \times L \right] \times \text{TDF}$$

OR

$$V = [(0.0001571T^2 + 0.0001571B^2) \times L] \times TDF$$

Where:

V = Volume of log in cubic meters

T = Radius of the small (top) end, in centimeters

B = Radius of the large end in centimeters

L = Length of the log in meters

TDF = Tree density factor for diameter class

Note: Division of the top and butt areas by 10,000 converts square centimeters to square meters. Division of the sum of the top and butt areas by 2 determines the average end area.

DWM Volume (taken from Marshall et al., 2000):

$$V = \pi^2 \left[\left(\frac{\text{Diameter Class at Intersection}^2}{8 \times \text{Transect Length}} \right) \times (\# \text{of Tallies per Diameter Class}) \right]$$

Where:

V = Volume of log in cubic metersDiameter Class at Intersection = Diameter class of log where intersected along transect, in centimeters

Transect Length = Total length of triangular transect, in meters (E.g. 20-m x 3 = 60 m)

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