

1. FORWARD

Pursuant to the Forest Planning and Practices Regulation section 16, the following tables are the stocking standards that are to be applied to cutblocks harvested under this Forest Stewardship Plan. These standards are to be used in-conjunction with site plans where required under the Forest and Range Practices Act.

The standards recognize several silviculture systems and regeneration situations that may occur as a result of harvesting or other disturbances.

The tables and standards herein are based on the Provincial publications:

- Tree Species and free Growing Stocking Standards Guidelines (May 2000) for the Vancouver Forest Region;
- Establishment to Free Growing Guidebook (Version 2.4, revised Jan 2002 – Appendix 9 revised October 2007);
- A Field Guide for Site Identification and Interpretation for the Vancouver Forest region (1994, Land Management Handbook Number 28);
- Updates to the Reference Guide for FDP Stocking Standards (2014): Climate-Change Related Stocking Standards - Resources Practices Branch: FLNRO DRAFT V 3.3 (March 6, 2019).

2. EVEN-AGED MANAGEMENT

The following standards apply to blocks and/or standards units where even aged management is practiced and are applicable to the following silviculture systems:

- Clearcut;
- Clearcut with (Group and/or Dispersed) Reserves;

The tables cover site series found within the TFL 61 for the following biogeoclimatic (BEC) variants: CWHxm, CWHmm1, CWHmm2, CWHvm1, CWHvm2 and MHmm1.

The late free growing date for all site series is 20 years.

3. STOCKING STANDARD RATIONALE / ADDITIONAL STANDARDS

3.1 SITE SERIES MOSAICS/COMPLEXES

Where more than one site series is located within a logical standards unit area the standard that applies will be that of the dominant site series. This standard can be modified with the inclusion of additional species selected from the standard of the subdominant site series for those specific areas of the mosaic or complex. These additional components to the standard will be supported by a rationale, documented and should be incorporated into the Site Plan.

3.2 TRANSITIONAL SITES

On transitional sites occurring between two BEC units the standard that applies will be that of the dominant BEC unit. This standard can be modified with the inclusion of components of the standard associated with the sub-dominant BEC unit. These additional components to the standard will be supported by a rationale, documented and should be incorporated into the Site Plan.

3.3 MINIMUM INTER-TREE DISTANCE (MITD)

The general minimum intertree distance (MITD) of 2.0 metres can be reduced to 1.6 metres, for the sites described herein, where productive and plantable spots are limited by site characteristics. These are limited to colluvial sites, wet sites or disturbed roadsides. The target stocking standard will remain the same but a reduced MITD will allow for the selection of the most productive growing sites. Justification for a reduced MITD will be supported by a rationale by a Qualified Professional, documented and should be incorporated into the Site Plan.

- *Colluvial sites* are those with large surface rocks or boulders or sub-surface rocks. On these sites soil is either shallow or limited to gaps between rocks. These sites can be very localized or extensive in nature such as large deposition zones from historic slides, talus slopes, avalanche tracks or boulder veneers.
- *Wet sites* are those with high or fluctuating water tables and growing season water surpluses. Productive growing sites are generally less frequent and found mainly on elevated mounds. Under the BEC system the soil moisture rating (SMR) for these sites ranges from very moist (6) to wet (7).
- *Disturbed roadside areas* are those within the road prism where productive growing sites are less frequent because of broken rock, talus, heavy slash or other unfavorable soil materials caused by road building and harvesting operations.

3.4 LEAVE TREES (FOR EVEN-AGED MANAGEMENT)

The minimum characteristics of any leave trees that contribute toward the free growing stand must be of good form, health and vigor and otherwise meet the stocking standards for that site. In situations where leave trees will not contribute to the free growing stand the leave trees within the harvest area must have characteristics appropriate to meet forest management objectives developed for the site. The forest management objectives must be supported by a rationale, documented and should be incorporated into the site plan.

3.5 COAST AREA STATEMENTS ON TREE SPECIES SELECTION UNDER PROJECTED CLIMATE CHANGE SCENARIOS

Stocking standards proposed under this FSP have been modified to incorporate the effects of climate change on regenerating stands. These modification are consistent with those from the *Reference Guide for FDP Stocking Standards (2014): Climate-Change Related Stocking Standards*. These changes are highlighted in green in Appendix 1 and have only been developed for 01 sites. The old stocking standards have been shown and crossed out for informational purposes only. If additional Climate Change standards are developed they will be reviewed and considered for amendment into the FSP.

4.0 TABLES FOR EVEN-AGED STOCKING STANDARDS

		Regeneration Guide										Free Growing Guide	
Classification		Species		Stocking								Min. Height	
Zone/SZ	Series	SSIS	Conifer			Target (well-spaced/ha)	MIN pa	MIN p	Regen Delay (Max yrs)	Species	Ht (m)		
			Primary	Preferred (p)	Secondary							Acceptable (a)	Tertiary
CWHmm1	01		Fd	Fd Cw		Hw ¹⁰	900	500	400	6	Fd Hw Cw	3.00 2.00 1.50	
	03		Fd	Fd		Cw	800	400	400	3	Fd Hw Cw	2.00 1.75 1.00	
	04		Fd	Fd		Cw Pw ³¹	900	500	400	3	Pw Fd Cw	2.50 2.00 1.00	
	05		Fd Cw	Fd Cw		Pw ³¹	900	500	400	3	Fd Pw Hw	3.00 2.50 2.00	
	06		Cw Hw	Cw Hw		Fd ⁷	900	500	400	6	Cw Fd Hw	1.50 3.00 2.00	
	07		Cw Fd	Cw Fd		Ba ⁴⁷ Hw	900	500	400	3	Cw Ba Fd Hw Cw Ba	1.50 0.75 4.00 2.50 2.00 1.00	

Regeneration Guide															Free Growing Guide	
Classification			Species				Stocking				Min. Height					
Zone/SZ	Series	SSIS	Conifer				Target	MIN pa	MIN p	Regen Delay (Max yrs)	Species	Ht (m)				
			Primary	Preferred (p)	Secondary	Acceptable (a)							Tertiary			
CWHmm2	01		Hm ¹³ Hw	Hm ¹³ Hw Cw Fd ⁹ Yc		Ba	900	500	400	6	Fd Hw Cw, Hm, Yc Ba, Fd Hw Cw, Hm, Yc Pw Fd Hw Cw, Yc Ba	2.25 1.25 1.00 0.75 1.50 1.00 0.75 2.50 1.50 1.00 0.75				
			Fd	Fd Hw		Hm ¹³ Cw Yc	Yc	800	400	400	3					
	03		Fd	Fd		Cw Pw ³¹ Yc	Hw	900	500	400	3					
			Cw	Ba ⁴⁷ Cw Fd ⁹ Yc	Hw	Pw ³¹		900	500	400	3					
	05		Cw	Ba ⁴⁷ Cw Fd ⁹ Yc	Hw	Pw ³¹		900	500	400	3					
			Cw Hw	Hw Cw Yc	Ba ⁴⁷ Yc	Ba ⁴⁷ Hm ¹³ Fd ¹⁴		900	500	400	6					
	06		Cw Hw	Hw Cw Yc	Ba ⁴⁷ Yc	Ba ⁴⁷ Hm ¹³ Fd ¹⁴		900	500	400	6					
			Ba ⁴⁷ Cw	Ba ⁴⁷ Cw Yc		Hw ² Fd ⁹		900	500	400	3					
08																

Regeneration Guide															Free Growing Guide	
Classification		Species										Stocking			Min. Height	
Zone/SZ	Series	SSIS	Conifer				Target	MIN		Regen Delay (Max yrs)	Species	Ht (m)				
			Primary	Preferred (p)	Secondary	Acceptable (a)		pa	p							
CWHvm1	01		Ba ^{26,47} Cw Hw	Cw Hw Fd ^{9,16} Ba ^{26,47}			900	500	400	6	Fd, Hw, Ss Ba	3.00 1.75				
Climate change 2013 No suggested changes	01		Ba ^{26,47} Cw Hw	Cw Hw Fd ^{9,16} Ba ^{26,47}			900	500	400	6	Cw	1.50				
												Pw	3.0			
03			Cw Hw	Cw Hw Fd ^{9,16}	Fd ^{9,16}	P ⁵³	800	400	400	6	Fd Hw Cw, Pl Fd, Hw, Ss	2.0 1.8 1.5 3.00				
04			Cw Hw	Cw Hw	Fd ^{9,16}	Ba ^{26,47} Ss ^{7,35}	900	500	400	3	Cw Ba	1.50 1.75				
05			Ba Cw	Ba ⁴⁷ Cw Hw Fd ^{1,9,16}	Ss ³⁵		900	500	400	3	Fd, Hw, Ss Ba	3.00 1.75 1.50				
06			Ba ^{26,47} Cw Hw	Ba ^{26,47} Cw Hw		Ss ^{7,35}	900	500	400	6	Hw, Ss Ba Cw	3.00 1.75 1.50				
07			Ba ⁴⁷ Cw Fd ^{1,9,23}	Ba ^{62,47} Cw Fd ^{1,9,23} Hw ²	Hw ² Ss ³⁵	Ss ³⁵	900	500	400	3	Fd, Hw, Ss Ba Cw	4.00 2.25 2.00				
08			Ba ⁴⁷ Cw	Ba ^{62,47} Cw Hw ²	Hw ² Ss ³⁵	Ss ³⁵	900	500	400	3	Hw, Ss Ba Cw	4.00 2.25 2.00				

BGC		Regeneration Guide										Free Growing Guide	
Classification		Species										Min. Height	
Zone/SZ	Series	SSIS	Conifer								Regen Delay (Max yrs)	Species	Ht (m)
			Primary	Preferred (p)	Secondary	Acceptable (a)	Tertiary	Target	MIN pa	MIN p			
CWHvm2	04	-	Ba ⁴⁷ Fd ^{1,9,23} Hw	Fd ^{1,9,23} Hw Cw Yc ⁶⁹ Ba ^{62,47}	Cw Ss ^{7,15,35} Yc	Ss ^{7,15,35}	Hm ¹³	900	500	400	6	Ss Hw	3.00 2.50
Climate Change 2013	01	-	Ba ⁴⁷ Fd ^{1,9,23} Hw	Fd ^{1,9,23} Hw Cw ¹⁴ Yc ⁶⁹	Cw Ss ^{7,15,35} Yc ¹³	Ss ^{7,15,35}	Hm ¹³ Ss ³⁵ Yc ¹³					Fd	2.25
	03		Cw ¹⁴	Ba ⁴⁷	Fd ^{1,9,14}			800	400	400	6	Ba Cw, Yc Hm	1.75 1.50 1.00
	04		Cw Hw	Cw Hw Fd ^{9,16} Yc ⁶⁹	Ba ⁴⁷	Pw ^{16,31} Ss ³⁵ Hm ¹³	Hm ¹³	900	500	400	6	Pw Ss Hm, Hw Ba, Fd Cw, Yc Hm	2.50 2.00 1.75 1.50 1.00 0.75
	05		Ba ⁴⁷ Cw	Cw Hw Ba ⁴⁷	Yc	Ss ^{15,35} Pw ^{16,31}	Hm ¹³	900	500	400	3	Ss, Pw Hw Ba Cw, Yc Hm	3.00 2.50 1.75 1.50 1.00

06	Ba ⁴⁷ Cw Hw	Cw Hw Ba ⁴⁷ Yc ⁶⁹	Yc		Hm ¹³ Ss ³⁵	900 500 400	6		Ss Hw Ba Cw, Yc Hm	3.00 2.50 1.75 1.50 1.00
07	Ba ⁴⁷ Cw Fd ^{1,9,23}	Cw Hw ² Yc ⁶⁹ Ba ^{62, 47}	Hw ² Ss ^{15,35} Yc	Ss ^{15,35}	Hm ¹³	900 500 400	3		Ss Hw Fd Ba Cw, Yc Hm	4.00 3.50 3.00 2.25 2.00 1.00
08	Ba ⁴⁷ Cw ¹⁴	Cw ¹⁴ Hw ² Yc ⁶⁹ Ba ^{62,47}	Hw ² Ss ³⁵ Yc	Ss ³⁵	Hm ¹³	900 500 400	3		Ss Hw Ba Cw, Yc Hm	4.00 3.50 2.25 2.00 1.00
09	Ba ⁴⁷ Cw ¹ Hw ¹ Yc ¹	Cw ¹ Hw ¹ Yc ^{1,69}	Hm ¹³	Ba ⁴⁷ Hm ¹³	Pl ¹	800 400 400	3		Pw Ss Hm, Hw Ba, Fd Pl Cw, Yc Hm	2.50 2.00 1.75 1.50 1.25 1.00 0.75

BGC		Regeneration Guide										Free Growing Guide	
Classification		Species					Stocking					Min. Height	
Zone/SZ	Series	SSIS	Conifer				Target	MIN pa	MIN p	Regen Delay (Max yrs)	Species	Ht (m)	
			Primary	Preferred (p)	Secondary	Acceptable (a)							Tertiary
CWHxm	01		Fd	Fd Cw	Hw ²⁴	Pw ³¹ Ss	900	500	400	3	Fd, Ss	3.00	
				Pw ³¹ Ss							Pw	2.50	
	03		Fd	Fd Pl ⁶	Pl ⁶	Cw ²³	800	400	400	3	Cw	2.00	
											Fd	1.50	
	04		Fd	Fd		Cw ²³ Pw ³¹	900	500	400	3	Hw, Pl	2.00	
											Cw	1.25	
	05		Cw Fd	Cw Fd		Pw ³¹	900	500	400	3	Cw	1.00	
											Fd	3.00	
	06		Cw Hw	Cw Hw Fd ¹⁸			900	500	400	6	Pw	2.50	
										Cw	2.00		
	07		Cw Fd	Cw Fd			900	500	400	3	Cw	1.50	
											Fd	4.00	
	08		Bg ⁴⁷ Cw Ss ³⁵	Cw Ss ³⁵			900	500	400	3	Cw	2.00	
											Hw	1.75	
											Fd, Ss	4.00	
											Bg	3.50	
											Pw	2.50	
											Cw	2.00	

BGC		Regeneration Guide										Free Growing Guide	
Classification		Species										Min. Height	
Zone/SZ	Series	SSIS	Conifer				Target	MIN pa	MIN p	Regen Delay (Max yrs)	Species	Ht (m)	
MHm1	01		Ba ⁴⁷ Hm ¹ Yc	Ba ⁴⁷ Hm ¹ Yc	Secondary	Acceptable (a)	Tertiary	900	500	400	7	Bp Hm, Hw, Yc, Cw	1.25
Climate Change 2013	01			-		-	Se²³					Sw/Se/ Sx	1.00
		Ba ⁴⁷ Hm ¹ Yc	Ba ⁴⁷ Hm ¹ Yc	Hm ¹³ Hw ^{14,53} Yc ¹³	Se ²³ Bp ^{23,13,47} Cw ¹⁴ Fd ^{9,14,23} Hm ¹³ Hw ¹⁴ Yc ¹³	Bp ^{23,13,47} Hw ^{14,53}				Fdc Ba	1.5 0.60		
	03		Ba ⁴⁷ Hm Yc	Ba ⁴⁷ Hm Yc			Bp ^{23,47} Hw ^{14, 53}	900	500	400	4	Bp Hm, Hw, Yc Ba	1.25 1.00 0.60
	04		Ba ⁴⁷ Hm Yc	Ba ⁴⁷ Hm Yc		Bp ^{23,47}	Hw ^{14, 53}	900	500	400	4	Bp Hm, Hw, Yc Ba	1.25 1.00 0.60
	05		Ba ⁴⁷ Yc	Ba ⁴⁷ Yc		Hm	Hw ^{14, 53}	900	500	400	4	Ba Hm, Hw, Yc Hm, Yc	0.60 0.60 1.00
	06		Hm ¹ Yc ¹	Hm ¹ Yc ¹		Ba ^{1,47}		800	400	400	7	Hm, Yc Hm, Yc Ba	0.75 0.60 0.60
	07		Ba ^{1,47} Yc ¹	Ba ^{1,47} Yc ¹		Hm ¹		900	500	400	4	Hm, Yc Ba	0.75 0.60

<u>Conifer Tree Species</u>	Footnote #	<u>Footnote</u>
"Ba" means amabilis fir;	1	elevated microsites are preferred
"Bg" means grand fir;	2	suitable on thick forest floors
"Bl" means subalpine fir;	6	restricted to nutrient-very-poor sites
"Bp" means noble fir;	7	restricted to nutrient-medium sites
"Cw" means western red cedar;	9	restricted to southerly aspects
"Fd" means Douglas-fir;	10	target northern and eastern aspects
"Hm" means mountain hemlock;	13	restricted to upper elevations of biogeoclimatic unit
"Hw" means western hemlock;	14	restricted to lower elevations of biogeoclimatic unit
"Pl" means lodgepole pine;	15	restricted to northern portion of biogeoclimatic unit in region
"Pw" means white pine;	16	restricted to southern portion of biogeoclimatic unit in region
"Se" means Engelmann spruce;	23	on wetter microsites
	24	suitable (as a major species) in wetter portion of biogeoclimatic unit
"Ss" means Sitka spruce;	26	suitable minor species on salal-dominated sites
"Sw" means white spruce;	31	use of resistant stock mitigates risk of white pine blister rust. Do not use non-resistant stock for reforestation. See BC Journal of Ecosystems and Management 10(1): 97-100.
	35	use of resistant stock mitigates risk of spruce weevil damage. Use stock with the highest resistance rating for your area. See Ss Weevil Decision Tool (http://forrex.org/sites/default/files/publications/jem_archive/ISS38/vol7_no3_art6.pdf) and BC Journal of Ecosystems and Management 7(3): 45-49.
"Sxs" means hybrid Sitka spruce;	47	risk of balsam woolly adelgid – applies to all Abies species in subzones within the regulated quarantine area (http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/animals-and-crops/plant-health/insects-and-plant-diseases/nursery-and-ornamentals/balsam-woolly-adelgid)
"Sxw" means hybrid white spruce;	53	Minor component
"Yc" means yellow cedar.	69	Species is restricted to upper elevations when used in the southern portion of the biogeoclimatic unit.

“Biogeoclimatic unit” or “BGC classification” means the zone, subzone, variant and site series described in the most recent field guide published by the MFRNRO for the identification and interpretation of ecosystems, as applicable to a harvested area.

“MIN or **“Min”** means minimum.