



4. Forest Landscape Pattern and Structure

This section of the *Comprehensive Description of the DFA* provides a present-day snapshot of the DFA in terms of the species composition, age class, seral stage and opening patches of the forest.

The summaries presented throughout this section are consistent with their respective VOITs in *Chapter 6 – Sustainable Forest Management Strategy* and *Appendix XXIII - Commitments*. For management and reporting purposes, the DFA is classified as either the forested landbase (the area contained within the boundary of the Defined Forest Area covered by stands that possess forested cover types. This Landbase excludes areas such as shrub cover types, water, roads, etc.) or the managed landbase (The area contained within the boundary of the Defined Forest Area covered by stands that possess forested cover types, which have not been assigned a deletion code under the landbase classification process. Deletion codes are assigned to stands or portions of stands based on the deletion rationale, including: riparian buffers, dispositions, subjective deletions (i.e. larch and black spruce), etc.). These two landbase classifications are referenced throughout this section.

4.1 Forest Species Composition

For the purpose of forest management, the Alberta Vegetation Inventory (AVI) stand types in Millar Western's DFA have been grouped into categories known as species strata. Within the forested landbase, there are a total of ten Species Strata: Aspen (AW), Birch (BW), Aspen-Pine (AP), Aspen-Spruce (AS), Pine-Aspen (PA), Spruce-Aspen (SA), Larch (LT), Pine (PL), Black Spruce (SB) and White Spruce (SW). Within the managed landbase, LT is excluded in both FMUs, while SB is excluded in W11, as these are not considered operable strata. Table 15 provides the identity and composition of each species stratum.



Table 15. Species strata definitions.

Species Strata Code	Species Stratum Name	Definition
Deciduous Cover Group (D)		
AW	Aspen	Leading Aw and/or Pb within D Broad Cover Group.
BW	Birch	Leading Bw within D Broad Cover Group.
Deciduous/Coniferous Cover Group (DC)		
AP	Aspen - Pine	Leading Aw, Bw or Pb within DC Broad Cover Group, where coniferous component has leading Pl or Pj.
AS	Aspen - Spruce	Leading Aw, Bw or Pb within DC Broad Cover Group, where coniferous component has leading Sw, Sb, Fa or Fb.
Coniferous/Deciduous Cover Group (CD)		
PA	Pine - Aspen	Leading Pl or Pj within CD Broad Cover Group, where deciduous component has leading Aw, Bw and/or Pb.
SA	Spruce - Aspen	Leading Sw, Sb, Fa or Fb within CD Broad Cover Group, where deciduous component has leading Aw, Bw and/or Pb.
Coniferous Cover Group (C)		
LT	Larch	Leading Lt within C Broad Cover Group.
PL	Pine	Leading Pl or Pj within C Broad Cover Group.
SB	Black spruce	Leading Sb within C Broad Cover Group.
SW	White spruce	Leading Sw, Fb, or Fa within C Broad Cover Group.

Species strata are grouped into broad cover groups (BCG): Deciduous (D), Deciduous/Coniferous (DC), Coniferous/Deciduous and Coniferous (C). Table 15 identifies the rollup of species strata into BCGs, while the process for determining BCGs from AVI stand types is identified in Table 16.

Table 16. Broad cover group definitions.

Broad Cover Group	Definition
D	Sum of Aw, Bw and Pb \geq 80 %.
DC	Aw, Bw or Pb in sp1 with the sum of Aw, Bw and Pb $<$ 80 % and \geq 50%.
CD	Sw, Pl, Pj, Sb, Lt, Fb, or Fa in sp1 with the sum of Sw, Pl, Pj, Sb, Lt, Fb, and Fa $<$ 80% and \geq 50%.
C	Sum of Sw, Pl, Pj, Sb, Lt, Fb, and Fa \geq 80%

Table 17 summarizes the BCG and species strata areas for the W11 and W13 DFA forested and managed landbases.



Table 17. BCG and species strata area for the W11 and W13 forested and managed landbases.

Species Strata	Forested Landbase						Managed Landbase					
	W11		W13		W11 & W13		W11		W13		W11 & W13	
	(Ha)	(%)	(Ha)	(%)	(Ha)	(%)	(Ha)	(%)	(Ha)	(%)	(Ha)	(%)
Deciduous Broad Cover Group (D)												
AW	56,566	38%	67,384	25%	123,949	30%	53,185	61%	57,786	28%	110,971	38%
BW	142	0%	1,238	0%	1,380	0%	130	0%	1,105	1%	1,235	0%
Total	56,707	38%	68,622	25%	125,329	30%	53,316	61%	58,891	29%	112,207	38%
Deciduous / Coniferous Broad Cover Group (DC)												
AP	1,927	1%	6,413	2%	8,340	2%	1,505	2%	5,987	3%	7,492	3%
AS	5,639	4%	21,782	8%	27,421	7%	4,875	6%	19,096	9%	23,971	8%
Total	7,566	5%	28,195	10%	35,762	9%	6,380	7%	25,083	12%	31,463	11%
Coniferous / Deciduous Broad Cover Group (CD)												
PA	2,234	2%	10,871	4%	13,105	3%	1,555	2%	10,272	5%	11,827	4%
SA	5,554	4%	19,940	7%	25,493	6%	5,066	6%	17,730	9%	22,796	8%
Total	7,787	5%	30,811	11%	38,598	9%	6,621	8%	28,001	14%	34,623	12%
Coniferous Broad Cover Group (C)												
LT	25,536	17%	6,523	2%	32,059	8%	N/A	N/A	N/A	N/A	N/A	N/A
PL	13,351	9%	70,743	26%	84,094	20%	11,588	13%	66,718	32%	78,307	27%
SB	26,399	18%	43,473	16%	69,872	17%	N/A	N/A	10,805	5%	10,805	4%
SW	10,419	7%	21,336	8%	31,755	8%	9,463	11%	16,917	8%	26,380	9%
Total	75,704	51%	142,075	53%	217,779	52%	21,051	24%	94,440	46%	115,492	39%
Grand Total	147,765	100%	269,703	100%	417,468	100%	87,369	100%	206,415	100%	293,784	100%

Figure 22, Figure 23 and Figure 24 illustrate the BCG representation of the forested and managed landbases for W11, W13 and W11 and W13 combined, respectively.

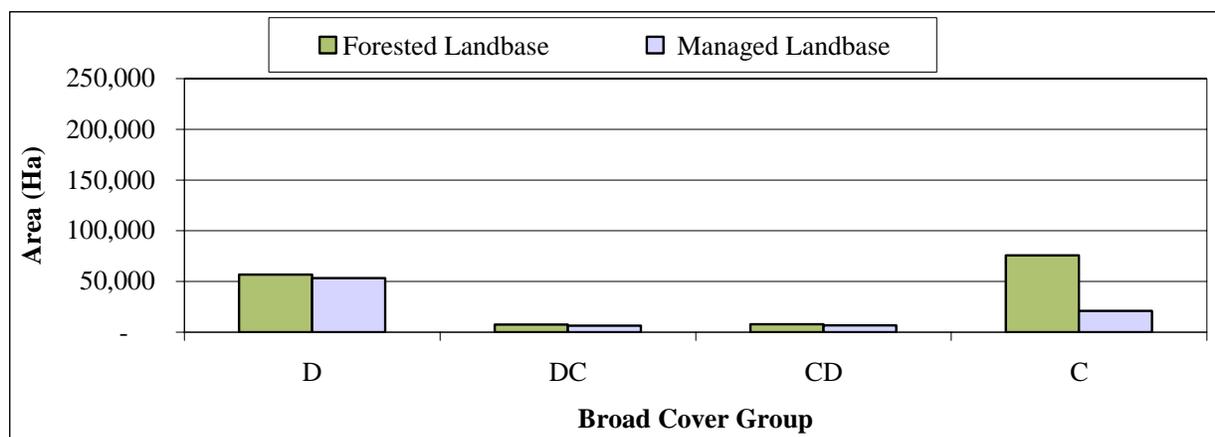


Figure 22. BCG area within the forested and managed landbase in the W11 DFA.

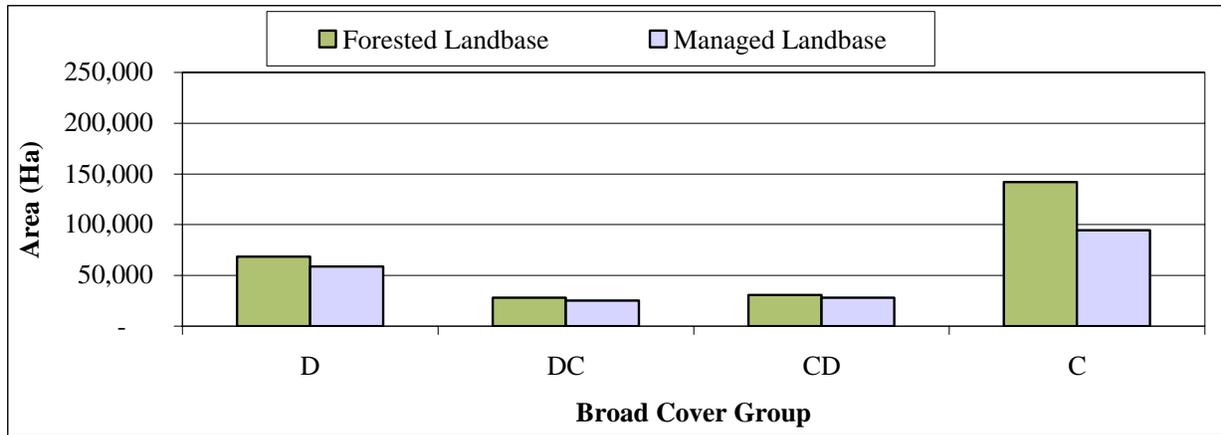


Figure 23. BCG area within the forested and managed landbase in the W13 DFA.

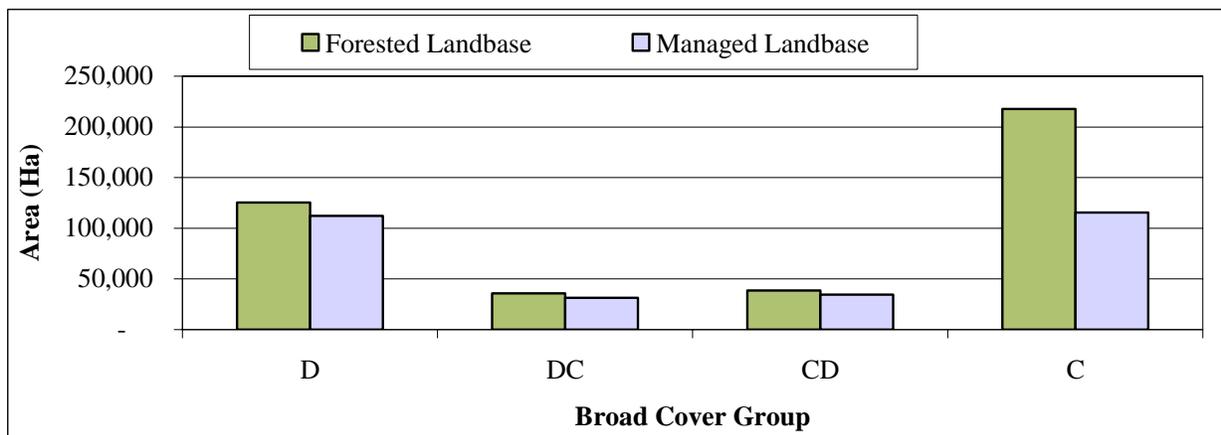


Figure 24. BCG area within the forested and managed landbase in the combined W11 and W13 DFA.

Figure 25 and Figure 26 illustrate the spatial distribution of the species strata on the forested and managed landbases, respectively.

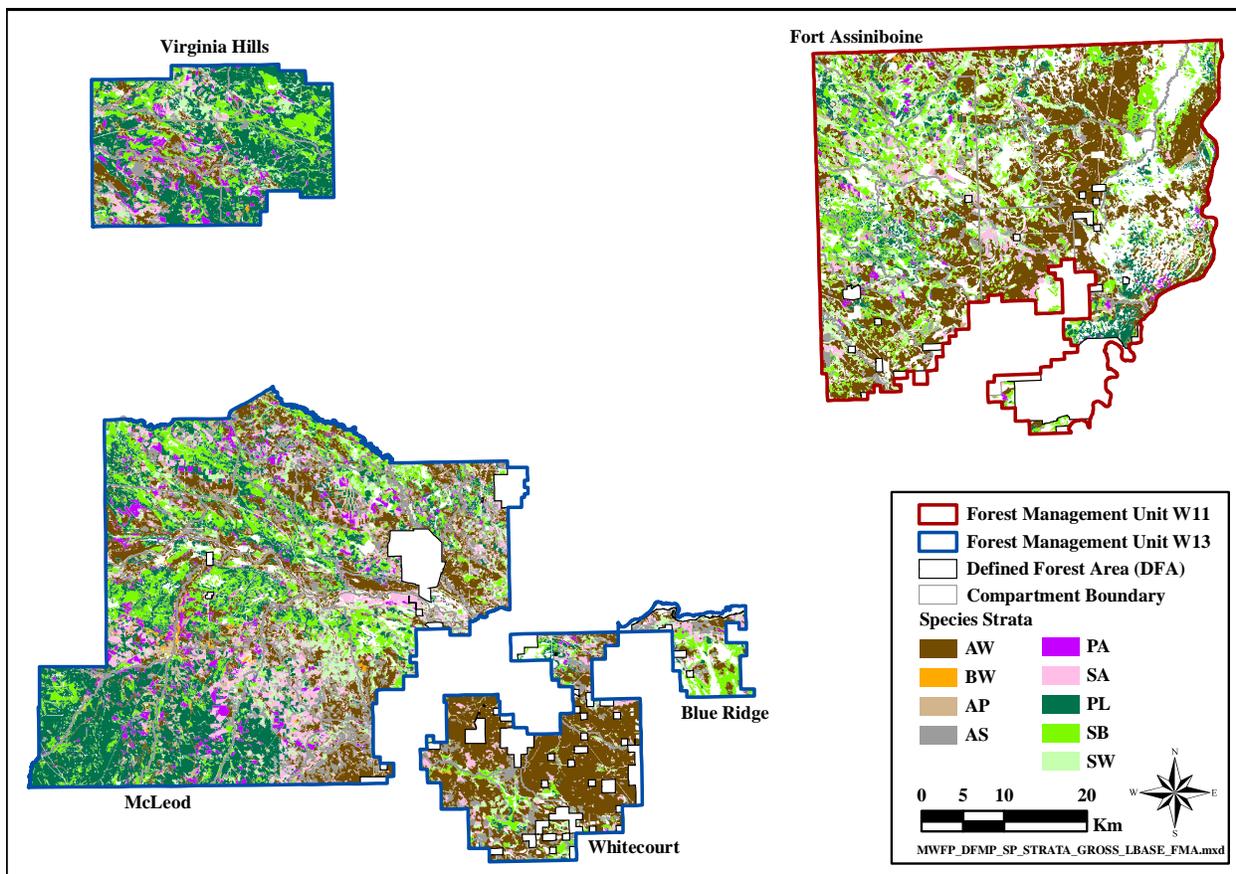


Figure 25. Species strata distribution on the forested landbase of the DFA.

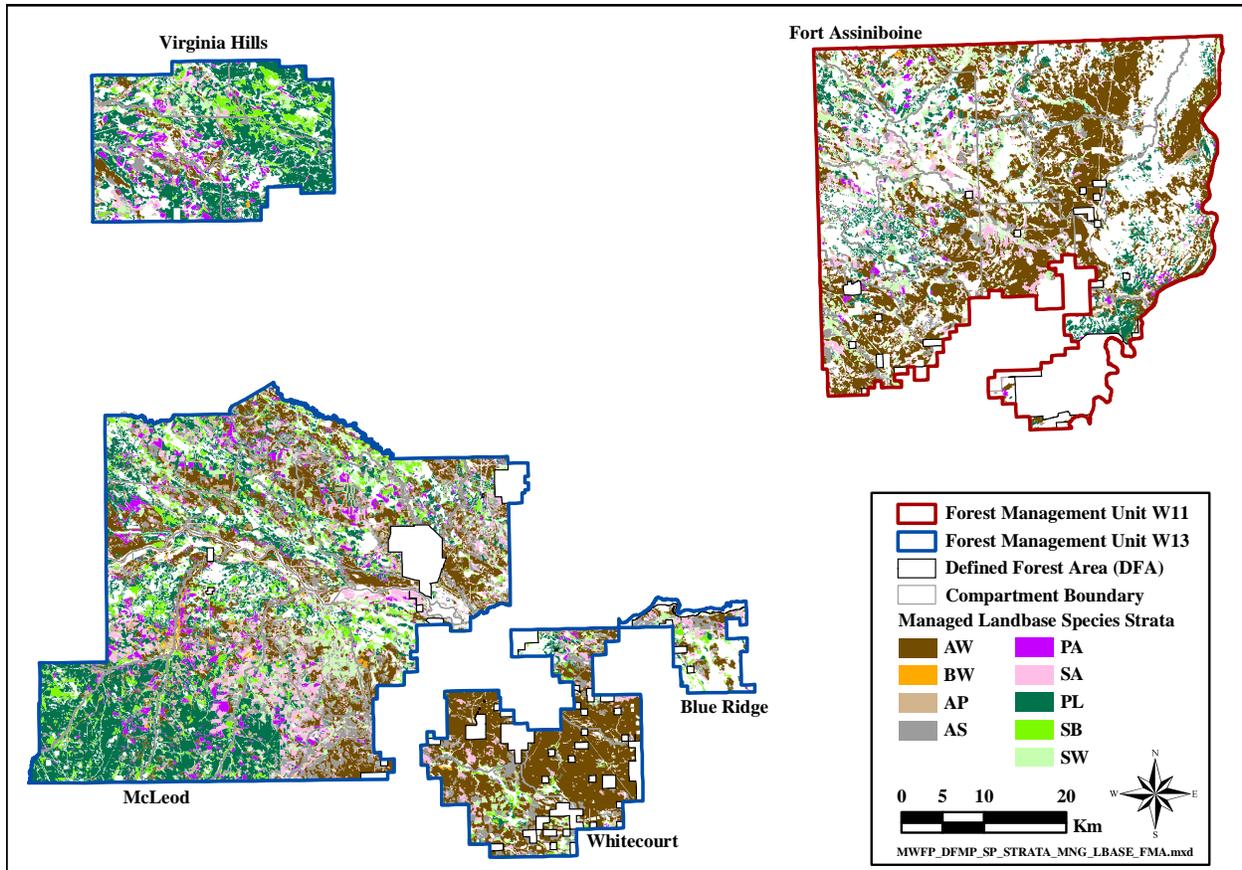


Figure 26. Species strata distribution on the managed landbase of the DFA.

4.2 Forest Age Classes

The forest age classes used within this section are assembled into 20-year classes: for example, age-class 10 represents ages 0 – 19 and age-class 30 represents ages 20 – 39.

Table 18, Table 19 and Table 20 summarize the forested landbase area within each age class by BCG, for W11, W13 and W11 and W13 combined, respectively. Figure 27 illustrates the forested landbase age-class distribution for W11, W13 and W11 and W13 combined. Figure 28 illustrates the spatial distribution of the age-classes on the forested landbase.

**Table 18. W11 forested landbase age-class summary by BCG.**

Age Class (Yrs.)	D		DC		CD		C		Total	
	(Ha)	(%)	(Ha)	(%)	(Ha)	(%)	(Ha)	(%)	(Ha)	(%)
10	5,017	3%	1,273	1%	2,070	1%	3,664	2%	12,024	8%
30	17,141	12%	324	0%	153	0%	6,596	4%	24,213	16%
50	1,842	1%	107	0%	69	0%	3,925	3%	5,943	4%
70	5,086	3%	1,110	1%	1,132	1%	26,859	18%	34,187	23%
90	11,782	8%	1,373	1%	716	0%	8,879	6%	22,751	15%
110	14,025	9%	2,505	2%	2,436	2%	17,904	12%	36,870	25%
130	1,635	1%	641	0%	1,088	1%	4,895	3%	8,259	6%
150	179	0%	233	0%	121	0%	2,294	2%	2,827	2%
170	-	0%	-	0%	1	0%	689	0%	691	0%
190	-	0%	-	0%	-	0%	-	0%	-	0%
210	-	0%	-	0%	-	0%	-	0%	-	0%
Total	56,707	38%	7,566	5%	7,787	5%	75,704	51%	147,765	100%

Table 19. W13 forested landbase age-class summary by BCG.

Age Class (Yrs.)	D		DC		CD		C		Total	
	(Ha)	(%)	(Ha)	(%)	(Ha)	(%)	(Ha)	(%)	(Ha)	(%)
10	9,230	3%	3,516	1%	7,330	3%	40,482	15%	60,558	22%
30	2,023	1%	1,160	0%	5,707	2%	954	0%	9,845	4%
50	9,859	4%	3,722	1%	2,353	1%	25,714	10%	41,648	15%
70	18,341	7%	4,527	2%	2,881	1%	31,611	12%	57,360	21%
90	5,427	2%	2,786	1%	1,722	1%	7,989	3%	17,924	7%
110	19,962	7%	8,743	3%	4,010	1%	10,045	4%	42,759	16%
130	3,603	1%	3,609	1%	5,734	2%	14,491	5%	27,438	10%
150	177	0%	119	0%	998	0%	7,719	3%	9,012	3%
170	-	0%	14	0%	64	0%	1,484	1%	1,561	1%
190	-	0%	-	0%	13	0%	1,526	1%	1,539	1%
210	-	0%	-	0%	-	0%	59	0%	59	0%
Total	68,622	25%	28,195	10%	30,811	11%	142,075	53%	269,703	100%

Table 20. W11 and W13 forested landbase age-class summary by BCG.

Age Class (Yrs.)	D		DC		CD		C		Total	
	(Ha)	(%)	(Ha)	(%)	(Ha)	(%)	(Ha)	(%)	(Ha)	(%)
10	14,247	3%	4,789	1%	9,400	2%	44,146	11%	72,582	17%
30	19,164	5%	1,484	0%	5,860	1%	7,550	2%	34,058	8%
50	11,701	3%	3,829	1%	2,421	1%	29,639	7%	47,590	11%
70	23,427	6%	5,637	1%	4,013	1%	58,469	14%	91,547	22%
90	17,209	4%	4,159	1%	2,439	1%	16,869	4%	40,675	10%
110	33,987	8%	11,248	3%	6,445	2%	27,949	7%	79,629	19%
130	5,238	1%	4,251	1%	6,822	2%	19,386	5%	35,696	9%
150	356	0%	351	0%	1,119	0%	10,014	2%	11,840	3%
170	-	0%	14	0%	66	0%	2,173	1%	2,252	1%
190	-	0%	-	0%	13	0%	1,526	0%	1,539	0%
210	-	0%	-	0%	-	0%	59	0%	59	0%
Total	125,329	30%	35,762	9%	38,598	9%	217,779	52%	417,468	100%

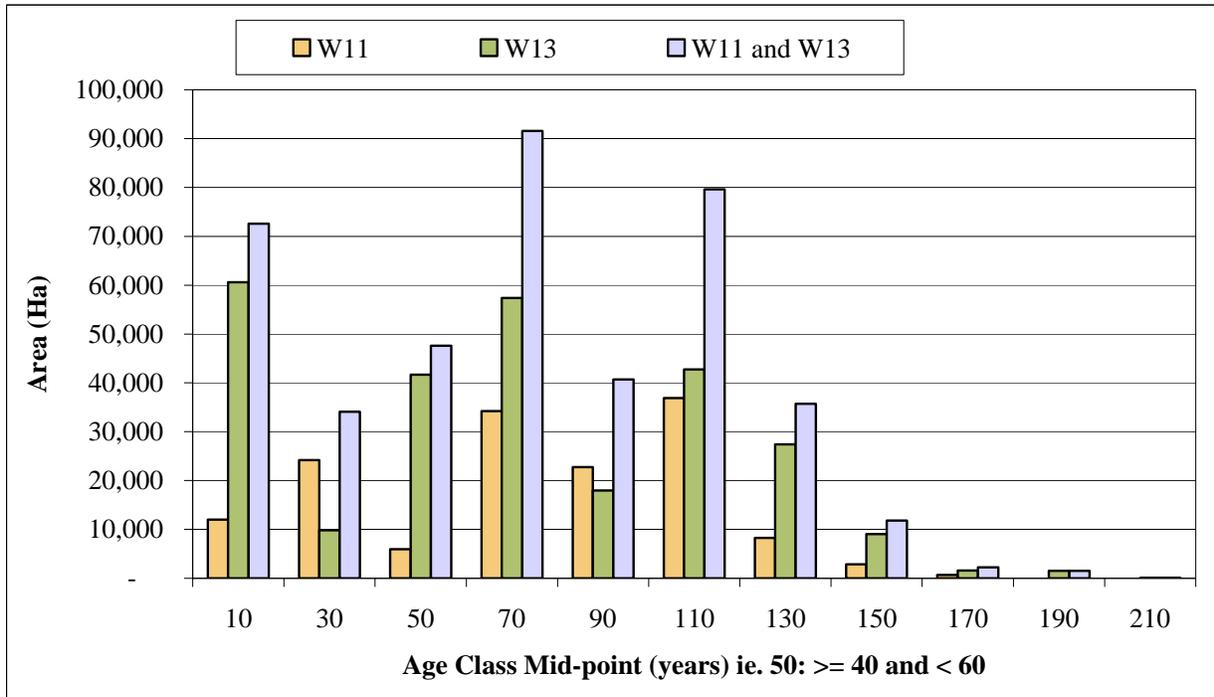


Figure 27. Forested landbase age-class distribution by FMU and combined FMUs.