Appendix 1: Timber Supply Analysis

FMU E8

TIMBER SUPPLY ANALYSIS

Timber Supply Analysis

Forest Management Branch
Resource Analysis Section
July 1, 2008

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF MAPS

REFERENCE SECTION

Timber Supply Analysis

This document contains a description of the methods used in determining the AAC for the E8 Forest Management Unit (FMU). The purpose of this Timber Supply Analysis (TSA) is to determine the wood supply for the E8 FMU as a standalone FMU by evaluating the wood supply under a variety of operating conditions. A number of scenarios were evaluated in this TSA before settling on the Preferred Forest Management Strategy (PFMS). This TSA also carried out the evaluation of the impact of various scenarios under different MPB scenarios as described in the "Planning Mountain Pine Beetle Response Operations Interpretive Bulletin".

The main drivers or items of highest priority in conducting this TSA were the consideration of caribou intactness areas and consideration for reducing the amount of high risk Mountain Pine Beetle (MPB) susceptible stands across the FMU.

Initially this TSA had identified two supplies of conifer sources from the E8 FMU, a "normal" set of stands that are typically included in a TSA and a set of stands that were classified as "small wood" stands that under normal conditions may be excluded from the timber harvesting or net landbase. The original intent had been to model a timber flow for the "normal" conifer landbase and a timber flow for the small wood conifer landbase. In the final stages of developing the PFMS the small wood conifer stands were included in the analysis to forecast a single conifer flow from the FMU. This analysis also forecasts a small supply of sustainable deciduous timber available from the FMU.

The PFMS developed for this FMU produced an accelerated harvest rate for the first 20 years of the harvest sequence to attempt to significantly reduce the amount of highly susceptible stands to MPB attack, while protecting the integrity of high value caribou intactness areas within the FMU.

The Annual Allowable Cuts (AAC) developed for the PFMS are shown in Table 1-1. All AACs are net of cull at a 13+/7 utilization level.

Table 1-1: E8 PFMS AACs

E8 PFMS AACs		
	AAC Flow Period	
	Year 1 to 20	Year 21 to 70
AAC Component	Harvest Volume (m^3)	Harvest Volume (m^3)
Primary Conifer	450,951	193,871
Secondary Conifer	1,765	
Total Conifer	452,716	
Primary Deciduous	7,948	7,948
Secondary Deciduous	5,673	
Total Deciduous	13,621	

Timber Supply Model

Timber supply modeling was completed using Remsoft's Spatial Planning System (RSPS) suite of analysis tools. Version 2007.4 was used for the majority of the aspatial and spatial modeling, while the final outputs and patch metrics were generated from version 2007.10. In this TSA, aspatial modeling is conducted as an optimization formulation where a target objective (volume) is maximized. Constraints based on management criteria are placed on the model to meet management goals. Spatial modeling is conducted through a simulation process where a harvest sequence is developed through patch targets, adjacency and proximity constraints, and hands on judgement from field staff in operationalizing a harvest sequence.

RSPS has been in use in Alberta since the early 1990's. Due to its transparent nature RSPS has been a preferred tool for conducting TSAs in Alberta. The model has continued to evolve over time as more demands have been placed on the ability of the model to deal with an ever increasing complexity of model formulations. With the increase in desktop computational abilities, there has been an increased demand to have more detailed inputs, outputs and criteria in timber supply models.

The Linear Programming (LP) matrix generated under optimization from RSPS was solved using MOSEK version 4.0.0.31. MOSEK, an interior point LP solver, has been the preferred LP solver for Alberta Sustainable Resource Development for nearly a decade, due to its ability to handle extremely large LP problems and the speed and efficiency at which it works.

Input Data

Input data for this TSA comes from a number of sources. Inventory data and the associated net landbase used in this analysis originates from Weyerhaeuser Grande Prairie's AVI data for E8. The landbase netdown process is detailed in the document entitled "FMU E8, Timber Supply Analysis, Landbase Determination" dated May 15, 2008. Growth and yield data and relationship development is contained in the document titled, "Yield curve documentation for the E8 FMU, 13/07 merchantability, February 28, 2007".

Long Run Sustained Yield Average

The Long Run Sustained Yield Average (LRSYA) can be defined as a measure of forest productivity. LRSYA is an estimate of the maximum non-declining volume that could be harvested at the age when mean annual increment is at a maximum, also known as peak MAI.

The gross conifer LRSYA from the conifer landbase is 308,344 m^3, while the gross deciduous LRSYA from the deciduous landbase is 10,611 m^3.

Table 4-1 shows peak MAI ages and the associated LRSYAs with each yield strata based on the net landbase area of each yield strata. This table also shows minimum and maximum harvest ages within 10% of peak MAI.

Table 4-1: LRSYA Estimates and Peak MAI Ages

Landbase	Yield Curve	Min Age within 10% of Peak MAI	Peak MAI	Max Age within 10% of Peak MAI	Peak MAI Yield Component	Area (ha)	Con MAI at Specified Peak MAI	Dec MAI at Specified Peak MAI	Con LRSYA	Dec LRSYA
Conifer	CPlABMG	60	90	125	Conifer	8,958.66	1.8684	0.0000	16,738	0
	CPlABF	60	85	125	Conifer	14,684.51	1.6557	0.0000	24,314	0
	CPlCDMG	60	90	125	Conifer	27,749.54	2.5304	0.0000	70,218	0
	CPlCDF	60	85	125	Conifer	50,684.67	2.3162	0.0000	117,397	0
	CSw	95	120	145	Conifer	14,931.35	1.8470	0.0000	27,578	0
	CSb	60	85	125	Conifer	9,192.03	1.1814	0.0000	10,860	0
	CDMx	80	100	120	Conifer	2,671.84	2.2472	0.7944	6,004	2,123
	DCMx	85	100	125	Conifer	2,846.93	1.7719	1.2336	5,044	3,512
	Comp	65	90	125	Conifer	7,211.26	2.0278	0.0000	14,623	0
Smallwood Conifer	CPlABMG	60	85	125	Conifer	4,445.68	1.4652	0.0000	6,514	0
	CSw	90	120	145	Conifer	8,076.14	1.1211	0.0000	9,054	0
Deciduous	Daw	85	105	130	Deciduous	5,696.53	0.4204	1.8627	2,395	10,611
							Conifer Landbase		308,344	5,635
							Deciduous Landbase		2,395	10,611
							Total		**310,739**	**16,246**

All MAIs and LRSYAs expressed in m^3.
All MAIs and LRSYAs are gross (prior to cull deduction).

Preferred Forest Management Scenario Decision Making Process

The process used in selecting the PFMS was one that was developed over several iterations of the net landbase development involving the examination and forecasting around the two key constraints, caribou and MPB, used in this TSA. The initial forecast served the purpose of establishing an unconstrained baseline. The model runs that followed were intended to explore the realm of possibilities under various constraints. The following is a broad list of the exploratory runs that were examined before settling on the PFMS.

- Unconstrained baseline run;
- No access to any caribou intactness areas;
- 75% reduction of Rank 1 & Rank 2 MPB stands in the first 20 years was investigated without any caribou constraint;
- A variety of runs assessing the impact of partially or fully limiting access to the high, medium and low caribou intactness areas to varying degrees, while applying a piece size constraint and varying targets of MPB susceptible stand reductions;
- MPB disaster planning, assuming massive pine mortality after ten years was forecasted;
- Exploration of the small wood conifer landbase as a separate and discrete wood supply.

Each run or series of runs was used to evaluate the impact of a selected strategy and further refine whether outputs were acceptable or whether constraints required further tuning. The PFMS criteria that were selected achieved an acceptable balance of environmental, economic and social values (on this landscape under the current management paradigm). The PFMS model objectives and constraints were a reflection of that value balance. The PFMS selected focused on reducing the amount of highly susceptible pine stands to MPB attack while maintaining the integrity of the caribou high value intactness areas. The aspatial formulation achieved a 55% reduction of operable Rank 1 and Rank 2 pine stands, with the final Spatial Harvest Sequence (SHS) achieving approximately a 48% reduction. The criteria selected for the PFMS are detailed in the following section.

Preferred Forest Management Scenario

Once an acceptable balance of values had been struck the criteria for the PFMS were able to be finalized and run through the timber supply model to generate the AAC and output the future forest conditions for confirmation. The following sub-sections break the modeling down into its aspatial and spatial components.

Aspatial Modeling

The intent of the aspatial modelling is to establish an optimal solution for the given objective and constraints. The aspatial solution is then passed into the spatial simulation model to apply the spatial constraints. The criteria for the aspatial modeling are listed and discussed in the following sub sections, and summarized in Table 6-3 at the end of section 6.1.

Utilization Level

Both conifer and deciduous species use a 13/7 utilization at a 15 cm. stump height.

Harvest Actions and Minimum Harvest Ages

Two actions were utilized in the PFMS, conifer harvest and deciduous harvest. Table 6-1 lists the minimum harvest ages for each yield component (profile or landbase) and its associated yield strata. As the PFMS is striving to reduce the amount of pine stands that are highly susceptible to MPB attack, the minimum harvest ages for the higher risk stands have been reduced to what would be considered a minimum economically feasible age. All non-risk strata have had their minimum harvest ages set at peak Mean Annual Increment (MAI).

Table 6-1: Minimum Harvest Ages

Profile / Landbase	Yield Strata	MPB Pine Stand Ranking	Minimum Harvest Age
Conifer Rank 1 & 2 Stands	C-Pl-AB-F	1 or 2	70
	C-Pl-AB-MG	1 or 2	70
	C-Pl-CD-F	1 or 2	70
	C-Pl-CD-MG	1 or 2	70
	C-Sw-All-All	1 or 2	75
	C-Sb-All-All	1 or 2	75
	CD-Mix-All-All	1 or 2	75
	DC-Mix-All-All	1 or 2	75
	C-Comp-All-All	1 or 2	70
	C-Pl-AB-MG - Smallwood	1 or 2	70
	C-Sw-All-All - Smallwood	1 or 2	75
Conifer Rank 0 & 3 Stands	C-Pl-AB-F	0 or 3	85
	C-Pl-AB-MG	0 or 3	90
	C-Pl-CD-F	0 or 3	85
	C-Pl-CD-MG	0 or 3	90

	C-Sw-All-All	0 or 3	120
	C-Sb-All-All	0 or 3	85

Continued...

	CD-Mix-All-All	0 or 3	100
	DC-Mix-All-All	0 or 3	100
	C-Comp-All-All	0 or 3	90
	C-Pl-AB-MG - Smallwood	0 or 3	85
	C-Sw-All-All - Smallwood	0 or 3	120
Deciduous Rank 1 & 2 Stands	D-Aw-All-All	1 or 2	75
Deciduous Rank 0 & 3 Stands	D-Aw-All-All	0 or 3	105

Cull

Conifer cull has been set at 3%, while deciduous cull has been set at 9%.

Lifespan

The lifespan selected for all yield strata for this analysis was 325 years of age.

Transitions and Regeneration Lag

This analysis assumes a "same to same" transition where all stands that are harvested, or die at the end of their lifespan regenerate back to the same yield strata at an age of 0 after their termination. Stands that are harvested are assumed to have a two year regeneration lag to account for the time elapsed for site preparation and planting or seeding. No regeneration lag is assumed for stands that succumb to natural mortality at the end of their lifespan. The Pine Stand Ranking is reset to 0 for all stands that are harvested or that die at the end of their lifespan.

Access Constraints

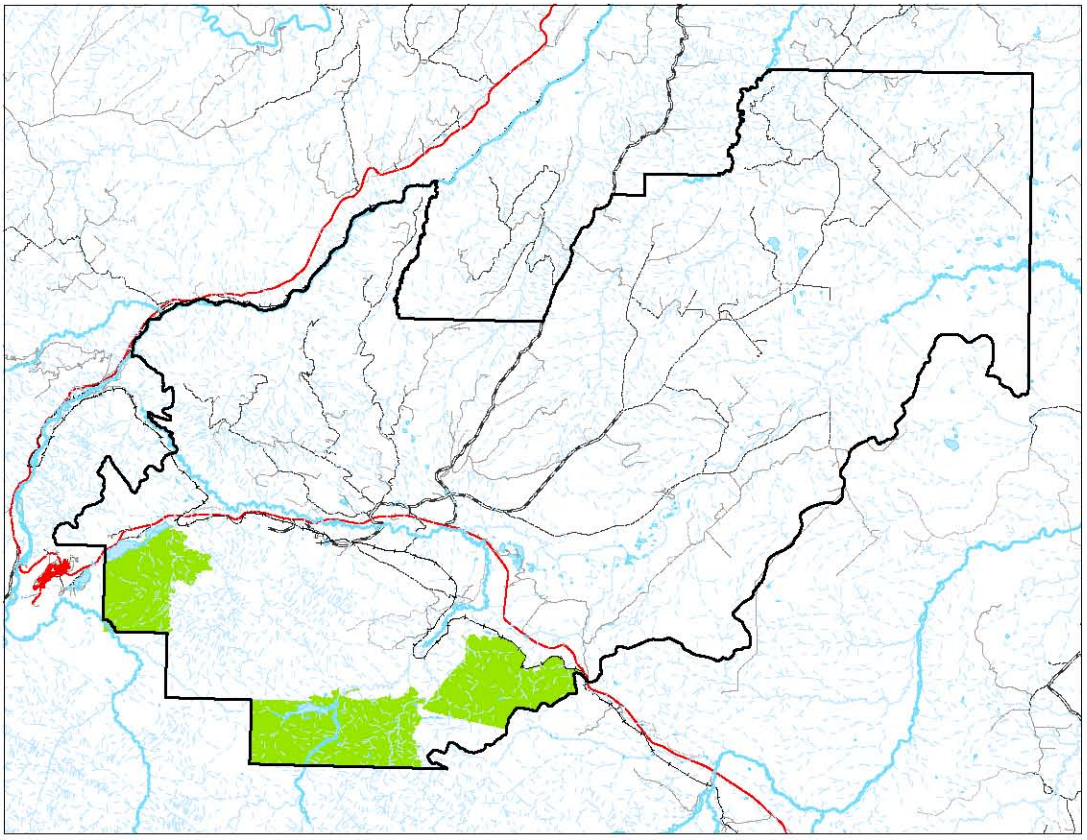
Access to high value caribou intactness areas has been not been allowed for the first 20 years of the TSA with the exception of access to stands (within the high vale caribou intactness areas) that have a Stand Susceptibility Index with Climate Factor greater than or equal to 50 after the first 10 years of the TSA.

Use of Locks to Constrain Access to Specific Areas

The RSPS _Lock function was used to lock out access to a set of stands in the Huckleberry and Muskeg compartments for the first 5 year period. These stands were locked out primarily due to lack of current access. Any first period pre-blocks identified in the landbase netdown process that fell into these lock areas, were removed as pre-

blocks before the TSA was ran. Map 6-1 shows the area that first period locks were applied to.

Map 0-1: Portions of E8 Locked Out from First Harvest Period Eligibility



Inclusion of Predefined Cutblocks into Model

The aspatial modeling utilized a LP Schedule to force the model to harvest the selected pre-blocks in the periods they had been identified for harvest. In optimization modeling it is preferred to incorporate as many known actions into the aspatial model as possible. This ensures a sustainable harvest level is set based on the known harvest activities that will take place on the landscape over approximately the next decade. The LP Schedule was generated based on the pre-blocks identified through the landbase netdown process and adjustments made through section 6.1.7.

Timber Supply Optimization and Constraints

As this analysis has identified two separate and discrete landbases, the optimization selected for the PFMS was to maximize the conifer volume from the conifer landbase plus the deciduous volume from the deciduous landbase.

The conifer volume has been constrained to two even flow periods over a 200 year planning horizon, while the deciduous volume has been constrained to a single even flow

period over the entire planning horizon. The first conifer even flow period is for the first 20 years focussing on reducing the amount of Rank 1 and Rank 2 pine stands. The second conifer even flow period is from year 21 to 200. The second conifer even flow period was constrained so that the conifer volume from the conifer landbase could drop to no less than 186,000 m³/year (approximately 90% of the current 13/7 AAC).

Both conifer and deciduous operable growing stocks have been limited to being non-declining from year 151 to year 200. Operable growing stocks have been defined as the amount of growing stock at or above the minimum harvestable age for Rank 0 or Rank 3 stands as per Table 6-1 in section 6.1.2.

The amount of operable Rank1 and Rank 2 stands has been forced by a constraint to be reduced by 55% after the first 20 years of harvesting. Operable Rank 1 and Rank 2 stands have been defined as stands that are at or above the minimum harvestable age for Rank 1 or Rank 2 stands as per Table 6-1 in section 6.1.2.

Piece size constraints have been applied in the PFMS to ensure that average size of timber coming into the facility will be operationally and economically feasible. The first 10 years of the PFMS has been constrained so that the average piece size is less than or equal to 6.0 trees/m^3. The remaining 190 years of the PFMS planning horizon has been constrained so that the average piece size is less than or equal to 5.5 trees/m^3.

Aspatial Output

The resultant primary AACs generated through the aspatial analysis that were passed to the spatial analysis are listed in Table 6-2.

Table 6-2: Aspatial Output – Primary AACs

E8 Aspatial PFMS Primary AACs		
	AAC Flow Period	
	Year 1 to 20	Year 21 to 70
AAC Component	Harvest Volume (m^3)	Harvest Volume (m^3)
Primary Conifer	508,333	253,546
Primary Deciduous	8,818	8,818

A Note on In-Stand Retention

As in-stand retention counts as part of the AAC it has not been directly modelled in the TSA, however it is important to remember that for this analysis 4% of the AAC must be left standing on the landscape. The criteria and protocols for the distribution and arrangement of that 4% is not discussed in this document. In-stand retention has been shown in Table 6-3 as a reminder that the harvest volumes that are delivered to the mill will be 4% less than the total AAC represented under this analysis.

Table 6-3: Aspatial Model Criteria

Aspatial	**Lifespan**	**Species Profile or Landbase**	Yield Strata (Covergroup - Leading Species - Density - TPR)	Age	
		Conifer	C-Pl-AB-F	325	
			C-Pl-AB-MG	325	
			C-Pl-CD-F	325	
			C-Pl-CD-MG	325	
			C-Sw-All-All	325	
			C-Sb-All-All	325	
			CD-Mix-All-All	325	
			DC-Mix-All-All	325	
			C-Comp-All-All	325	
			C-Pl-AB-MG - Smallwood	325	
			C-Sw-All-All - Smallwood	325	
		Deciduous	D-Aw-All-All	325	
	Yields	**Profile / Landbase**	Utilization Level	Regen Lag (years)	
		Conifer	13/7	2	
		Deciduous	13/7	0	
	Cull	**Profile / Landbase**	Cull Percent		
		Conifer	3%		
		Deciduous	9%		
	In Stand retention	All Yield Components	4%		
	Actions	**Profile / Landbase**	**Yield Strata**	**MPB Pine Stand Ranking**	**Minimum Harvest Age**
		Conifer Rank 1 & 2 Stands	C-Pl-AB-F	1 or 2	70
			C-Pl-AB-MG	1 or 2	70
			C-Pl-CD-F	1 or 2	70
			C-Pl-CD-MG	1 or 2	70
			C-Sw-All-All	1 or 2	75
			C-Sb-All-All	1 or 2	75
			CD-Mix-All-All	1 or 2	75
			DC-Mix-All-All	1 or 2	75
			C-Comp-All-All	1 or 2	70
			C-Pl-AB-MG - Smallwood	1 or 2	70
			C-Sw-All-All - Smallwood	1 or 2	75
		Conifer Rank 0 & 3 Stands	C-Pl-AB-F	0 or 3	85
			C-Pl-AB-MG	0 or 3	90
			C-Pl-CD-F	0 or 3	85
			C-Pl-CD-MG	0 or 3	90
			C-Sw-All-All	0 or 3	120
			C-Sb-All-All	0 or 3	85
			CD-Mix-All-All	0 or 3	100
			DC-Mix-All-All	0 or 3	100
			C-Comp-All-All	0 or 3	90
			C-Pl-AB-MG - Smallwood	0 or 3	85
			C-Sw-All-All - Smallwood	0 or 3	120
		Deciduous Rank 1 & 2 Stands	D-Aw-All-All	1 or 2	75
		Deciduous Rank 0 & 3 Stands	D-Aw-All-All	0 or 3	105
	Access	No access to caribou high value intactness areas for 20 years. Access to caribou high value intactness areas with an SSI_CF rating >= 50 permitted after 10 years.			
	Transitions	All harvetsed strata return to same yield strata after harvest or death. Rank 1 & Rank2 MPB stands return to Rank 0			
	Optimization	Objective	Maximize Conifer & Deciduous Volumes		
		Constraints	Two even flow conifer volume periods, the first from year 1 to 20 and the second from year 21 to year 200. The deciduous volume is an even flow for 200 years. Operable conifer and deciduous growing stocks canno decline in the last 50 years of the planning horizon. onifer volume must be >= 186,000 m3 in the fifth period (90% of the current 13/7 AAC). reduce the amount of operable Rank1 & Rank2 stands by 55% by year 20. Average piece size must be <= 6.0 stems/m3 for the first 10 years and <= 5.5 stems/m3 for the remainder of the planning horizon.		
	Planning Horizon	200 years			

Spatial Modeling

The spatial modeling consisted of applying a set of spatial constraints to the optimal aspatial solution. This TSA does not utilize a green-up constraint, so stands are not constrained as to their harvest period based on their proximity to recently harvested polygons. Multi period openings were allowed, so that the model could continue to harvest polygons adjacent to existing clearcuts, essentially adding to the size of the original clearcut. The criteria for the aspatial modeling are listed and discussed in the following sub sections, and summarized in Table 6-4 at the end of section 6.2. While the aspatial model is constrained to fully meet the criteria established, the spatial model has some flexibility during the sequencing of cutblocks to change the optimal solution outputs. As such the outputs after spatial modeling are re-evaluated to determine if the objectives are still being acceptably met. Outputs generated from the spatial sequencing process are discussed in Section 8.

Adjacent and Proximal Distances

In this analysis the adjacency distance was set to 0 meters, meaning only polygons directly touching each other could be joined in creating a harvest block.

As a green-up constraint was not used in this TSA, the proximity distance was set to 0 meters.

Green-up Length

As previously mentioned a green-up constraint was not used in this analysis.

Deviation from Optimal Sequence

During model selection of the spatial sequence, RSPS was allowed to deviate from the optimal aspatial sequence by up to 3 five year periods. This allowed the model to make some changes to the optimal sequence while limiting the affect to the AAC.

Flow Fluctuation

The spatial model was allowed to a flow fluctuation of 5% so that the lowest and highest periodic solution values are within no more than 5% of each other. By allowing this fluctuation, the model is not overly constrained by existing polygon sizes and has the ability to make better choices with some flexibility built into it while maintaining a relative even flow of volumes over time.

Spatial Planning Horizon

The spatial sequence was generated for 70 years or approximately one third of the aspatial planning horizon.

Reduction for Spatial Sequencing

Through the spatial sequencing exercise the primary conifer AACs achieved 88.7% of the optimal aspatial conifer AAC for the first 20 years of the SHS, while achieving 76.5% of

the optimal aspatial conifer sequence for years 21 to 70 of the SHS. The primary deciduous AAC achieved 90.1% of the optimal aspatial deciduous AAC.

Post Modeling Adjustment for Removal of 5% in Block Loss Requirement

After the SHS had been selected, the requirement to incorporate a 5% loss for roads and landings, had been removed from the planning requirements. Subsequently the final SHS AACs were replayed through RSPS a final time with the previously applied 5% reduction removed.

Table 6-4: Spatial Model Criteria

Spatial	Adjacency Distance		0 meters		
	Proximity Distance		0 meters		
	Green-Up Length	Conifer	None		
		Deciduous	None		
	Block Sizes in ha	Conifer	Maximum	None	
			Minimum	5	
			Target	150	
		Deciduous	Maximum	None	
			Minimum	2	
			Target	None	
	Deviation from Optimal Sequence		3 Periods		
	Flow Fluctuation	Conifer	5%		
		Deciduous	2%		
	Years Sequenced	Conifer	70		
		Deciduous	70		

Playback and Re-Optimization

Part of the analysis includes playing back the selected 70 year SHS through RSPS and re-optimizing from year 71 to the end of the original 200 year planning horizon utilizing the original timber supply objectives and constraints. This demonstrates that the original objectives are still being met, or at least are acceptable. The key outputs for the playback are harvest volumes and growing stocks. The results from the playback are included in Section 8 where applicable.

PFMS TSA Results

The PFMS results are summarized in this section. These are the outputs from the timber supply model discussed in sections 5, 6 and 7. Each key output is broken down into its own section for clarity. Where applicable, each section may show outputs for the aspatial, spatial and playback portions of the analysis. The 20 year spatial harvest sequence map is at the end of this section.

Volume Harvested

The recommended PFMS AACs are shown in Table 8-1. The spatially sequenced flow for the pure conifer, or primary conifer, component of the TSA is reported in the table as an average of the first flow period (20 years) and as an average of the second flow period (50 years). The flow for the pure deciduous component of the TSA is reported as the average of the 70 year spatial harvest sequence. The first 20 years of the incidental, or secondary, AACs are an average of the first 20 years for each species group.

Table 8-1: E8 PFMS AACs

E8 PFMS AACs		
	AAC Flow Period	
	Year 1 to 20	Year 21 to 70
AAC Component	Harvest Volume (m^3)	Harvest Volume (m^3)
Primary Conifer	450,951	193,871
Secondary Conifer	1,765	
Total Conifer	452,716	
Primary Deciduous	7,948	7,948
Secondary Deciduous	5,673	
Total Deciduous	13,621	

The recommended PFMS primary conifer AAC is shown in Figure 8-1. As the harvest levels for the incidental flows and pure deciduous flow are significantly lower than the pure conifer AAC, the secondary and deciduous flows are depicted in Figure 8-2 to show these AACs at a better scale. The AACs shown in these two graphs include the initial aspatial run as well as the run demonstrating the resultant flows after re-optimizing the TSA from year 71 to 200 after following the prescribed 70 year spatial harvest sequence. These graphs show the actual SHS flow as well as the average for each flow period as described above. As can be seen in Figure 8-1 the re-optimized conifer playback demonstrates a recovery of the primary conifer volume after following the 70 year spatial harvest sequence. This demonstrates that subsequent re-planning, after the focus on reducing the highly susceptible MPB stands through an initial 20 year accelerated harvest, should result in a recovery of the conifer AAC in time.

Figure 8-1: Primary Conifer AAC Graph

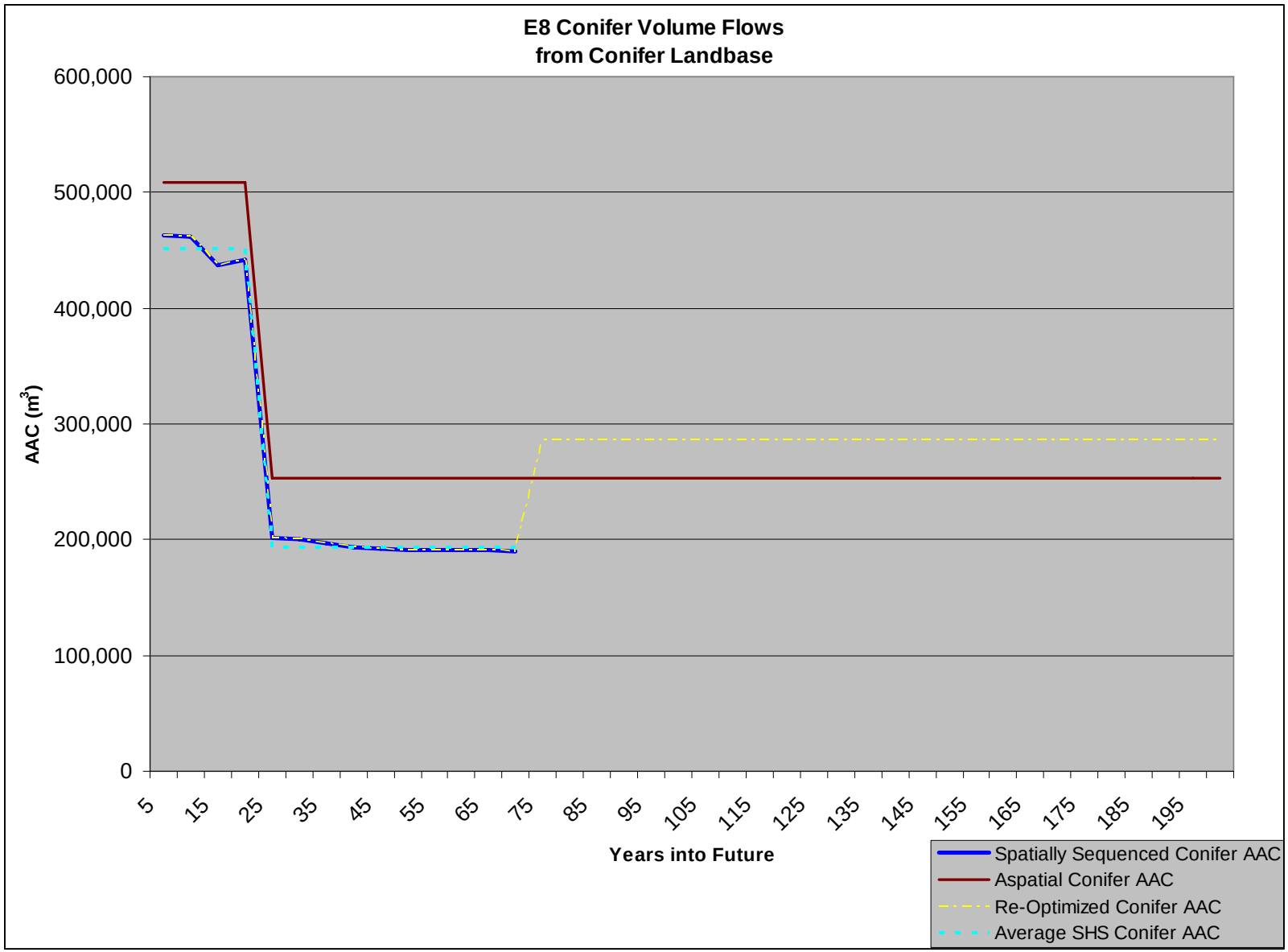
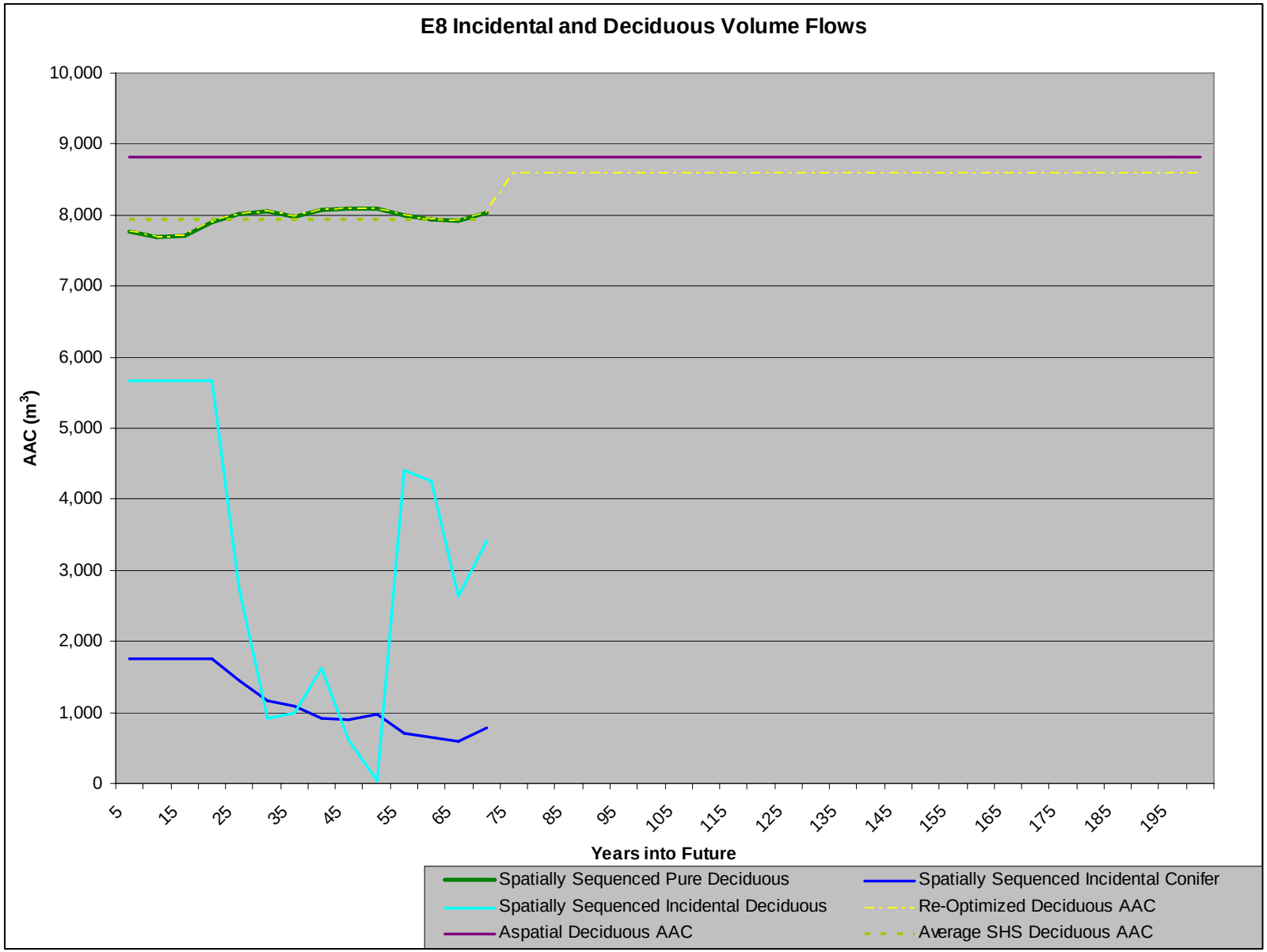


Figure 8-2: Secondary and Primary Deciduous AACs Graph



Growing Stock

The planning standard requires that the amount of operable growing stock must be stable over the last quarter of the planning horizon. The aspatial configuration of the PFMS utilized a non-declining operable growing stock constraint over the last 50 years of the planning horizon to ensure its ending stability. While the selected SHS is for 70 years, the re-optimization playback as described in Section 7 was used to demonstrate the future stability of the operable growing stock at the end of the 200 year planning horizon. As with the harvest volume graphs being split to better represent the scale difference between the primary conifer and the other AAC components, Figure 8-3 and Figure 8-4 demonstrate the operable growing stock levels from the aspatial, spatial and re-optimized playback runs.

Figure 8-3: Primary Conifer Operable Growing Stock Graph

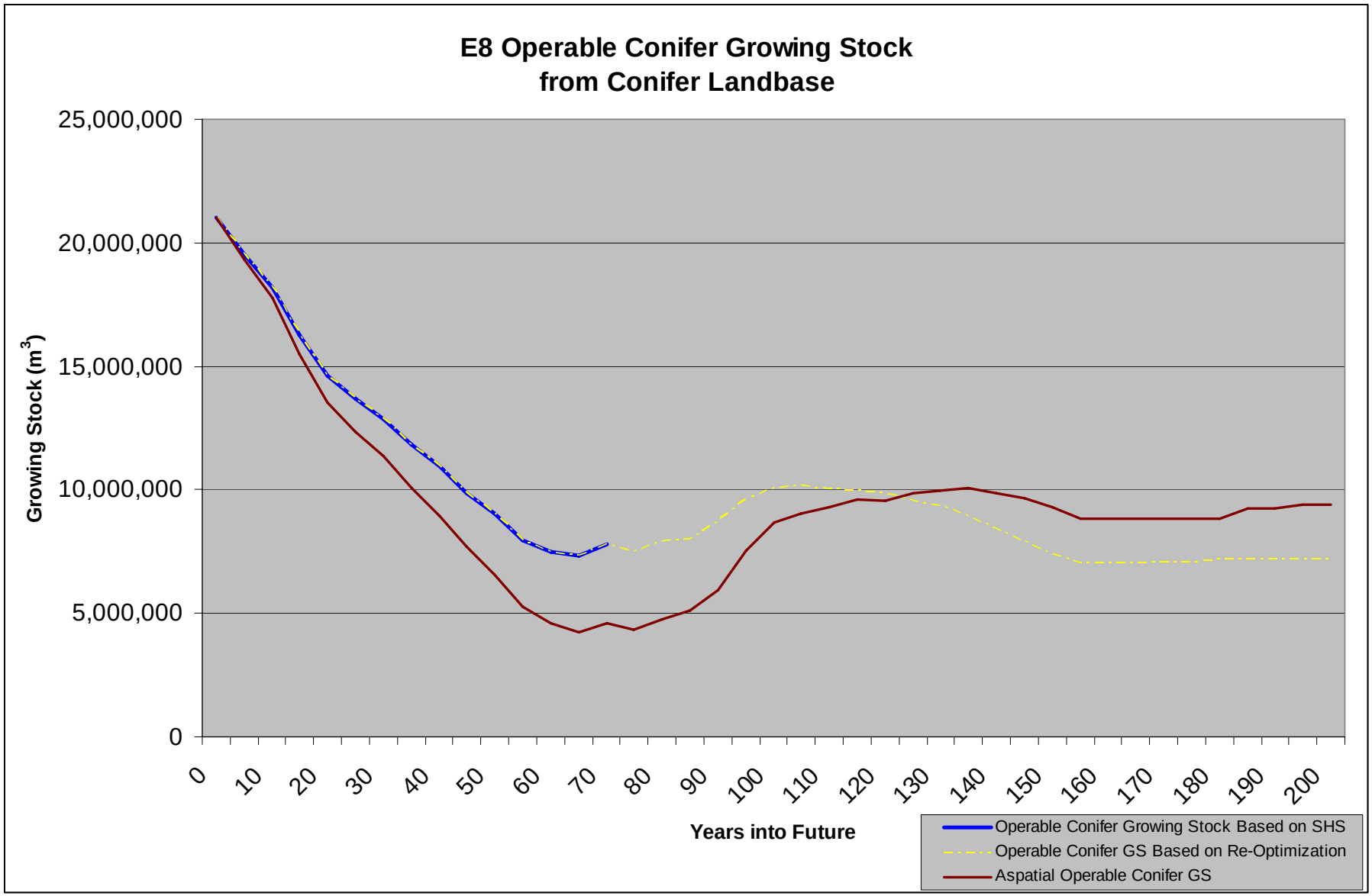
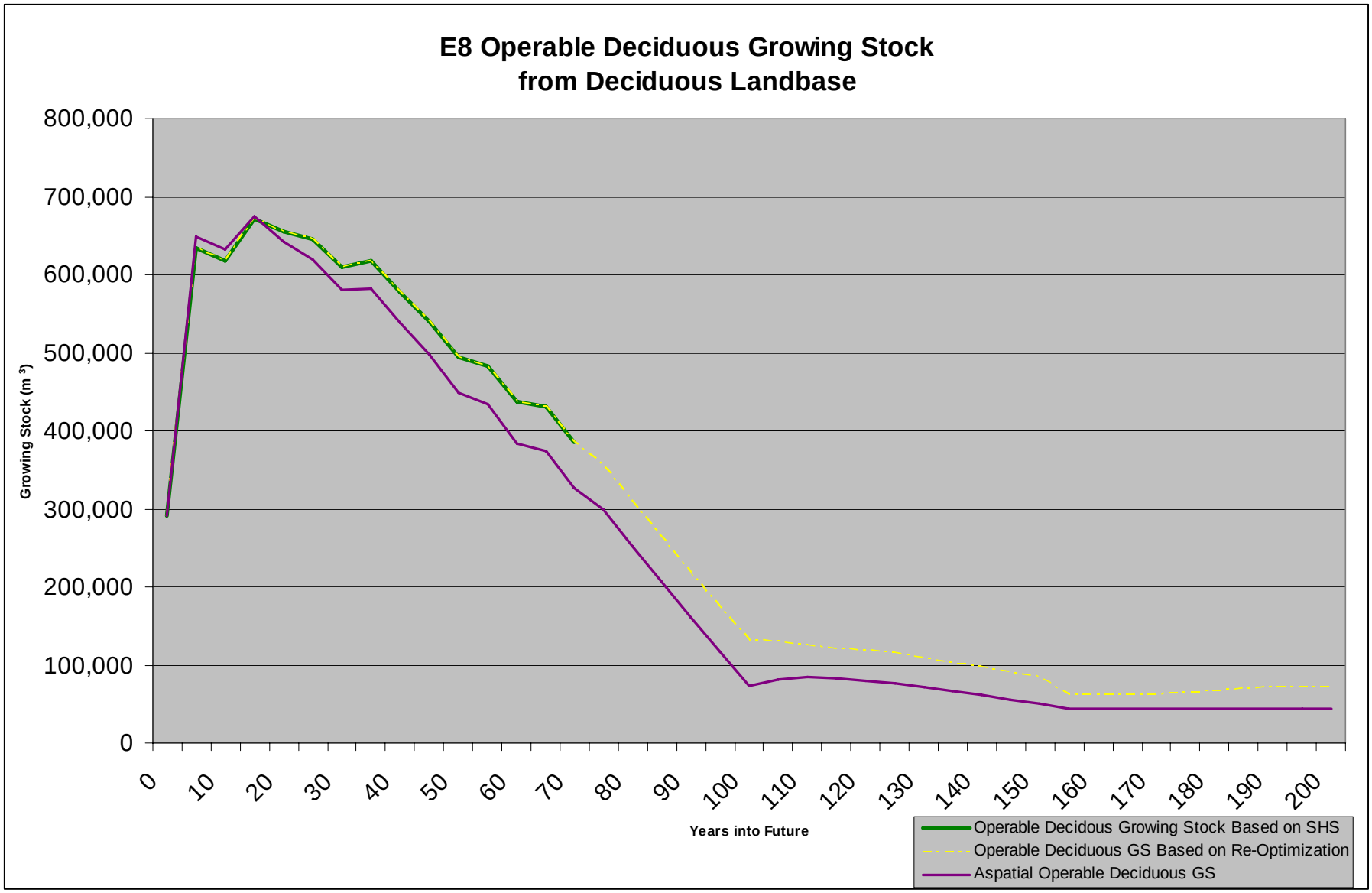


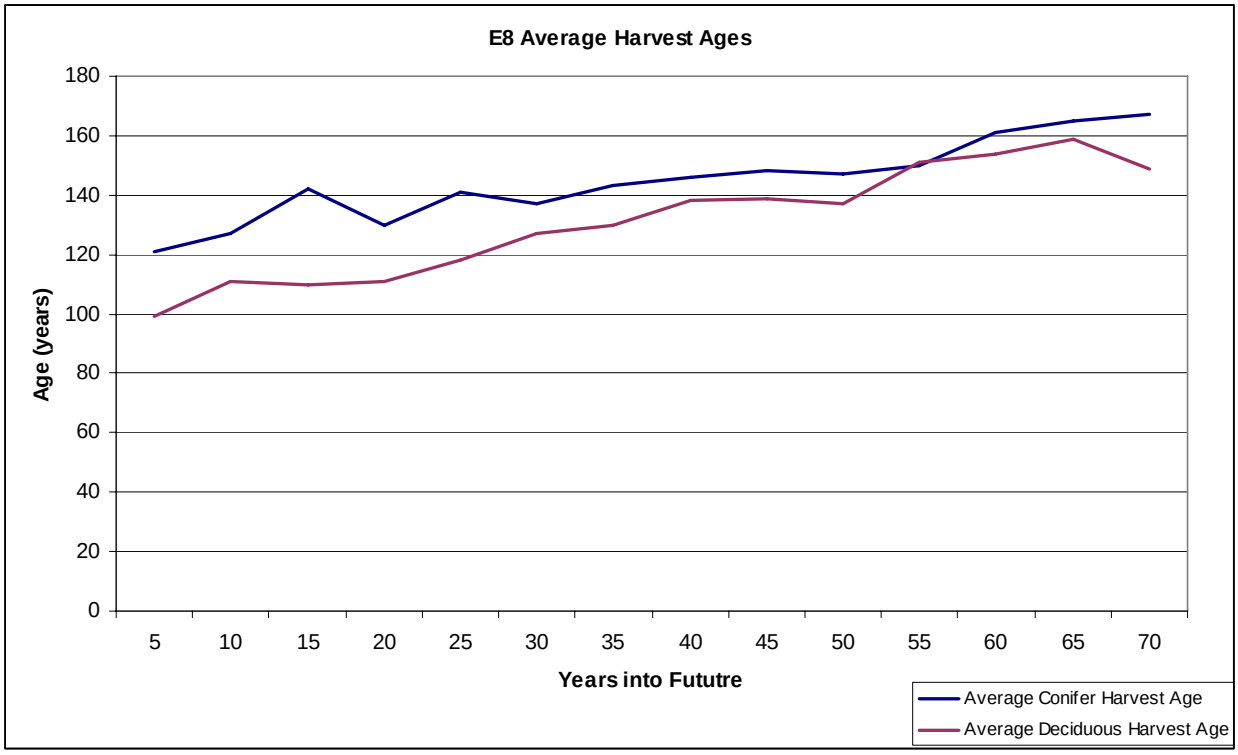
Figure 8-4: Secondary and Primary Deciduous Operable Growing Stock Graph



Average Harvest Age

The average harvest ages are shown in Figure 8-5. They show a slow and steady increase over the 70 year period of the SHS. This is probably attributed to the previously undisturbed areas of E8 becoming eligible for harvest after 20 years.

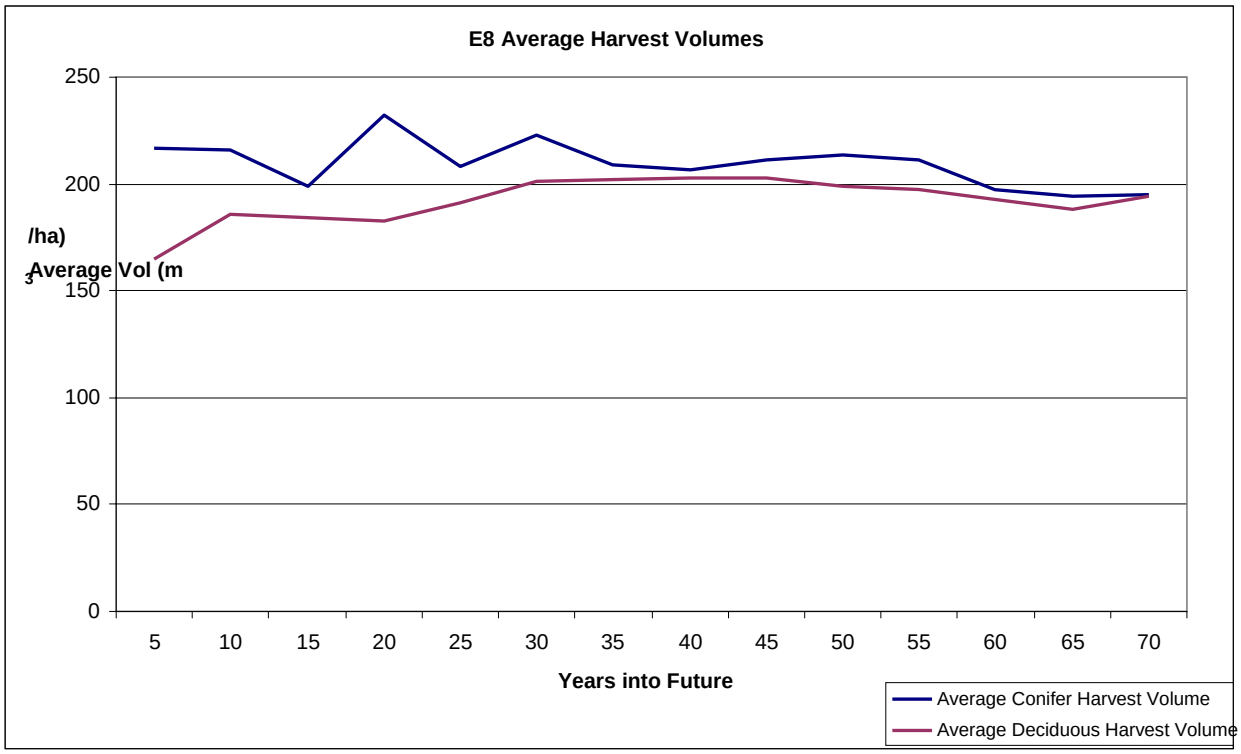
Figure 8-5: Average Harvest Age



Average Harvest Volume

Average harvest volumes are reported as volume in m^3 per hectare. The output of the SHS of the PFMS shows a stable average volume per hectare (vol/ha) over the 70 years of the SHS. Figure 8-6 graphically illustrates this trend.

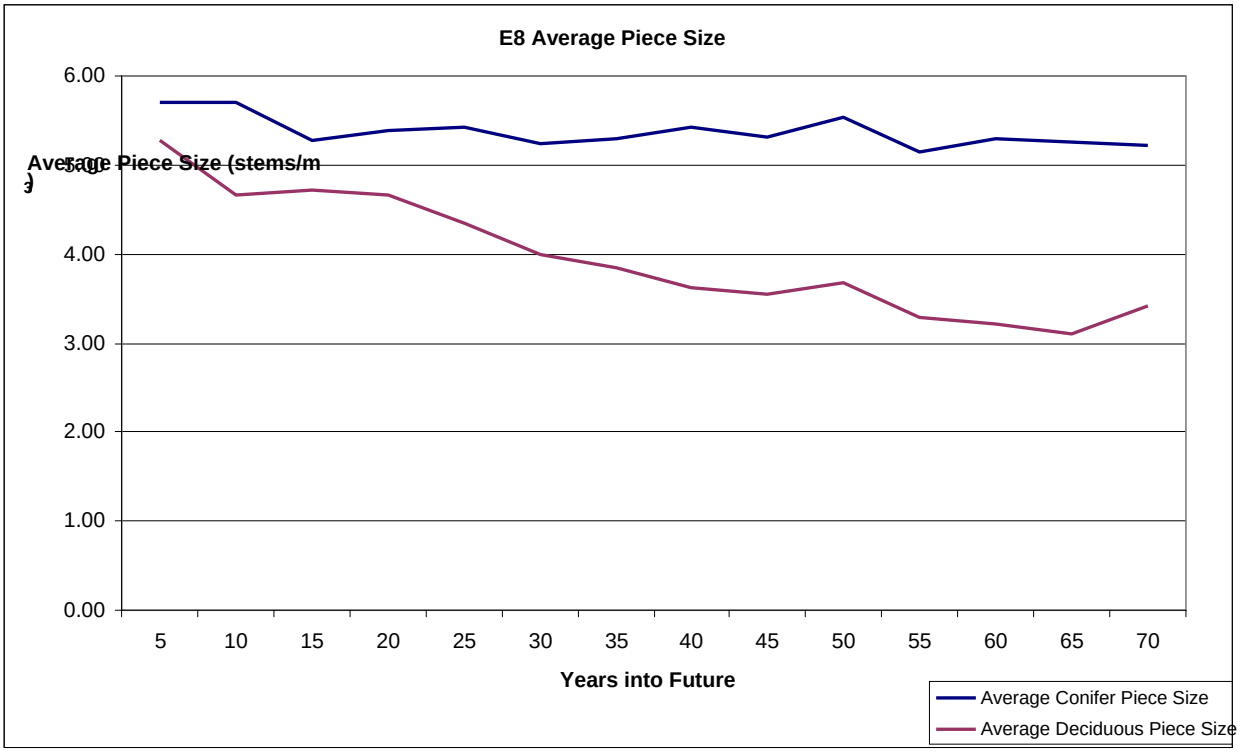
Figure 8-6: Average Harvest Volume/Hectare



Average Piece Size

As average coniferous piece size was one of the timber supply metrics that was constrained for the PFMS, the output of the selected SHS results in a fairly stable average piece size represented as stems/hectare over the span of the SHS. Figure 8-7 demonstrates the average piece size.

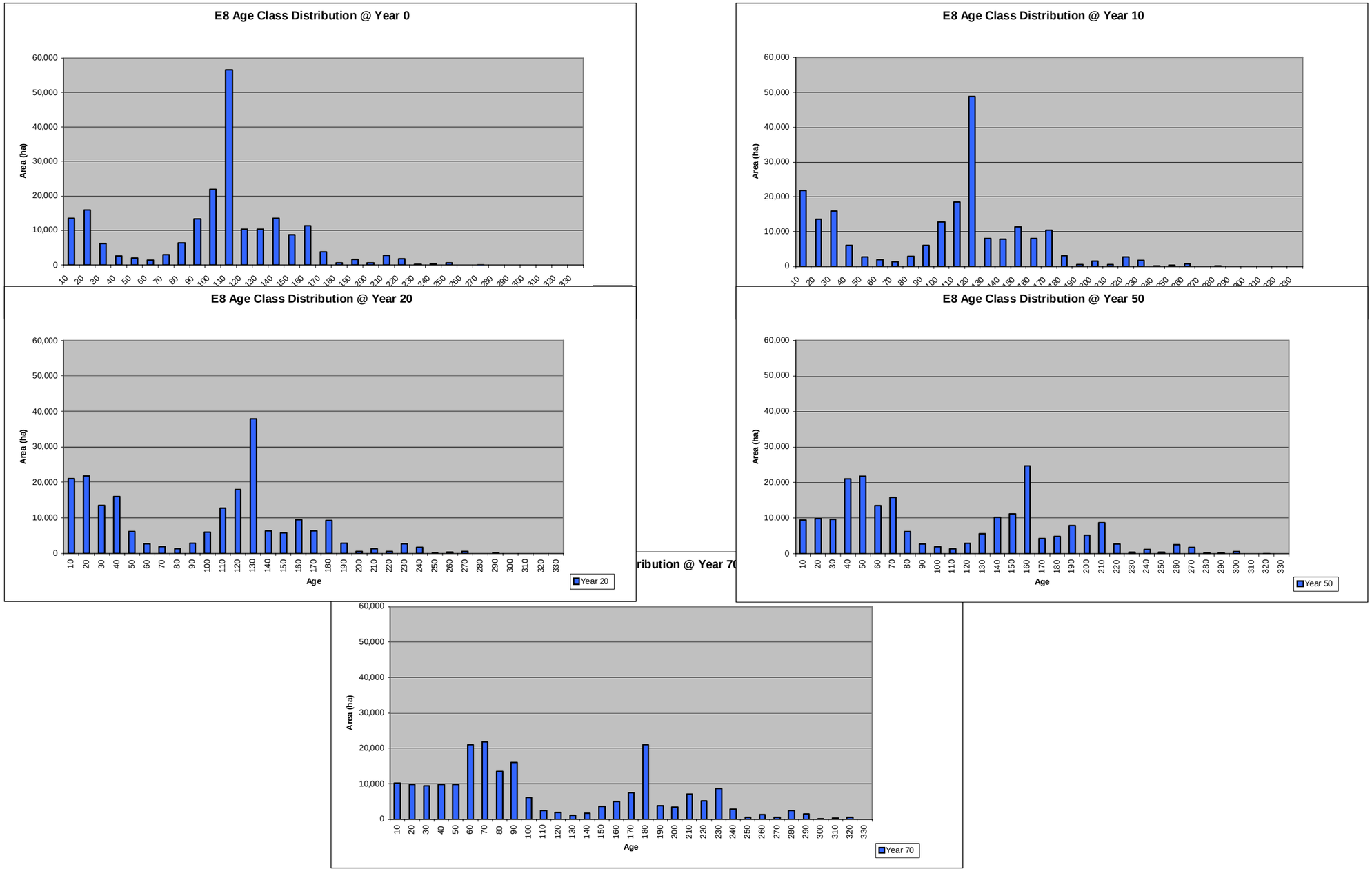
Figure 8-7: Average Piece Size



Age Class Distribution

The Age Class Distribution (ACD) shows the future forest's age structure based on the prescribed actions occurring on the landscape. The series of graphs in Figure 8-8 demonstrate how the overall age of the E8 FMU changes over the 70 years horizon of the SHS. As can be seen in the graphs the initial state of the forest has a large amount of landbase in the 110 year age class. After 70 years of harvesting, including the accelerated harvest for MPB pine stand reduction, there is still a significant amount of land in the now 180 year age class. What can also be seen after 70 years is the even distribution of landbase in the 10 to 50 year age classes with an increase in the amount of land in the 60 and 70 year age classes due to the accelerated coniferous harvest in the first 20 years. These graphs lead into the next section, Section 8.7, dealing with seral stages.

Figure 8-8: Age Class Distribution Over Time



Seral Stage Distribution

The seral stage definitions utilized for this TSA were those developed by Alberta Sustainable Resource Development by Natural Sub-Region. Table 8-2 lists the criteria for assignment of a polygon to one of the five seral stages based on stand age.

Table 8-2: Seral Stage Definitions

Sub-Region	Strata	Regeneration	Young	Mature	Early Old Growth	Late Old Growth
Upper Foothills	D	0-25	26-80	81-140	141-180	>180
	DC	0-30	31-90	91-150	151-200	>200
	CD	0-30	31-90	91-160	161-210	>210
	C - Sx leading*	0-30	31-90	91-200	201-250	>250
	C - Sb leading**	0-40	41-100	101-200	201-250	>250
	C - Pl leading	0-30	31-80	81-160	161-210	>210
Sub-alpine	D	0-25	26-80	81-140	141-180	>180
	DC	0-30	31-90	91-150	151-200	>200
	CD	0-30	31-90	91-160	161-210	>210
	C - Se leading***	0-40	41-100	101-220	220-275	>275
	C - Pl leading	0-30	31-80	81-140	141-180	>181
	C - Pw leading	0-30	31-100	101-200	201-250	>250
	C - La leading	0-50	51-110	111-225	226-300	>300
	C - Sb leading****	0-50	51-120	121-225	226-300	>300
Montane	D	0-25	26-70	71-120	121-150	>150
	DC	0-25	26-70	71-130	131-160	>160
	CD	0-25	26-80	81-140	141-170	>170
	C - Sw leading	0-30	31-90	91-180	181-230	>230
	C - Pl leading	0-30	31-80	81-130	131-170	>171
	C - Fd leading	0-30	31-90	91-200	201-250	>250
	C - Sb leading	0-40	41-100	101-200	201-250	>250

Notes:

* Sx leading in Upper Foothills includes Sw, Se and Fb leading

** Sb leading includes Lt leading

*** Se leading in Sub-alpine incudes Fb, Fa and Sw leading stands

**** Sb leading includes Lt leading (note: pure Lt at higher elevations may be La mis-typed. If no black spruce is present in stand type allocate Lt to La leading instead)

As seral stage age class ranges vary by strata and sub-region, the trends seen here are somewhat different than when examining simple age class distributions. Figures 8-9 and 8-10 show the same seral stage data in two different formats for comparison. What is apparent from examining these graphs is the slow tendency towards "normalizing" the distribution of seral stages to a more even distribution of area in all stages. The initial forest state with a preponderance of mature seral stage stands changes over the 70 years of the SHS generating more early old growth and regeneration stage stands. There is also a slight increase of late old growth stands by the end of the SHS horizon.

Tables 8-3 to 8-7 depict the seral stage distribution of the net landbase for years 0, 10, 50, 100 and 200, while Tables 8-8 to 8-12 depict the seral stage distribution of the gross landbase for years 0, 10, 50, 100 and 200. Years 100 and 200 are based on the re-optimized analysis as described in Section 7.

A full map sheet is provided in Reference Section in the "Future Forest Condition" section which provides snapshots of the seral stage distribution in the E8 FMU for years 0, 10, 20, and 50 based on the PFMS SHS.

Figure 8-9: Seral Stage Summary Over Time (Stacked Bar Graph)

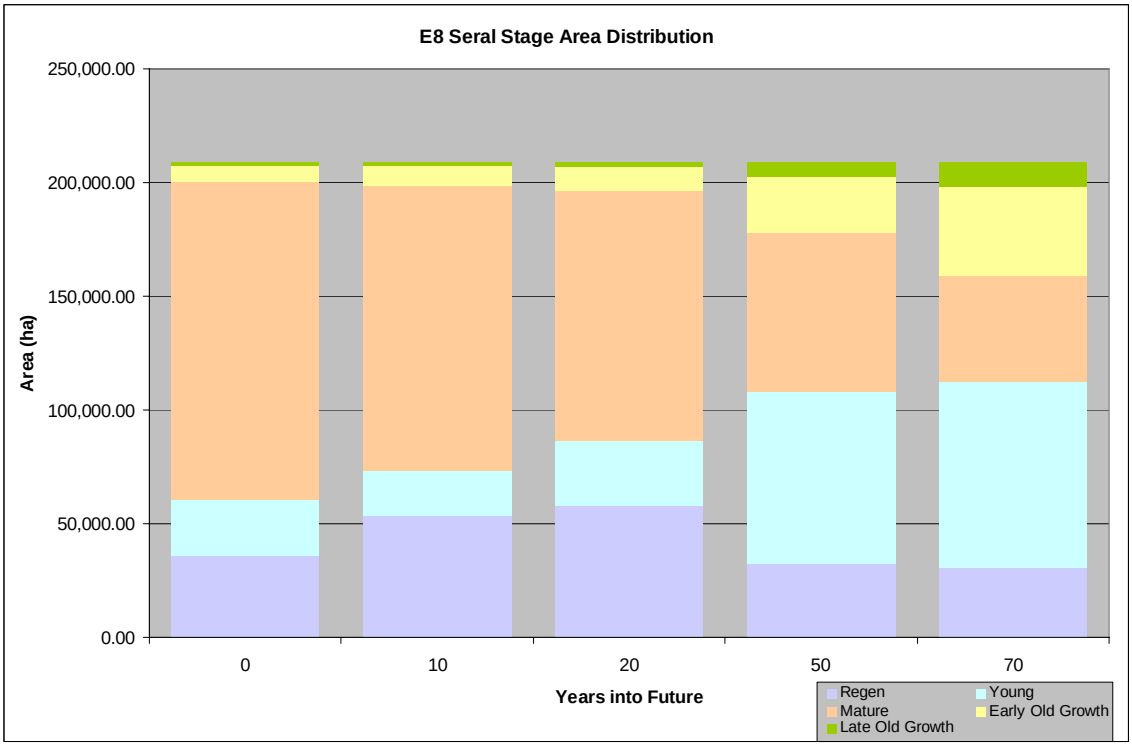


Figure 8-10: Seral Stage Summary Over Time (Clustered Bar Graph)

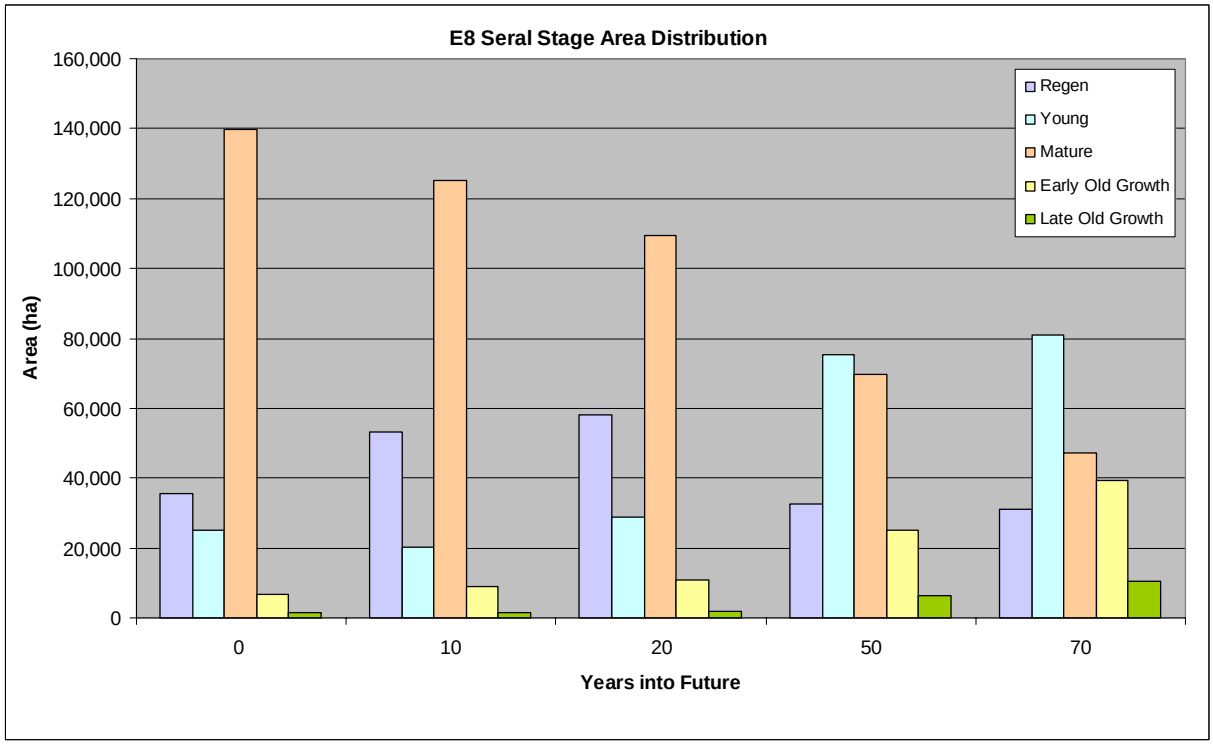


Table 8-3: Net Landbase Seral Stage Distribution at Year 0

Note on Compartment Names:
BOLT – Bolton
DEEP – Deep Valley
HUCK – Huckleberry
MUSK – Muskeg
SIMO – Simonette
SMOK - Smoky

Sum of Area		SeralState					
Compartment	Strata	EOG	LOG	Mature	Regen	Young	Grand Total
BOLT	CCOMPALAL				1,741		1,741
	CDMXALAL			55	169		224
	CPLABF	302	346	545		12	1,204
	CPLABMG	99	32	870		4	1,006
	CPLABMGS	24	1	711			736
	CPLCDF	131	1	3,039	4,396	122	7,689
	CPLCDMG	36	22	1,419	1,802	217	3,496
	CSBALAL	8		313	124	243	687
	CSWALAL	166		1,325	1,939	303	3,733
	CSWALALS	154		1,534		92	1,781
	DCMXALAL			22	235	10	267
BOLT Total		920	401	9,833	10,407	1,003	22,564
DEEP	CCOMPALAL				1,792		1,792
	CDMXALAL			164	262		426
	CPLABF	199	77	4,196		15	4,485
	CPLABMG	77	5	2,442		11	2,534
	CPLABMGS	35	5	734			774
	CPLCDF	5	29	6,303	2,454	104	8,896
	CPLCDMG			4,072	2,814	75	6,961
	CSBALAL	15		2,381	299	1,137	3,832
	CSWALAL			409	62	3	475
	CSWALALS	25		512			537
	DAWALAL			21	110		130
	DCMXALAL			161	25	17	203
DEEP Total		357	115	21,395	7,817	1,361	31,046
HUCK	CCOMPALAL				1		1
	CDMXALAL			6		2	8
	CPLABF	863		2,498	1	15	3,378
	CPLABMG	45		858			903
	CPLABMGS	74		1,143			1,217
	CPLCDF	533		10,584	349	759	12,225
	CPLCDMG	36		2,981	149	100	3,266
	CSBALAL			271	5	506	783
	CSWALAL			1,312	2	70	1,384
	CSWALALS	14		1,934			1,948
	DCMXALAL				1	14	15
HUCK Total		1,565		21,587	508	1,467	25,127
MUSK	CCOMPALAL				4		4
	CDMXALAL			222		160	382
	CPLABF	2		1,879	8	664	2,553
	CPLABMG	68		2,127	15	293	2,502
	CPLABMGS			885			885
	CPLCDF			5,640	152	745	6,538
	CPLCDMG	27		4,060	141	980	5,208
	CSBALAL	14		795	10	143	962
	CSWALAL			2,501	102	1,569	4,172
	CSWALALS			1,378		30	1,408
	DAWALAL	122		1,275		501	1,897
	DCMXALAL			254		214	468
MUSK Total		232		21,015	432	5,300	26,979
SIMO	CCOMPALAL				481		481
	CDMXALAL			28			28
	CPLABF	268	271	1,973			2,511
	CPLABMG	151		837	1		989
	CPLABMGS	41		251			292
	CPLCDF	278	180	6,096	4,200	37	10,790
	CPLCDMG	53	5	1,408	2,630	3	4,099
	CSBALAL			1,754	298	519	2,572
	CSWALAL	86		1,009	207	2	1,305
	CSWALALS	231	33	1,110			1,374
	DAWALAL				34		34
	DCMXALAL			19	9		28
SIMO Total		1,108	488	14,487	7,860	561	24,504
SMOK	CCOMPALAL				3,191		3,191
	CDMXALAL			497	288	819	1,604
	CPLABF	21		466		66	552
	CPLABMG	94		867		63	1,023
	CPLABMGS	56		479		6	542
	CPLCDF	36		2,241	1,370	899	4,547
	CPLCDMG	87		2,750	918	966	4,721
	CSBALAL			249	11	97	357
	CSWALAL	7		1,998	1,250	609	3,863
	CSWALALS			993		36	1,028
	DAWALAL			2,669	353	615	3,636
	DCMXALAL			500	383	982	1,865
SMOK Total		301		13,708	7,764	5,157	26,930
Grand Total		4,482	1,004	102,025	34,789	14,849	157,149

Table 8-4: Net Landbase Seral Stage Distribution at Year 10

Sum of Area		SeralState					
Compartment	Strata	EOG	LOG	Mature	Regen	Young	Grand Total
BOLT	CCOMPALAL				1,741		1,741
	CDMXALAL	2		53	149	20	224
	CPLABF	200	341	285	376	3	1,204
	CPLABMG	120	25	514	347		1,006
	CPLABMGS	10	1	408	316		736
	CPLCDF	332	1	1,923	4,001	1,432	7,689
	CPLCDMG	39	13	1,009	2,002	432	3,496
	CSBALAL	8		275	226	178	687
	CSWALAL	205		1,387	1,791	350	3,733
	CSWALALS	323		1,345	111	2	1,781
	DCMXALAL			22	142	103	267
BOLT Total		1,239	381	7,220	11,203	2,521	22,564
DEEP	CCOMPALAL				1,792		1,792
	CDMXALAL			126	300		426
	CPLABF	300	77	3,786	322		4,485
	CPLABMG	237	2	1,773	512	11	2,534
	CPLABMGS	44	5	617	108		774
	CPLCDF	133	10	5,164	3,519	71	8,896
	CPLCDMG	53		2,953	3,876	79	6,961
	CSBALAL	10		2,418	686	719	3,832
	CSWALAL	21		368	83	3	475
	CSWALALS	34	1	491	11		537
	DAWALAL			12	118		130
	DCMXALAL			168	35		203
DEEP Total		832	95	17,875	11,361	882	31,046
HUCK	CCOMPALAL				1		1
	CDMXALAL	0		6		2	8
	CPLABF	1,063		2,021	294		3,378
	CPLABMG	57		737	109		903
	CPLABMGS	74		1,016	127		1,217
	CPLCDF	676		10,012	1,340	197	12,225
	CPLCDMG	55		2,742	467	2	3,266
	CSBALAL			338	29	416	783
	CSWALAL	50		1,288	4	41	1,384
	CSWALALS	45	2	1,843	57		1,948
	DCMXALAL				1	14	15
HUCK Total		2,021	2	20,003	2,429	672	25,127
MUSK	CCOMPALAL				4		4
	CDMXALAL			199	59	123	382
	CPLABF	2		1,865	281	406	2,553
	CPLABMG	97		1,539	608	258	2,502
	CPLABMGS	6		703	176		885
	CPLCDF			4,280	2,022	236	6,538
	CPLCDMG	15		3,255	1,255	684	5,208
	CSBALAL	14		711	158	79	962
	CSWALAL			2,780	259	1,133	4,172
	CSWALALS	3		1,328	75	2	1,408
	DAWALAL	122		1,146	172	457	1,897
	DCMXALAL			286	1	182	468
MUSK Total		258		18,090	5,071	3,560	26,979
SIMO	CCOMPALAL				481		481
	CDMXALAL			20	7		28
	CPLABF	298	261	1,230	722		2,511
	CPLABMG	225	1	379	385		989
	CPLABMGS	67		76	149		292
	CPLCDF	324	78	4,250	5,870	269	10,790
	CPLCDMG	54	4	884	3,072	85	4,099
	CSBALAL			1,346	767	459	2,572
	CSWALAL	131		864	308	2	1,305
	CSWALALS	320	33	885	135		1,374
	DAWALAL				34		34
	DCMXALAL			19	5	4	28
SIMO Total		1,420	376	9,954	11,935	819	24,504
SMOK	CCOMPALAL				3,191		3,191
	CDMXALAL			482	322	801	1,604
	CPLABF	23		350	169	10	552
	CPLABMG	38	0	548	427	11	1,023
	CPLABMGS	0		413	128		542
	CPLCDF	36		1,429	1,870	1,211	4,547
	CPLCDMG	71		2,202	2,264	183	4,721
	CSBALAL			219	54	84	357
	CSWALAL	7		1,987	1,406	463	3,863
	CSWALALS			831	180	17	1,028
	DAWALAL			2,632	357	647	3,636
	DCMXALAL			552	415	898	1,865
SMOK Total		175	0	11,646	10,783	4,327	26,930
Grand Total		5,944	855	84,788	52,782	12,780	157,149

Table 8-5: Net Landbase Seral Stage Distribution at Year 50

Sum of Area		SeralState					
Compartment	Strata	EOG	LOG	Mature	Regen	Young	Grand Total
BOLT	CCOMPALAL					1,741	1,741
	CDMXALAL	5		5	28	185	224
	CPLABF	101	393	121	34	556	1,204
	CPLABMG	112	18	90	147	639	1,006
	CPLABMGS	96	0	8	143	489	736
	CPLCDF	219	121	542	533	6,273	7,689
	CPLCDMG	88	8	353	304	2,743	3,496
	CSBALAL	4	8	190	344	141	687
	CSWALAL	349	166	1,113	94	2,012	3,733
	CSWALALS	315	153	661	486	166	1,781
	DCMXALAL			14	8	246	267
BOLT Total		1,290	866	3,097	2,120	15,191	22,564
DEEP	CCOMPALAL					1,792	1,792
	CDMXALAL	24		26	18	358	426
	CPLABF	713	233	1,231	1,385	923	4,485
	CPLABMG	258	93	187	815	1,182	2,534
	CPLABMGS	96	17	72	228	361	774
	CPLCDF	312	72	1,109	2,636	4,766	8,896
	CPLCDMG	255	27	645	1,465	4,570	6,961
	CSBALAL	139	9	716	2,535	434	3,832
	CSWALAL	72		187	126	90	475
	CSWALALS	144	25	174	126	67	537
	DAWALAL	6			3	121	130
	DCMXALAL	23		17	87	76	203
DEEP Total		2,042	476	4,365	9,423	14,740	31,046
HUCK	CCOMPALAL					1	1
	CDMXALAL	0		2		6	8
	CPLABF	690	194	670	1,082	742	3,378
	CPLABMG	123	14	53	486	228	903
	CPLABMGS	172	24	17	735	269	1,217
	CPLCDF	1,091	98	2,731	5,356	2,949	12,225
	CPLCDMG	275	8	451	1,449	1,082	3,266
	CSBALAL	6		195	568	14	783
	CSWALAL	167		787	420	10	1,384
	CSWALALS	214	14	1,035	566	118	1,948
	DCMXALAL			12	3	1	15
HUCK Total		2,737	353	5,953	10,664	5,420	25,127
MUSK	CCOMPALAL					4	4
	CDMXALAL	9		214	2	156	382
	CPLABF	475		1,160	377	543	2,553
	CPLABMG	351	43	556	266	1,287	2,502
	CPLABMGS	100		90	134	561	885
	CPLCDF	386		1,434	1,113	3,604	6,538
	CPLCDMG	250	10	1,428	1,187	2,333	5,208
	CSBALAL	9		199	597	157	962
	CSWALAL	11		3,389	336	435	4,172
	CSWALALS	51		995	262	100	1,408
	DAWALAL	529	122	375	367	504	1,897
	DCMXALAL	15		225	27	202	468
MUSK Total		2,187	174	10,065	4,667	9,886	26,979
SIMO	CCOMPALAL					481	481
	CDMXALAL	1		3	6	17	28
	CPLABF	244	363	510	188	1,206	2,511
	CPLABMG	131	20	96	26	718	989
	CPLABMGS	28	2	3	4	256	292
	CPLCDF	338	189	1,675	942	7,646	10,790
	CPLCDMG	119	4	288	114	3,573	4,099
	CSBALAL	197		601	1,372	402	2,572
	CSWALAL	292	86	448	150	328	1,305
	CSWALALS	416	264	374	145	176	1,374
	DAWALAL					34	34
	DCMXALAL	3				25	28
SIMO Total		1,769	928	3,998	2,947	14,861	24,504
SMOK	CCOMPALAL					3,191	3,191
	CDMXALAL	57		826	75	646	1,604
	CPLABF	127	17	136	53	220	552
	CPLABMG	144	6	142	72	659	1,023
	CPLABMGS	35	0	120	83	303	542
	CPLCDF	215	1	977	485	2,868	4,547
	CPLCDMG	229	5	1,164	610	2,712	4,721
	CSBALAL	0		167	133	57	357
	CSWALAL	96	7	2,084	262	1,415	3,863
	CSWALALS	5		485	332	206	1,028
	DAWALAL	792	442	747	630	1,025	3,636
	DCMXALAL	82		966	94	723	1,865
SMOK Total		1,782	477	7,815	2,828	14,027	26,930
Grand Total		11,807	3,274	35,293	32,650	74,126	157,149

Table 8-6: Net Landbase Seral Stage Distribution at Year 100

Sum of Area		SeralState					
Compartment	Strata	EOG	LOG	Mature	Regen	Young	Grand Total
BOLT	CCOMPALAL			1,389	352		1,741
	CDMXALAL				180	44	224
	CPLABF		0	141	578	485	1,204
	CPLABMG			639	145	222	1,006
	CPLABMGS			489	87	160	736
	CPLCDF	0	0	2,746	3,962	981	7,689
	CPLCDMG		0	1,463	1,679	354	3,496
	CSBALAL				443	244	687
	CSWALAL	259	322	1,962	952	239	3,733
	CSWALALS	324	405	15	351	686	1,781
	DCMXALAL				242	26	267
BOLT Total		582	728	8,844	8,970	3,441	22,564
DEEP	CCOMPALAL			1,508	284		1,792
	CDMXALAL			38	310	78	426
	CPLABF	0	0	326	1,409	2,750	4,485
	CPLABMG	0	0	1,182	474	878	2,534
	CPLABMGS	0		361	184	228	774
	CPLCDF	0	0	3,527	2,178	3,191	8,896
	CPLCDMG	0	0	3,346	2,125	1,489	6,961
	CSBALAL	0	0	0	1,841	1,992	3,832
	CSWALAL	33	33	69	109	231	475
	CSWALALS	85	160	2	95	194	537
	DAWALAL		2	118	2	8	130
	DCMXALAL		0	10	60	132	203
DEEP Total		118	195	10,489	9,073	11,170	31,046
HUCK	CCOMPALAL			1			1
	CDMXALAL				2	6	8
	CPLABF		0	231	913	2,233	3,378
	CPLABMG	0		228	114	562	903
	CPLABMGS		0	269	204	744	1,217
	CPLCDF	0	0	2,735	1,284	8,206	12,225
	CPLCDMG	0	0	1,045	625	1,596	3,266
	CSBALAL			0	291	491	783
	CSWALAL	204	101	5	464	609	1,384
	CSWALALS	551	211	0	424	761	1,948
	DCMXALAL				12	3	15
HUCK Total		756	312	4,515	4,333	15,211	25,127
MUSK	CCOMPALAL			4			4
	CDMXALAL			71	151	160	382
	CPLABF	0		130	618	1,806	2,553
	CPLABMG	0	0	1,272	587	644	2,502
	CPLABMGS		0	561	165	159	885
	CPLCDF	0	0	3,579	425	2,533	6,538
	CPLCDMG	0		2,260	1,470	1,477	5,208
	CSBALAL				432	529	962
	CSWALAL	381	6	416	2,183	1,187	4,172
	CSWALALS	282	51	52	542	481	1,408
	DAWALAL	7	136	463	541	749	1,897
	DCMXALAL		0	33	228	207	468
MUSK Total		669	192	8,842	7,343	9,934	26,979
SIMO	CCOMPALAL			259	222		481
	CDMXALAL			7	3	17	28
	CPLABF	0	0	295	1,355	861	2,511
	CPLABMG			716	181	92	989
	CPLABMGS			256	32	4	292
	CPLCDF	0	0	5,212	3,568	2,011	10,790
	CPLCDMG		0	1,515	2,448	135	4,099
	CSBALAL	0		0	1,973	599	2,572
	CSWALAL	101	208	222	367	407	1,305
	CSWALALS	212	576	23	201	363	1,374
	DAWALAL			34			34
	DCMXALAL			0	12	16	28
SIMO Total		313	783	8,540	10,362	4,505	24,504
SMOK	CCOMPALAL			1,931	1,260		3,191
	CDMXALAL		0	122	770	712	1,604
	CPLABF			51	334	167	552
	CPLABMG		0	659	175	189	1,023
	CPLABMGS			303	77	161	542
	CPLCDF	0	0	1,846	1,266	1,434	4,547
	CPLCDMG	0	0	2,293	1,494	934	4,721
	CSBALAL	0			277	79	357
	CSWALAL	721	49	1,383	1,013	698	3,863
	CSWALALS	237	5	28	114	645	1,028
	DAWALAL	46	248	1,178	696	1,469	3,636
	DCMXALAL	0		109	1,155	600	1,865
SMOK Total		1,004	302	9,903	8,632	7,089	26,930
Grand Total		3,442	2,512	51,132	48,713	51,350	157,149

Table 8-7: Net Landbase Seral Stage Distribution at Year 200

Sum of Area		SeralState					
Compartment	Strata	EOG	LOG	Mature	Regen	Young	Grand Total
BOLT	CCOMPALAL			17	347	1,377	1,741
	CDMXALAL				180	44	224
	CPLABF	128		872		204	1,204
	CPLABMG			0	220	785	1,006
	CPLABMGS				97	639	736
	CPLCDF		0	4,089	1,527	2,074	7,689
	CPLCDMG		0	0	2,362	1,134	3,496
	CSBALAL			504		183	687
	CSWALAL			635	583	2,516	3,733
	CSWALALS			47	836	898	1,781
	DCMXALAL				249	18	267
BOLT Total		128	0	6,164	6,401	9,871	22,564
DEEP	CCOMPALAL	0		313	284	1,195	1,792
	CDMXALAL				312	114	426
	CPLABF	131	0	2,266		2,089	4,485
	CPLABMG	0	0		538	1,997	2,534
	CPLABMGS		0		185	590	774
	CPLCDF	0	0	2,823	1,198	4,875	8,896
	CPLCDMG	0	0	0	3,847	3,114	6,961
	CSBALAL		0	2,641	0	1,191	3,832
	CSWALAL			87	174	213	475
	CSWALALS				161	376	537
	DAWALAL		110	13	2	6	130
	DCMXALAL	0	0		65	138	203
DEEP Total		131	110	8,143	6,764	15,898	31,046
HUCK	CCOMPALAL					1	1
	CDMXALAL				2	6	8
	CPLABF	262	0	1,628	0	1,488	3,378
	CPLABMG		0		190	713	903
	CPLABMGS		0		208	1,009	1,217
	CPLCDF	0	0	829	2,655	8,741	12,225
	CPLCDMG	0	0		986	2,280	3,266
	CSBALAL		0	607		175	783
	CSWALAL			170	766	447	1,384
	CSWALALS				1,035	913	1,948
	DCMXALAL				12	3	15
HUCK Total		262	0	3,235	5,854	15,776	25,127
MUSK	CCOMPALAL					4	4
	CDMXALAL			9	164	208	382
	CPLABF	191	0	1,728		634	2,553
	CPLABMG		0		964	1,538	2,502
	CPLABMGS		0		171	714	885
	CPLCDF		0	1,492	1,023	4,023	6,538
	CPLCDMG		0	0	1,993	3,215	5,208
	CSBALAL			872		89	962
	CSWALAL			815	2,446	910	4,172
	CSWALALS			0	934	474	1,408
	DAWALAL		24	542	375	955	1,897
	DCMXALAL		0	1	246	222	468
MUSK Total		191	24	5,459	8,317	12,988	26,979
SIMO	CCOMPALAL			19	222	240	481
	CDMXALAL				3	25	28
	CPLABF	59	0	1,852	0	600	2,511
	CPLABMG		0		247	742	989
	CPLABMGS				32	260	292
	CPLCDF	0	0	4,969	1,881	3,940	10,790
	CPLCDMG		0		3,102	997	4,099
	CSBALAL		0	1,685	0	887	2,572
	CSWALAL			294	364	647	1,305
	CSWALALS			110	339	925	1,374
	DAWALAL		34				34
	DCMXALAL				12	16	28
SIMO Total		59	34	8,928	6,203	9,280	24,504
SMOK	CCOMPALAL			419	1,225	1,547	3,191
	CDMXALAL				867	737	1,604
	CPLABF	4		368		180	552
	CPLABMG		0		292	731	1,023
	CPLABMGS				131	410	542
	CPLCDF		0	1,551	644	2,352	4,547
	CPLCDMG		0	0	2,551	2,170	4,721
	CSBALAL	3		317	0	37	357
	CSWALAL			750	1,000	2,114	3,863
	CSWALALS			17	499	512	1,028
	DAWALAL	0	353	957	821	1,505	3,636
	DCMXALAL		0	0	1,293	571	1,865
SMOK Total		7	353	4,380	9,323	12,867	26,930
Grand Total		777	520	36,310	42,862	76,680	157,149

Table 8-8: Gross Landbase Seral Stage Distribution at Year 0

Sum of Area		SeralState					
Compartment	Strata	EOG	LOG	Mature	Regen	Young	Grand Total
BOLT	CCOMPALAL				1,765		1,765
	CDMXALAL			76	187		263
	CPLABF	423	513	992		17	1,945
	CPLABMG	100	32	893		15	1,039
	CPLABMGS	24	1	755			781
	CPLCDF	140	1	3,115	4,458	124	7,837
	CPLCDMG	36	22	1,452	1,822	219	3,552
	CSBALAL	216		2,127	125	787	3,254
	CSWALAL	171		1,410	1,957	339	3,877
	CSWALALS	156		1,584		99	1,839
	DAWALAL					16	16
	DCMXALAL			22	239	10	272
BOLT Total		1,265	568	12,427	10,553	1,625	26,439
DEEP	CCOMPALAL				1,821		1,821
	CDMXALAL			188	266		454
	CPLABF	343	93	5,925		15	6,375
	CPLABMG	78	5	2,510		11	2,603
	CPLABMGS	36	5	765			805
	CPLCDF	5	30	6,474	2,496	106	9,112
	CPLCDMG			4,203	2,872	76	7,150
	CSBALAL	326		11,253	304	2,649	14,532
	CSWALAL			609	63	16	688
	CSWALALS	26		573			598
	DAWALAL			38	111		149
	DCMXALAL			170	25	36	232
DEEP Total		813	132	32,708	7,959	2,909	44,521
HUCK	CCOMPALAL				23		23
	CDMXALAL			18		3	21
	CPLABF	1,452		4,736	2	97	6,287
	CPLABMG	46		1,047		40	1,133
	CPLABMGS	75		1,193			1,268
	CPLCDF	536	12	11,208	355	838	12,950
	CPLCDMG	36		3,215	157	102	3,510
	CSBALAL	11		4,322	6	2,471	6,809
	CSWALAL			1,791	2	133	1,925
	CSWALALS	14		2,146			2,160
	DAWALAL			0		37	38
	DCMXALAL	4		1	1	30	36
HUCK Total		2,173	12	29,676	546	3,751	36,159
MUSK	CCOMPALAL				6		6
	CDMXALAL			338	1	283	623
	CPLABF	2		3,812	8	1,087	4,909
	CPLABMG	68		2,272	53	699	3,093
	CPLABMGS			985			985
	CPLCDF			6,152	154	868	7,174
	CPLCDMG	28		4,633	144	1,167	5,972
	CSBALAL	114		2,216	17	662	3,009
	CSWALAL			3,283	432	2,401	6,116
	CSWALALS			1,777		33	1,809
	DAWALAL	123		1,767		746	2,636
	DCMXALAL			572	1	441	1,015
MUSK Total		335		27,807	818	8,388	37,347
SIMO	CCOMPALAL				492		492
	CDMXALAL			35			35
	CPLABF	387	666	2,804			3,858
	CPLABMG	152		901	2		1,054
	CPLABMGS	41		298			340
	CPLCDF	290	198	6,415	4,273	40	11,217
	CPLCDMG	54	5	1,489	2,674	3	4,224
	CSBALAL	466	2	6,417	306	1,416	8,607
	CSWALAL	92		1,113	210	28	1,442
	CSWALALS	236	33	1,185			1,455
	DAWALAL				34		34
	DCMXALAL			21	9	4	35
SIMO Total		1,718	905	20,679	7,998	1,492	32,792
SMOK	CCOMPALAL				3,234		3,234
	CDMXALAL			765	293	923	1,980
	CPLABF	82		884		101	1,068
	CPLABMG	94		899		122	1,115
	CPLABMGS	57		493		9	559
	CPLCDF	39		2,330	1,416	949	4,734
	CPLCDMG	92		2,842	930	1,016	4,880
	CSBALAL			587	11	331	930
	CSWALAL	7		2,142	1,261	718	4,127
	CSWALALS			1,039		36	1,075
	DAWALAL			3,932	360	1,318	5,610
	DCMXALAL			743	392	1,235	2,370
SMOK Total		371		16,656	7,896	6,758	31,681
Grand Total		6,677	1,617	139,953	35,771	24,922	208,939

Table 8-9: Gross Landbase Seral Stage Distribution at Year 10

Sum of Area		SeralState					
Compartment	Strata	EOG	LOG	Mature	Regen	Young	Grand Total
BOLT	CCOMPALAL				1,765		1,765
	CDMXALAL	4		72	152	35	263
	CPLABF	365	508	693	376	3	1,945
	CPLABMG	122	25	545	347		1,039
	CPLABMGS	11	1	453	316		781
	CPLCDF	342	1	1,999	4,037	1,458	7,837
	CPLCDMG	40	13	1,044	2,020	435	3,552
	CSBALAL	359	12	2,275	227	381	3,254
	CSWALAL	212		1,493	1,809	364	3,877
	CSWALALS	328		1,398	111	2	1,839
	DAWALAL			3		13	16
	DCMXALAL			22	145	104	272
BOLT Total		1,781	561	9,998	11,305	2,795	26,439
DEEP	CCOMPALAL				1,821		1,821
	CDMXALAL			149	305		454
	CPLABF	500	94	5,459	322		6,375
	CPLABMG	242	2	1,837	512	11	2,603
	CPLABMGS	45	5	647	108		805
	CPLCDF	137	10	5,331	3,561	72	9,112
	CPLCDMG	55		3,082	3,933	81	7,150
	CSBALAL	349	4	11,678	691	1,809	14,532
	CSWALAL	21		568	83	16	688
	CSWALALS	34	2	552	11		598
	DAWALAL			29	120		149
	DCMXALAL			196	36		232
DEEP Total		1,383	117	29,530	11,503	1,989	44,521
HUCK	CCOMPALAL				23		23
	CDMXALAL	2		16		3	21
	CPLABF	1,753		4,222	295	17	6,287
	CPLABMG	58		965	109		1,133
	CPLABMGS	75		1,066	127		1,268
	CPLCDF	683	12	10,681	1,346	228	12,950
	CPLCDMG	56		2,976	475	2	3,510
	CSBALAL	137		4,555	30	2,088	6,809
	CSWALAL	51		1,774	4	96	1,925
	CSWALALS	45	2	2,055	57		2,160
	DAWALAL			6		32	38
	DCMXALAL	4		4	1	28	36
HUCK Total		2,862	14	28,321	2,468	2,493	36,159
MUSK	CCOMPALAL				6		6
	CDMXALAL			364	59	199	623
	CPLABF	7		3,904	281	717	4,909
	CPLABMG	99		1,688	608	698	3,093
	CPLABMGS	6		803	176		985
	CPLCDF			4,870	2,023	281	7,174
	CPLCDMG	15		3,837	1,257	864	5,972
	CSBALAL	114		2,370	158	366	3,009
	CSWALAL			3,874	339	1,903	6,116
	CSWALALS	3		1,726	75	5	1,809
	DAWALAL	123		1,646	172	695	2,636
	DCMXALAL			622	1	392	1,015
MUSK Total		368		25,704	5,156	6,119	37,347
SIMO	CCOMPALAL				492		492
	CDMXALAL			28	7		35
	CPLABF	560	686	1,889	722		3,858
	CPLABMG	241	1	427	385		1,054
	CPLABMGS	72		119	149		340
	CPLCDF	344	97	4,562	5,940	275	11,217
	CPLCDMG	56	4	963	3,113	88	4,224
	CSBALAL	607	2	6,033	775	1,190	8,607
	CSWALAL	138		968	310	26	1,442
	CSWALALS	329	33	958	135		1,455
	DAWALAL				34		34
	DCMXALAL			21	5	8	35
SIMO Total		2,347	823	15,968	12,067	1,587	32,792
SMOK	CCOMPALAL				3,234		3,234
	CDMXALAL			779	326	875	1,980
	CPLABF	93		780	169	26	1,068
	CPLABMG	38	0	619	427	30	1,115
	CPLABMGS	1		430	128		559
	CPLCDF	39		1,534	1,876	1,285	4,734
	CPLCDMG	80		2,338	2,276	186	4,880
	CSBALAL			701	54	175	930
	CSWALAL	7		2,165	1,417	538	4,127
	CSWALALS			878	180	17	1,075
	DAWALAL			4,419	361	830	5,610
	DCMXALAL			847	422	1,101	2,370
SMOK Total		257	0	15,490	10,870	5,064	31,681
Grand Total		8,999	1,515	125,011	53,368	20,047	208,939

Table 8-10: Gross Landbase Seral Stage Distribution at Year 50

Sum of Area		SeralState					
Compartment	Strata	EOG	LOG	Mature	Regen	Young	Grand Total
BOLT	CCOMPALAL					1,765	1,765
	CDMXALAL	25		7	28	203	263
	CPLABF	395	725	235	34	556	1,945
	CPLABMG	131	20	103	147	639	1,039
	CPLABMGS	133	0	16	143	489	781
	CPLCDF	272	131	566	533	6,335	7,837
	CPLCDMG	109	8	368	304	2,763	3,552
	CSBALAL	378	187	2,204	344	142	3,254
	CSWALAL	385	171	1,195	94	2,031	3,877
	CSWALALS	336	154	697	486	166	1,839
	DAWALAL			16			16
	DCMXALAL	0		14	8	250	272
BOLT Total		2,163	1,397	5,420	2,120	15,339	26,439
DEEP	CCOMPALAL					1,821	1,821
	CDMXALAL	43		31	18	363	454
	CPLABF	1,321	450	2,297	1,385	923	6,375
	CPLABMG	291	98	218	815	1,182	2,603
	CPLABMGS	110	18	88	228	361	805
	CPLCDF	352	77	1,239	2,636	4,808	9,112
	CPLCDMG	292	29	737	1,465	4,628	7,150
	CSBALAL	2,296	232	9,017	2,535	453	14,532
	CSWALAL	146		325	126	91	688
	CSWALALS	157	26	222	126	67	598
	DAWALAL	21		2	3	123	149
	DCMXALAL	32		36	87	76	232
DEEP Total		5,062	928	14,213	9,423	14,896	44,521
HUCK	CCOMPALAL					23	23
	CDMXALAL	2		13		6	21
	CPLABF	2,006	865	1,591	1,082	744	6,287
	CPLABMG	291	15	114	486	228	1,133
	CPLABMGS	203	24	36	735	269	1,268
	CPLCDF	1,347	115	3,176	5,356	2,956	12,950
	CPLCDMG	348	9	613	1,449	1,090	3,510
	CSBALAL	1,040	11	5,127	568	64	6,809
	CSWALAL	314		1,182	420	10	1,925
	CSWALALS	248	14	1,213	566	118	2,160
	DAWALAL	0		37			38
	DCMXALAL	1	4	28	3	1	36
HUCK Total		5,800	1,057	13,129	10,664	5,508	36,159
MUSK	CCOMPALAL					6	6
	CDMXALAL	64		399	2	158	623
	CPLABF	1,264	5	2,721	377	543	4,909
	CPLABMG	416	44	1,042	266	1,325	3,093
	CPLABMGS	156	0	134	134	561	985
	CPLCDF	656		1,799	1,113	3,606	7,174
	CPLCDMG	422	11	2,016	1,187	2,337	5,972
	CSBALAL	36	101	2,092	597	184	3,009
	CSWALAL	92		4,848	336	841	6,116
	CSWALALS	72		1,375	262	100	1,809
	DAWALAL	927	123	709	367	510	2,636
	DCMXALAL	154		611	27	223	1,015
MUSK Total		4,257	284	17,746	4,667	10,393	37,347
SIMO	CCOMPALAL					492	492
	CDMXALAL	3		9	6	17	35
	CPLABF	627	998	839	188	1,206	3,858
	CPLABMG	169	32	109	26	718	1,054
	CPLABMGS	44	7	29	4	256	340
	CPLCDF	424	227	1,904	942	7,720	11,217
	CPLCDMG	147	6	340	114	3,617	4,224
	CSBALAL	1,957	390	4,479	1,372	410	8,607
	CSWALAL	337	92	533	150	331	1,442
	CSWALALS	443	270	422	145	176	1,455
	DAWALAL					34	34
	DCMXALAL	3		6		25	35
SIMO Total		4,154	2,022	8,669	2,947	15,000	32,792
SMOK	CCOMPALAL					3,234	3,234
	CDMXALAL	276	0	978	75	652	1,980
	CPLABF	384	87	324	53	220	1,068
	CPLABMG	156	6	221	72	659	1,115
	CPLABMGS	40	1	132	83	303	559
	CPLCDF	286	4	1,045	485	2,913	4,734
	CPLCDMG	278	13	1,254	610	2,724	4,880
	CSBALAL	10		730	133	57	930
	CSWALAL	105	7	2,328	262	1,426	4,127
	CSWALALS	7		530	332	206	1,075
	DAWALAL	1,809	609	1,525	630	1,038	5,610
	DCMXALAL	200		1,343	94	732	2,370
SMOK Total		3,551	727	10,410	2,828	14,164	31,681
Grand Total		24,987	6,415	69,587	32,650	75,301	208,939

Table 8-11: Gross Landbase Seral Stage Distribution at Year 100

Sum of Area		SeralState					
Compartment	Strata	EOG	LOG	Mature	Regen	Young	Grand Total
BOLT	CCOMPALAL			1,413	352		1,765
	CDMXALAL	1	20	18	180	44	263
	CPLABF	114	599	141	606	485	1,945
	CPLABMG	13	21	639	145	222	1,039
	CPLABMGS	8	37	489	87	160	781
	CPLCDF	24	63	2,808	3,962	981	7,837
	CPLCDMG	14	21	1,483	1,679	354	3,552
	CSBALAL	1,485	418	544	563	245	3,254
	CSWALAL	295	364	2,028	952	239	3,877
	CSWALALS	347	428	27	351	686	1,839
	DAWALAL	16					16
	DCMXALAL	0	0	4	242	26	272
BOLT Total		2,317	1,970	9,592	9,118	3,442	26,439
DEEP	CCOMPALAL			1,538	284		1,821
	CDMXALAL	5	19	43	310	78	454
	CPLABF	1,044	846	326	1,409	2,750	6,375
	CPLABMG	30	39	1,182	474	878	2,603
	CPLABMGS	16	15	361	184	228	805
	CPLCDF	123	50	3,570	2,178	3,191	9,112
	CPLCDMG	91	40	3,404	2,125	1,489	7,150
	CSBALAL	6,929	2,144	1,514	1,950	1,995	14,532
	CSWALAL	158	107	83	109	231	688
	CSWALALS	132	173	3	96	194	598
	DAWALAL		19	120	2	8	149
	DCMXALAL	19	9	11	60	132	232
DEEP Total		8,548	3,463	12,154	9,183	11,173	44,521
HUCK	CCOMPALAL			23			23
	CDMXALAL	11	2		2	6	21
	CPLABF	661	2,247	233	913	2,233	6,287
	CPLABMG	61	168	228	114	562	1,133
	CPLABMGS	19	32	269	204	744	1,268
	CPLCDF	383	336	2,741	1,284	8,206	12,950
	CPLCDMG	158	78	1,053	625	1,596	3,510
	CSBALAL	3,242	811	1,965	300	491	6,809
	CSWALAL	470	248	134	464	609	1,925
	CSWALALS	706	245	23	424	761	2,160
	DAWALAL	37	0				38
	DCMXALAL	11	5	6	12	3	36
HUCK Total		5,757	4,174	6,675	4,341	15,211	36,159
MUSK	CCOMPALAL			6			6
	CDMXALAL	184	55	72	151	160	623
	CPLABF	1,092	1,014	379	618	1,806	4,909
	CPLABMG	101	66	1,694	587	644	3,093
	CPLABMGS	44	56	561	165	159	985
	CPLCDF	281	333	3,602	425	2,533	7,174
	CPLCDMG	471	175	2,379	1,470	1,477	5,972
	CSBALAL	1,394	27	526	533	529	3,009
	CSWALAL	955	86	1,705	2,183	1,187	6,116
	CSWALALS	617	72	97	542	481	1,809
	DAWALAL	242	632	471	541	749	2,636
	DCMXALAL	366	149	64	228	207	1,015
MUSK Total		5,748	2,664	11,558	7,443	9,934	37,347
SIMO	CCOMPALAL			269	222		492
	CDMXALAL	6	2	7	3	17	35
	CPLABF	296	839	295	1,567	861	3,858
	CPLABMG	14	51	717	181	92	1,054
	CPLABMGS	26	21	256	32	4	340
	CPLCDF	194	158	5,286	3,568	2,011	11,217
	CPLCDMG	52	29	1,559	2,448	135	4,224
	CSBALAL	3,395	1,657	899	2,051	606	8,607
	CSWALAL	150	255	261	370	407	1,442
	CSWALALS	250	608	33	201	363	1,455
	DAWALAL			34			34
	DCMXALAL	2	0	4	12	16	35
SIMO Total		4,384	3,618	9,620	10,656	4,513	32,792
SMOK	CCOMPALAL			1,973	1,260		3,234
	CDMXALAL	112	245	141	770	712	1,980
	CPLABF	188	327	51	334	167	1,068
	CPLABMG	77	13	661	175	189	1,115
	CPLABMGS	12	6	303	77	161	559
	CPLCDF	68	74	1,892	1,266	1,434	4,734
	CPLCDMG	81	66	2,305	1,494	934	4,880
	CSBALAL	330	8	235	277	79	930
	CSWALAL	844	58	1,514	1,013	698	4,127
	CSWALALS	278	7	31	114	645	1,075
	DAWALAL	701	1,547	1,197	696	1,469	5,610
	DCMXALAL	303	133	179	1,155	600	2,370
SMOK Total		2,995	2,482	10,482	8,632	7,089	31,681
Grand Total		29,750	18,371	60,082	49,374	51,362	208,939

Table 8-12: Gross Landbase Seral Stage Distribution at Year 200

Sum of Area		SeralState					
Compartment	Strata	EOG	LOG	Mature	Regen	Young	Grand Total
BOLT	CCOMPALAL	1		39	347	1,377	1,765
	CDMXALAL		37		180	46	263
	CPLABF	128	395	1,035	104	284	1,945
	CPLABMG		30	0	223	786	1,039
	CPLABMGS		44		98	639	781
	CPLCDF	1	136	4,089	1,530	2,082	7,837
	CPLCDMG	3	53	0	2,362	1,134	3,552
	CSBALAL	175	887	596	1,047	549	3,254
	CSWALAL	16	50	641	614	2,556	3,877
	CSWALALS		22	48	849	919	1,839
	DAWALAL		16				16
	DCMXALAL		4		249	18	272
BOLT Total		323	1,674	6,448	7,603	10,391	26,439
DEEP	CCOMPALAL	16		327	284	1,195	1,821
	CDMXALAL	1	21		318	114	454
	CPLABF	131	1,619	2,266	111	2,249	6,375
	CPLABMG	0	56		550	1,997	2,603
	CPLABMGS		24		191	590	805
	CPLCDF	9	202	2,823	1,202	4,876	9,112
	CPLCDMG	13	174	0	3,850	3,114	7,150
	CSBALAL	122	3,025	2,691	6,310	2,385	14,532
	CSWALAL	0	41	88	272	287	688
	CSWALALS		4	0	204	389	598
	DAWALAL		128	13	2	6	149
	DCMXALAL	0	29		65	138	232
DEEP Total		292	5,322	8,207	13,359	17,340	44,521
HUCK	CCOMPALAL	22				1	23
	CDMXALAL		11		3	7	21
	CPLABF	262	1,885	1,628	992	1,520	6,287
	CPLABMG		171		248	714	1,133
	CPLABMGS		45		213	1,009	1,268
	CPLCDF	6	586	829	2,774	8,754	12,950
	CPLCDMG	3	236		989	2,281	3,510
	CSBALAL	384	2,457	616	2,575	777	6,809
	CSWALAL	6	152	170	1,003	594	1,925
	CSWALALS		46	0	1,164	950	2,160
	DAWALAL		38				38
	DCMXALAL		18		12	6	36
HUCK Total		683	5,646	3,243	9,973	16,613	36,159
MUSK	CCOMPALAL	2				4	6
	CDMXALAL		198	9	208	208	623
	CPLABF	191	2,254	1,728	102	634	4,909
	CPLABMG		564		990	1,538	3,093
	CPLABMGS		91		181	714	985
	CPLCDF	1	573	1,492	1,085	4,023	7,174
	CPLCDMG	2	729	0	2,026	3,215	5,972
	CSBALAL	32	1,359	973	546	99	3,009
	CSWALAL	612	834	815	2,864	991	6,116
	CSWALALS		258	0	1,049	502	1,809
	DAWALAL		746	542	393	955	2,636
	DCMXALAL		546	1	246	222	1,015
MUSK Total		840	8,151	5,560	9,690	13,106	37,347
SIMO	CCOMPALAL	6		23	222	240	492
	CDMXALAL		6		4	25	35
	CPLABF	59	601	2,229	177	791	3,858
	CPLABMG		29		278	747	1,054
	CPLABMGS		41		39	260	340
	CPLCDF	13	371	4,972	1,893	3,968	11,217
	CPLCDMG	6	111		3,109	998	4,224
	CSBALAL	117	1,476	1,770	3,007	2,238	8,607
	CSWALAL	2	63	298	386	694	1,442
	CSWALALS		19	114	366	956	1,455
	DAWALAL		34				34
	DCMXALAL		6		12	16	35
SIMO Total		203	2,757	9,405	9,494	10,933	32,792
SMOK	CCOMPALAL	23		439	1,225	1,547	3,234
	CDMXALAL	0	191		1,052	737	1,980
	CPLABF	4	222	368	279	194	1,068
	CPLABMG		90		294	732	1,115
	CPLABMGS		15		134	410	559
	CPLCDF	2	162	1,551	666	2,352	4,734
	CPLCDMG	1	141	0	2,568	2,170	4,880
	CSBALAL	19	242	317	309	42	930
	CSWALAL	32	144	752	1,069	2,130	4,127
	CSWALALS		4	17	536	518	1,075
	DAWALAL	0	2,324	957	824	1,505	5,610
	DCMXALAL		496	0	1,302	571	2,370
SMOK Total		82	4,030	4,401	10,259	12,909	31,681
Grand Total		2,423	27,579	37,266	60,379	81,292	208,939

Patch Size Distribution

The Patch Analysis component of RSPS was used to generate the patch statistics shown in this section. For this analysis, a patch was defined as the aggregation of forested polygon in the same seral stage not separated by a distance of greater than 10 meters. Two generalized comments can be made about the trend in patch sizes from this analysis. The first being that over time there is a decline in the amount of area in the largest patch size defined for this TSA, while there is a small increase in the area of all other patch size classes. The second being an increase in the number of patches in the smallest 4 or 5 patch size classes. Figure 8-11 illustrates the area in each patch size class, while Figure 8-12 shows the number of patches in each patch size class.

Figure 8-11: Patch Size Distribution – Area by Patch Size Class

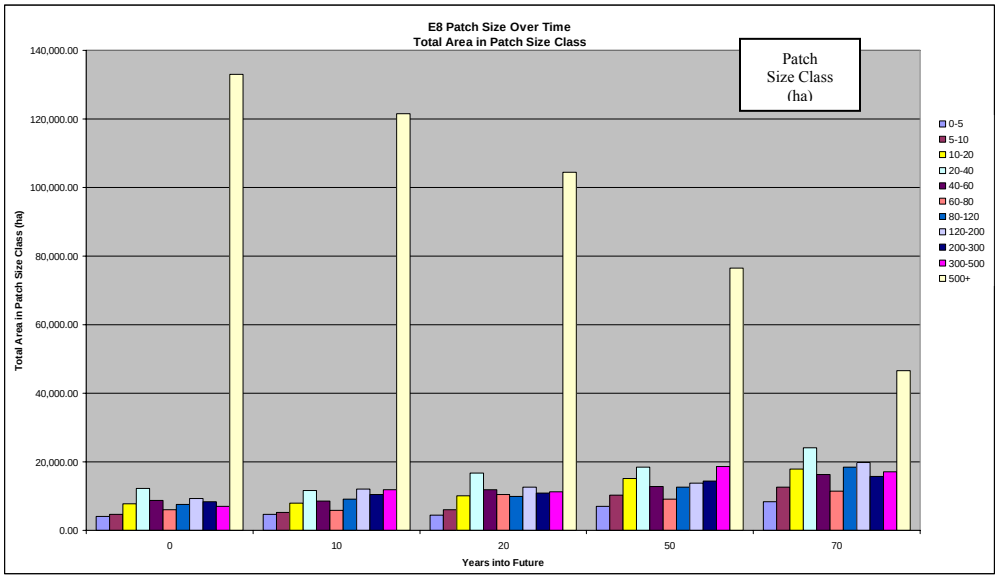


Figure 8-12: Patch Size Distribution – Number of Patches by Patch Size Class

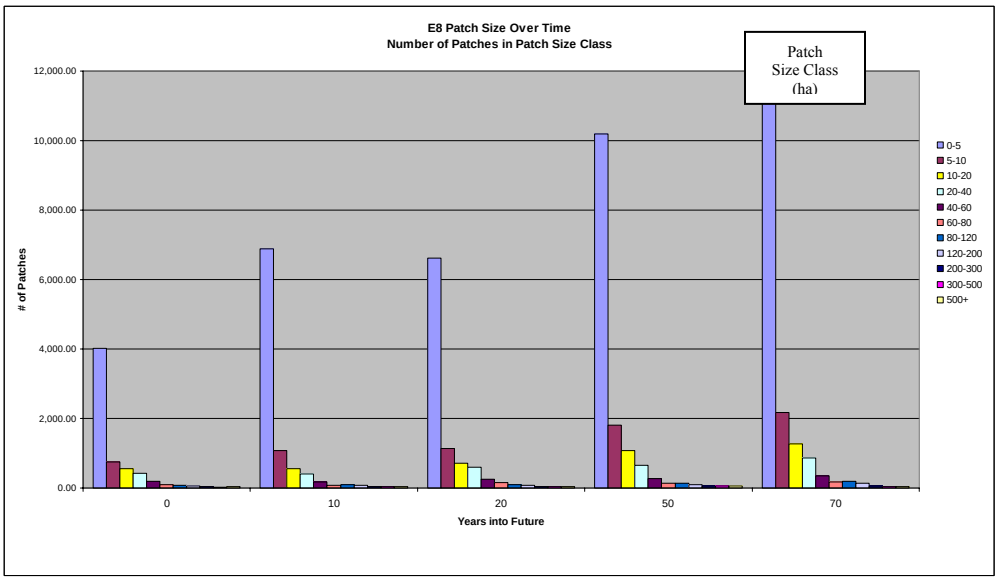


Table 8-13 provides a breakdown of area in each patch size class as well as the number of patches in each class at years 0, 10 and 50.

Table 8-13: Patch Size Distribution Over Time

Years Into Future	0		10		50	
Patch Size (ha)	# of Patches	Area of Patches (ha)	# of Patches	Area of Patches (ha)	# of Patches	Area of Patches (ha)
a) 0-5	4,025	4,160	6,886	4,694	10,193	7,087
b) 5-10	749	4,576	1,069	5,299	1,815	10,316
c) 10-20	553	7,849	558	7,870	1,084	15,168
d) 20-40	430	12,284	412	11,675	660	18,430
e) 40-60	183	8,780	178	8,528	261	12,748
f) 60-80	87	6,003	85	5,886	132	9,168
h) 80-120	78	7,659	93	9,162	130	12,681
i) 120-200	61	9,366	78	12,072	88	13,782
j) 200-300	34	8,346	43	10,531	59	14,383
k) 300-500	18	6,961	32	11,783	49	18,626
l) 500+	39	132,960	40	121,481	60	76,551

All reporting for patch size distribution was done at the FMU level for this TSA.

A full map sheet is provided in Reference Section in the "Future Forest Condition" section which provides snapshots of the patch size distribution in the E8 FMU for years 0, 10, and 50 based on the PFMS SHS.

Strata Description Table

As per Section 6.2 of Annex 1 of the Planning Standard, Tables 8-14 to 8-17 contain the Strata Description Tables for the first 20 years of the SHS. Each table is for the five year period specified. Figure 8-13 provides a graphical representation of the area harvested by strata by five year harvest period.

Table 8-14: Strata Description Table – Year 1 to 5 Harvest (Period 1)

Harvest Years	1-5																			
Sum of Area (ha)		Age																		
Compartment	Strata	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	250	Grand Total
Bolton	CPlABF				9	4	11	5	63	2	28			9		17	34			182
	CPlABMG		0	0	24	108	8	36	67	0	10			12						264
	CPlABMGS				16	12	115	22	35		14									213
	CPlCDF		0	46	184	238	17		63	5										554
	CPlCDMG		0	16	15	185	74	121	28					9						449
	CSbalal					3		10	18		24									55
	CSwalal				0	21	1	0	1	0	12			0	0			0		35
	CSwalalS					0	8	0	0	6	12	8		12			0	1		47
Bolton Total			0	62	247	571	234	194	275	13	100	8		42	0	17	34	1		1,798
Deep Valley	CDMxalal					15			7											23
	CPlABF					55	38		47			39		6	0					185
	CPlABMG					34	34		56		7			31						161
	CPlABMGS								16			3								19
	CPlCDF					314	65		58					11	8					457
	CPlCDMG					151	153		73											376
	CSbalal			0	0	5	9	8	37	3	81	0		18		6				167
	CSwalal								0		12									13
	CSwalalS								0		3									3
	DAwalal					4														4
	DCMxalal					6														6
Deep Valley Total				0	0	584	299	8	294	3	103	42		66	8	6				1,413
Huckleberry	CPlABF			0	12	37	3													52
	CPlABMG				10	79														89
	CPlABMGS				6	83	25			3										116
	CPlCDF			11	41	409	69													530
	CPlCDMG				100	101	55													256
	CSbalal			0		6	0	10												16
	CSwalal						0				1									1
	CSwalalS					0			0		7									7
Huckleberry Total				11	169	714	152	10	0	3	8									1,066
Muskeg	CDMxalal				9			15												24
	CPlABF	0		5	64	34	67	28												198
	CPlABMG		11		40	116	47	147		0										361
	CPlABMGS				57	2	39	17		4										118
	CPlCDF			119	256	871	60	42												1,349
	CPlCDMG	14	29	4	377	392	81	109		12										1,017
	CSbalal				0	11	1	41		0										54
	CSwalal				3	42	32	79	0	2	0									158
	CSwalalS				4	1	2	26	0	8										41
	DAwalal				53	44														97
	DCMxalal				1	0														1
Muskeg Total		14	39	129	864	1,514	328	504	0	26	0									3,418
Simonette	CPlABF					81	1		52	16	37					16				203
	CPlABMG					4	71		0	3			35							114
	CPlABMGS					29	43		21			11								105
	CPlCDF			0		476	18		152	24	31	74	5	15	18	29	11		10	863
	CPlCDMG					75	16	9	35		6	9	2	1						153
	CSbalal					1	0	4	25		126	8	4	26	7	0				201
	CSwalal					1		0	4	0	27	20	2	13	5					71
	CSwalalS					0			8		28	14	4	5	6	0		0		65
	DCMxalal					0														0
Simonette Total				0		668	149	13	297	42	254	136	53	59	35	45	11	0	10	1,774
Smoky	CDMxalal				0			33												33
	CPlABF							6		11				0						17
	CPlABMG		13	6	27	47		61		9			5							168
	CPlABMGS			6	3	4		18												31
	CPlCDF	0	1		108			68	9	65										250
	CPlCDMG	0	88	56	183	67		100	9	25										527
	CSbalal							22												22
	CSwalal				4	2		35		67		34	0							142
	CSwalalS							17	23	1		47								88
	DAwalal		33	18	62	21														134
	DCMxalal				7	7														15
Smoky Total		0	136	86	394	149		359	40	178		81	5	0						1,427
Grand Total		14	175	288	1,674	4,199	1,162	1,087	906	266	466	267	58	167	43	69	45	1	10	10,897

Table 8-15: Strata Description Table – Year 6 to 10 Harvest (Period 2)

Harvest Years	6-10																			
Sum of Area (ha)		Age																		
Compartment	Strata	75	85	95	105	115	125	135	145	155	165	175	185	195	205	215	225	235	255	Grand Total
Bolton	CPlABF				10	4			42	71	67									195
	CPlABMG				12	0	6	46		0				18						83
	CPlABMGS				28	30	45	0												103
	CPlCDF		0	5	172	58	30		142	70	6									483
	CPlCDMG		6	4	27	67	60		6	16										184
	CSbalal				0		6	1	5		9	3		23						47
	CSwalal		0		0				7	8	8	0		0						23
	CSwalalS								10	9	31	0		15			0			64
Bolton Total			6	8	249	160	147	47	211	173	121	4		55			0			1,181
Deep Valley	CDMxalal					16														16
	CPlABF					74	22		36			5								137
	CPlABMG			12		102	70		158		8									350
	CPlABMGS					1	43		40		5									89
	CPlCDF			9		502	42		54											608
	CPlCDMG			138		380	145		27											690
	CSbalal					11	66		99		44			0						220
	CSwalal					1			0		6									8
	CSwalalS						0		4		0			3						7
	DAwalal					4														4
	DCMxalal					5														5
Deep Valley Total				160		1,095	389		418		64	5		3						2,134
Huckleberry	CPlABF					0	13	218		10										242
	CPlABMG			0		5	11	4												21
	CPlABMGS			0	5	0	0	5		0										11
	CPlCDF			6	10	64	141	103		137										461
	CPlCDMG				3	7	6	36	11											64
	CSbalal				0	0		1	6			1								8
	CSwalal						0	0			0									1
	CSwalalS					0	0	0	0	38	12	0							0	50
Huckleberry Total				6	19	77	171	368	17	186	13	1							0	857
Muskeg	CDMxalal					0	18	8		9										35
	CPlABF				10	18	13	42												83
	CPlABMG				0	64	44	102	36											247
	CPlABMGS				0	5	5	40		9										58
	CPlCDF			38	111	228	36	104		3										520
	CPlCDMG				10	109		51												169
	CSbalal			0	0	95	0	1												95
	CSwalal			72	0	0														72
	CSwalalS				0	0		4		20	1	9								34
	DAwalal				34	41														75
	DCMxalal					0														0
Muskeg Total				110	165	560	115	353	36	40	1	9								1,389
Simonette	CDMxalal					2		5												7
	CPlABF			0		281	38	13	106	1	67	13				1				520
	CPlABMG					82	56		44	8	77		2							269
	CPlABMGS					18	16		10			0								45
	CPlCDF		0	3		771	109	6	96	9	9	14	25	8	9				8	1,065
	CPlCDMG					216	78		51		21	4	1							372
	CSbalal			0		18	9	0	17		76	103	28	15	2					268
	CSwalal					1	0	0	1		27	0		0		0				29
	CSwalalS					1			5		6	26	24	9	0	0		0		70
Simonette Total			0	3		1,391	307	24	329	18	283	159	79	32	11	1		0	8	2,646
Smoky	CDMxalal		0	0	0			75	0											75
	CPlABF		4		51			67	19	10										151
	CPlABMG		18		17	126		31	10	29		28								259
	CPlABMGS			9	24	8				56										97
	CPlCDF	0	0		603			340	36	11										990
	CPlCDMG	4	75	28	517	33		74	81	9										821
	CSbalal				0			21		0		0								21
	CSwalal		0	0	0			0	0	14		0								14
	CSwalalS				0			0	29	27		36								92
	DAwalal	3	5		17	102														127
	DCMxalal		0	0	3	14		0												17
Smoky Total		6	102	37	1,233	284		608	174	157		64								2,665
Grand Total		6	108	324	1,667	3,566	1,129	1,400	1,186	574	482	242	79	90	11	1	0	0	8	10,872

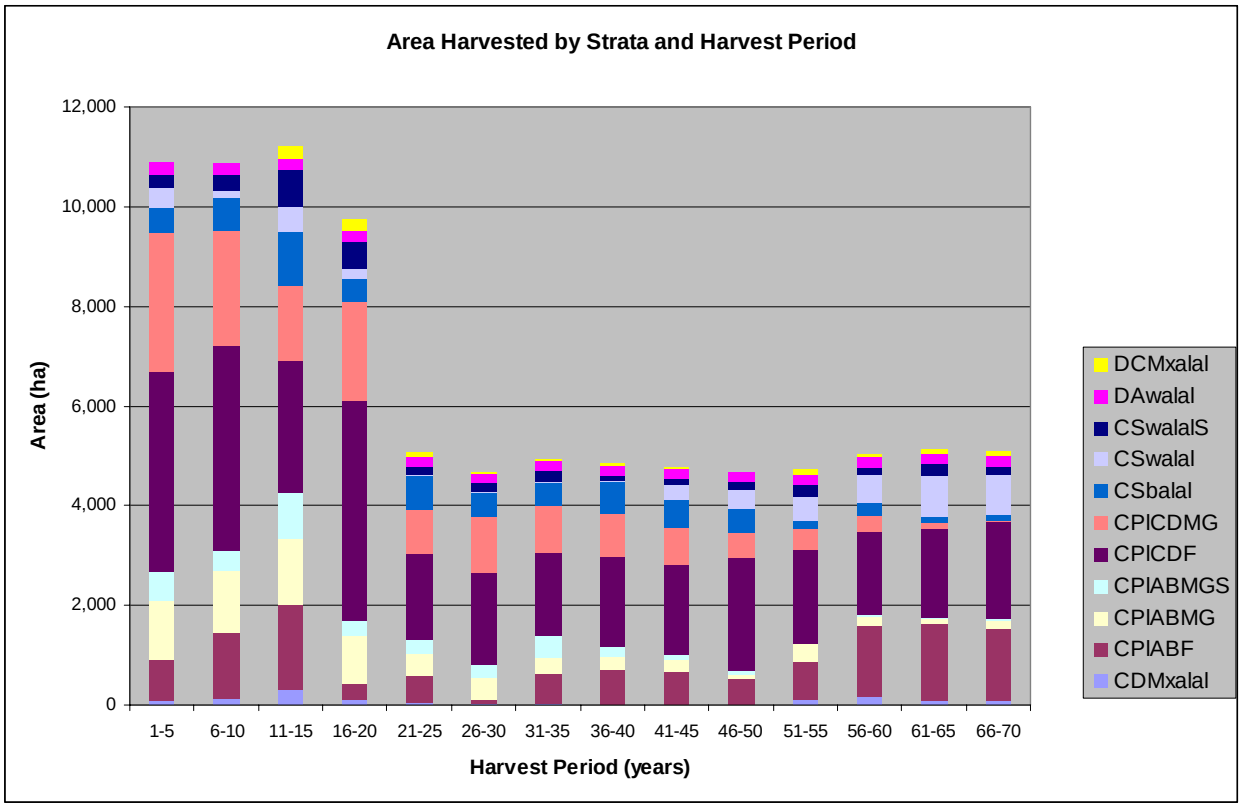
Table 8-16: Strata Description Table – Year 11 to 15 Harvest (Period 3)

Harvest Years	11-15																			
Sum of Area (ha)		Age																		
Compartment	Strata	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	250	260	Grand Total
Bolton	CDMxalal					7	4				2									13
	CPlABF				2	7			61	0	60	8		12			0			150
	CPlABMG					6	77	21	27	12	76					24				243
	CPlABMGS				0		110								11					122
	CPlCDF				3	156	54	8	178	20	11									430
	CPlCDMG					70	103		11	7				18						209
	CSbalal				4				10		23	6								43
	CSwalal								9	34	5									47
	CSwalalS								29	44	13	28		28						143
	DCMxalal					1														1
Bolton Total					9	247	348	29	326	116	191	42		59	11	24	0			1,402
Deep Valley	CDMxalal					46			9											55
	CPlABF					232	70	10	118		4	43		5						482
	CPlABMG					128	128		106		6			11						380
	CPlABMGS					68	55		16			9		8						157
	CPlCDF		1	7		254	4		58			3			0					327
	CPlCDMG					114	93		0											207
	CSbalal				5	23	87		165		70	10		11						371
	CSwalal								3											3
	CSwalalS								21		12			4						37
	DCMxalal					7														7
Deep Valley Total			1	7	5	873	438	10	496		92	64		40	0					2,026
Huckleberry	CDMxalal									6										6
	CPlABF					11	10	174	1	213										409
	CPlABMG			1	0	24	9	13												46
	CPlABMGS				4	112	8													124
	CPlCDF		1	4	10	155	247	282	13	61										773
	CPlCDMG				5	111	8	87	7	10										229
	CSbalal			3	2	0	42	20		4		14								85
	CSwalal							4		111	13									128
	CSwalalS							0	60	155	63	10		8						296
Huckleberry Total			1	8	22	413	325	581	81	560	76	24		8						2,096
Muskeg	CDMxalal			4	6	12	1	15												38
	CPlABF		4			110		112												225
	CPlABMG					90	48	90	73	64										365
	CPlABMGS				4	43	129	75	21	28										300
	CPlCDF			1	0	269	25	112												407
	CPlCDMG				2	155	40	212		1										411
	CSbalal				1		52	21		12								0		87
	CSwalal				1			0		121	4									127
	CSwalalS							3		23	34									61
	DAwalal				73	39														112
	DCMxalal				15	27		20												62
Muskeg Total			4	5	102	746	296	660	94	250	38							0		2,194
Simonette	CDMxalal					3														3
	CPlABF					151	16	28	87	17	85									384
	CPlABMG					45	16	5	47		72									186
	CPlABMGS					0	17		21		42									80
	CPlCDF			2		208	6	53	88	0	54	2				29			24	467
	CPlCDMG					42	0	20	24		26			3						116
	CSbalal			3		5	12	0	56		171	153	6	44						450
	CSwalal					1			0		92									93
	CSwalalS								11		51	8		1						71
	DCMxalal					6	5													11
Simonette Total				5		461	73	106	335	17	591	163	6	49		29			24	1,859
Smoky	CDMxalal		0	4	18	16	26	23	15	85										189
	CPlABF							45						6						51
	CPlABMG				6	11	18	1	20	67										123
	CPlABMGS				18	9	4	51	42	0										123
	CPlCDF				4			120	15	116										254
	CPlCDMG				10	39	15	172	18	62										316
	CSbalal					2		45		2		9								58
	CSwalal									111										111
	CSwalalS									62		75								137
	DAwalal	4	13	10	55	16														98
	DCMxalal			17	64	87		20												188
Smoky Total		4	13	31	174	181	63	479	110	503		84		6						1,648
Grand Total		4	18	56	312	2,921	1,542	1,864	1,441	1,447	989	377	6	161	11	53	0	0	24	11,226

Table 8-17: Strata Description Table – Year 16 to 20 Harvest (Period 4)

Harvest Years	16-20														
Sum of Area (ha)		Age													
Compartment	Strata	85	95	105	115	125	135	145	155	165	175	185	205	225	Grand Total
Bolton	CDMxalal					2									2
	CPlABF				2	17			4				7		30
	CPlABMG					41	1		6		1				49
	CPlABMGS					23	28								51
	CPlCDF			3	8	394	5		2						411
	CPlCDMG				2	88	0		3			5			99
	CSbalal					17			4	0		4			26
	CSwalal								3						3
	CSwalalS								168	46	6	1			221
	DCMxalal					9									9
Bolton Total				3	11	592	34		189	47	7	10	7		901
Deep Valley	CDMxalal					3									3
	CPlABF			4		72	21		13		6	3			119
	CPlABMG					217	50		24						290
	CPlABMGS					68	29								97
	CPlCDF			12		904	0	3	2						920
	CPlCDMG					448	31		4						483
	CSbalal			2		79	25	2	62		17	5			191
	CSwalal					0			6		1				7
	CSwalalS								36	3	9				48
	DCMxalal					34									34
Deep Valley Total				18		1,825	154	4	146	3	33	9			2,192
Huckleberry	CPlABF					7	0	32							39
	CPlABMG			6		55	4	8							72
	CPlABMGS					13	5								18
	CPlCDF		0	2	0	828	6								837
	CPlCDMG				10	368	6								384
	CSbalal					30				2		2			35
	CSwalal							2		21	6				29
	CSwalalS								34	19	32	2			87
Huckleberry Total			0	8	10	1,302	21	41	34	42	39	4			1,500
Muskeg	CDMxalal					47									47
	CPlABF		1			25				2					28
	CPlABMG				1	255	2	37		3					299
	CPlABMGS				24	57		2	3						86
	CPlCDF		0	0	3	1,153		19							1,175
	CPlCDMG				3	588		0		4					595
	CSbalal					65		8							74
	CSwalal					1		3		98	1				103
	CSwalalS						3	3	8	48	11				74
	DAwalal	7			19	16									42
	DCMxalal				26	101									127
Muskeg Total		7	1	0	75	2,309	5	73	11	155	12				2,649
Simonette	CDMxalal					7									7
	CPlABF					79	17		3		1				99
	CPlABMG					86	18	6	27		11				147
	CPlABMGS					20	3		4						27
	CPlCDF			9	2	1,012	14	3	5		6				1,052
	CPlCDMG					289	4	6	6						304
	CSbalal					48	22	6	23		5	0		8	113
	CSwalal					1			6		43				50
	CSwalalS							3	41		22				67
	DCMxalal					3		2							5
Simonette Total				9	2	1,545	77	26	114		89	0		8	1,870
Smoky	CDMxalal				29	11									40
	CPlABMG			5		98				7					109
	CPlABMGS				3	49									52
	CPlCDF				3			0							3
	CPlCDMG				10	106		6	0		8				131
	CSbalal							15							15
	CSwalal							2	2						4
	CSwalalS							0	39			13			52
	DAwalal		50	13	74	35									173
	DCMxalal				13	49									62
Smoky Total			50	18	132	349		24	41	7	8	13			641
Grand Total		7	51	56	231	7,921	291	168	536	253	188	35	7	8	9,754

Figure 8-13: Area Harvested by Strata and Harvest Period



Future Forest Condition

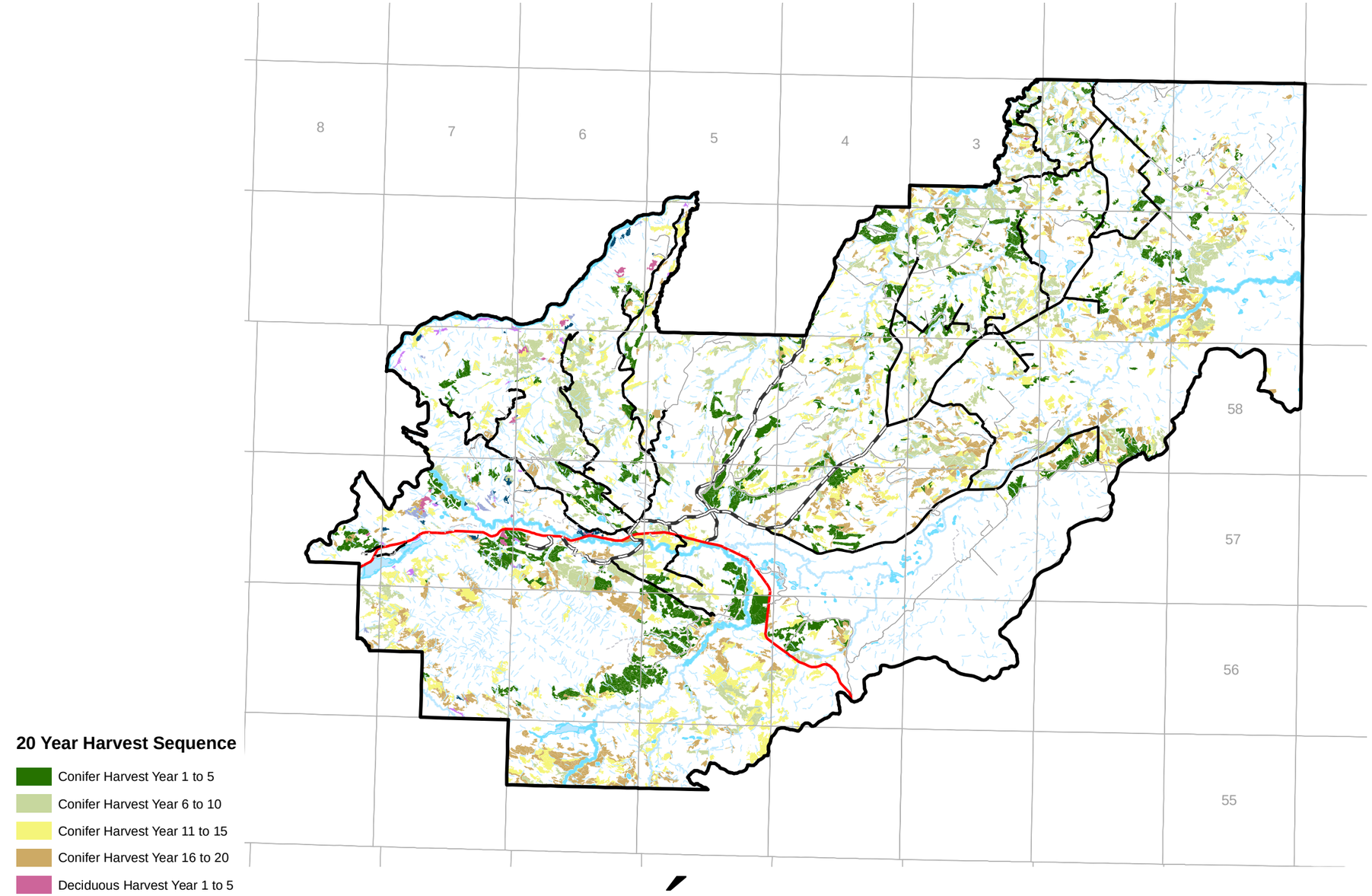
As required under Section 5.10 of Annex 1 of the Planning Standard, a database containing the state of the forest on a polygon by polygon basis has been provided as referenced in Section 10.3. The data dictionary for this database can be found in the Future Forest Condition section of Reference Section.

Spatial Harvest Sequence Map

Map 8-1 shows the 20 year spatial harvest sequence selected through the PFMS process. While this map is provided in an 11" x 17" format, a full size map sheet of the SHS is provided in Reference Section in the "Harvest Schedule – 20 Year Spatial Harvest Sequence" section.

In keeping with the requirement of Section 5.11 of Annex 1 of the Planning Standard, a database containing the data requested under Section 5.11 of Annex 1, that can be linked to the net landbase shape file, has been provided as referenced in Section 10.3. The data dictionary for this database can be found in the "Harvest Schedule – 20 Year Spatial Harvest Sequence" section of Reference Section.

Map 8-1: 20 Year Harvest Sequence



MPB Planning

Two requirements of the Mountain Pine Beetle Interpretive Bulletin are that a Healthy Pine Forest Strategy and a MPB Outbreak Scenario be evaluated as part of the MPB FMP process. The Healthy Pine Forest Strategy has also been referred to as the 75% Reduction Strategy, while the MPB Outbreak Strategy has also been known as the Disaster Scenario. Section 9.1 discusses the analysis for the E8 FMU utilizing the Healthy Pine Forest Strategy criteria and results, while section 9.2 discusses the MPB Outbreak Scenario criteria and results. An additional section, 9.3, discuses the reduction of Rank 1 and Rank 2 pine stands under the PFMS.

Healthy Pine Strategy

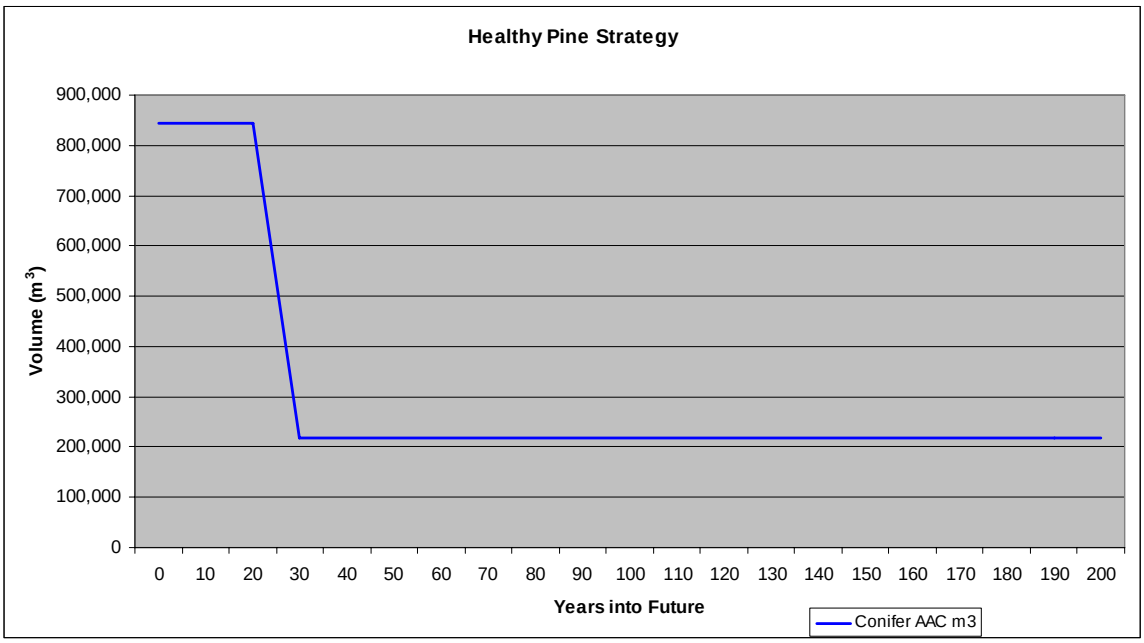
The direction of the MPB Interpretive Bulletin in evaluating the Healthy Pine Strategy is to "Reduce the area of susceptible pine stands in the Rank 1 and Rank 2 categories in the Sustained Yield Unit (SYU) to 25% of that projected in the currently approved FMP at a point twenty years into the future."

This analysis had a constraint set to reduce the area of *operable* susceptible pine stands in the Rank 1 and Rank 2 categories in the E8 FMU to 25% of that currently on the landscape at a point twenty years into the future. The Healthy Pine Strategy model run was completed prior to the decision to amalgamate the regular conifer landbase and small wood conifer landbase into a single landbase. For reporting purposes the two AACs have simply been added together to report this AAC here. The AAC shown in Table 9-1 is only the conifer volume from the conifer landbase, net of cull. Figure 9-1 graphically demonstrates the two primary conifer flow periods under this scenario.

Table 9-1: Healthy Pine Strategy 75% Reduction of Rank 1 and 2 Pine Stands

Landbase	Yield Component	Flow Period	
		Year 1 - 20	Year 21 - 200
Conifer	Conifer	844,436	217,802

Figure 9-1: Healthy Pine Strategy 75% Reduction of Rank 1 and 2 Pine Stands



MPB Outbreak Scenario

The intent of the MPB outbreak scenario is to determine the impact to the conifer AAC in the face of a worst case MPB infestation. The criteria utilized the AAC from the PFMS and then assumed massive pine mortality ten years into the future. The criteria for evaluating the MPB outbreak scenario are as follows:

- Set the AAC at the harvest rate as determined under the PFMS (which includes MPB Rank 1 & 2 Pine stand reduction targets, but not at the 75% reduction level as specified under the Mountain Pine Beetle Interpretive Bulletin), known as "Harvest Rate A";
- Assume massive pine mortality in 10 years;
- Assume harvest of salvage to continue at "Harvest Rate A" for the next 10 years (years 11 to 20);
- Stands that are salvaged return at normal regeneration transition and normal regen lags.

For stands that aren't salvaged the following rules apply:

- For stands with greater than 60% pine content, assume entire stand mortality (mortality applies to stands that are 20 years and older). Stand goes onto the lowest density yield curve for (e.g. AB density) that strata with a 15-year regen lag. Stand age reset to 0;

- For stands with less than or equal to 60% pine content, the approved yield curves from the last DFMP are reduced to remove the pine content, on a proportionate basis, and the stand continues to grow at it's current age (stand age is not reset to 0). No assumption is made for stand release due to opening of the canopy by the pine mortality;

- Calculate an evenflow AAC for years 21 to 200 using normal planning criteria.

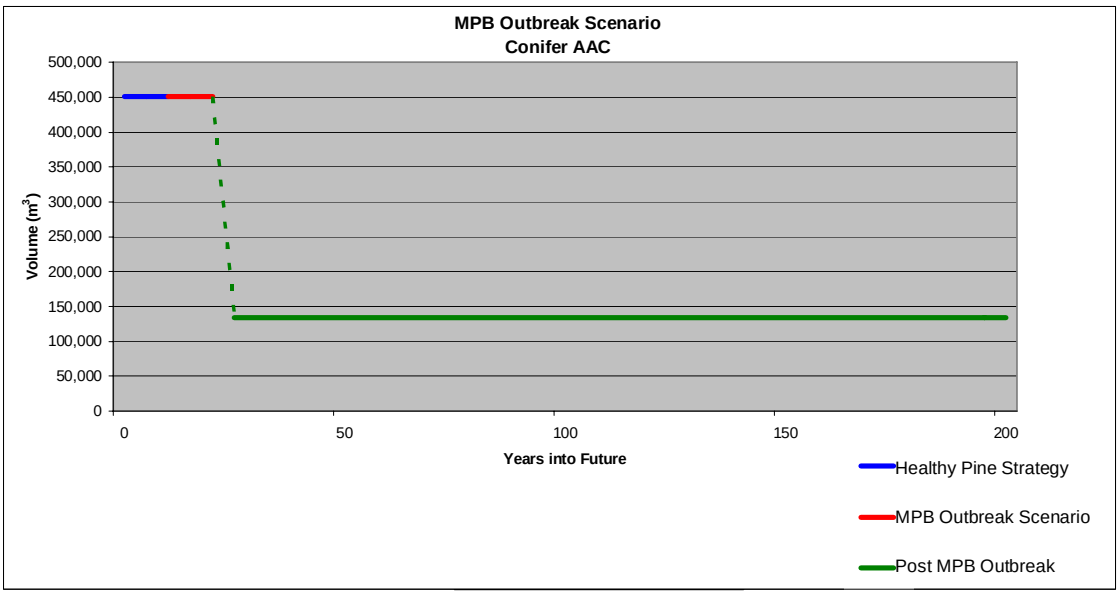
The AAC shown in Table 9-2 is only the primary conifer volume from the conifer landbase, net of cull.

Table 9-2: MPB Outbreak Scenario

Landbase	Yield Component	Flow Period		
		Year 1 - 10	Year 11 - 20	Year 21-200
		PFMS Rate	Salvage	Post Outbreak
Conifer	Conifer	450,951	450,951	133,841

Figure 9-2 graphically demonstrates the two flow periods under this scenario. It is important to remember that the volume from the second ten year harvest period is comprised entirely of salvage of beetle killed stands. Again this demonstrates the worst case scenario that is currently envisioned.

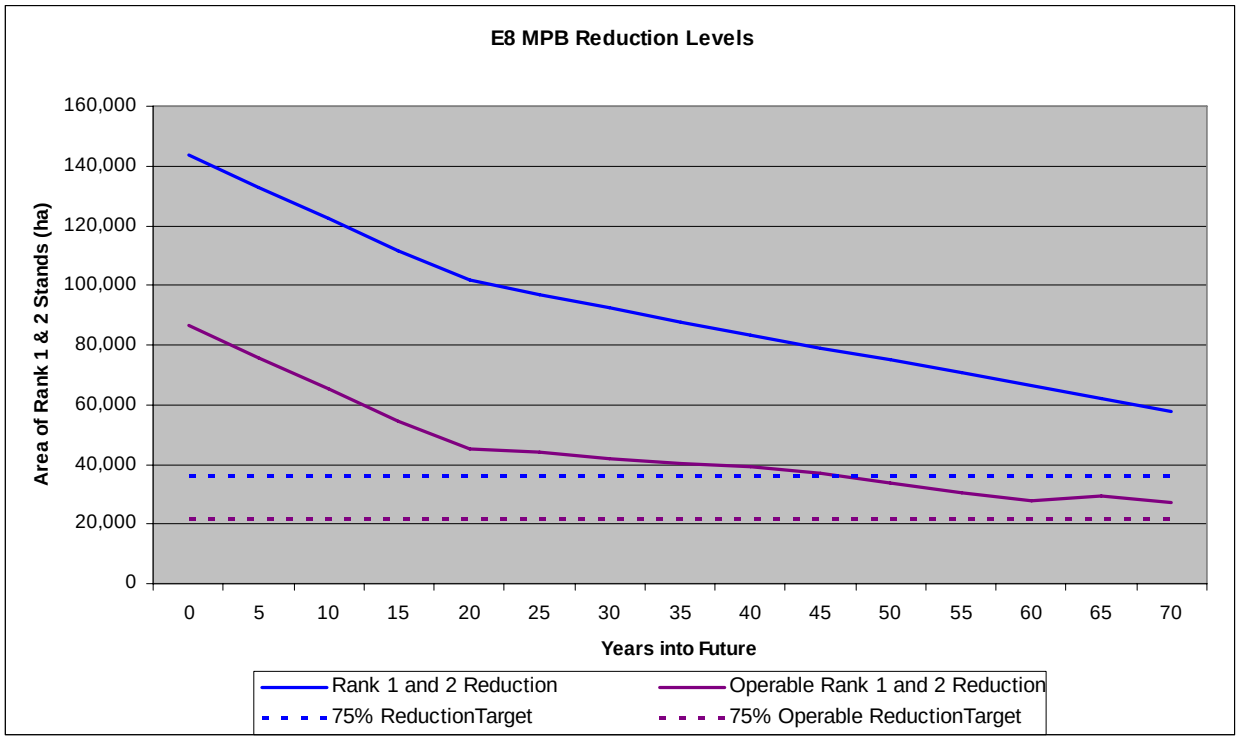
Figure 9-2: MPB Outbreak Scenario



Rank 1 and Rank 2 Pine Stand Reduction under PFMS SHS

A reduction level target for operable Rank 1 and Rank 2 pine stands had been set at 55% as part of the aspatial analysis of the PFMS. After the SHS had been selected the selected harvest sequence was played back through the timber supply model to determine the actual reduction levels achieved. After 20 years of harvesting at an accelerated rate, the amount of operable Rank 1 and Rank 2 stands will have been reduced by 48%, while the total amount of Rank 1 and Rank 2 stands will been reduced by 29%. The difference between the aspatial target constraint and the achieved reduction area is primarily due to the decrease in harvest level through spatial harvest sequencing. Figure 9-3 shows the reduction of operable and all Rank 1 and Rank 2 pine stands.

Figure 9-3: Rank 1 and Rank 2 Pine Stand Area Reduction Achieved



Data

Data used in this analysis is found on the enclosed DVD entitled "E8 Timber Supply Analysis Documentation".

Net Landbase

The net landbase used for this analysis, including the harvest sequence information is included on the DVD in the "Landbase" directory. The net landbase file is in the form of a shape file ("E8_Net9.*"), with the data file structure conforming to the landbase data dictionary provided in "Table 5-2" of the "Landbase Determination" document. The net landbase document "Landbase Determination" is included in the "Landbase" directory, titled "E8 Net Landbase.pdf".

Growth & Yield

All yields for this analysis have been calculated at a 13+/7 utilization standard The yield report, named "E8 13_07 Yield Documentation.pdf", can be found in the "Yield" directory.

Timber Supply Analysis

The Woodstock timber supply analysis model used in the calculation of the PFMS AAC "TSA/Woodstock" directory. This document ("Timber Supply Analysis") titled "E8 Timber Supply Analysis.pdf" is included in the "TSA" directory.

In meeting the requirement of Section 5.10 of Annex 1 of the Planning Standard, the Future Forest Condition section of Reference Section contains the database structure of the data file titled "5_10_future_condition.dbf" found in the "Future Forest" directory in the "TSA/Woodstock" directory of the enclosed data DVD. This file provides a polygon by polygon state of the forest at 0, 10, 20 and 50 years based on the SHS.

As discussed in Section 8.11, a database containing the timber supply outputs as required under Section 5.11 of Annex 1 of the Planning Standard has been included on the enclosed DVD. The "Harvest Schedule – 20 Year Spatial Harvest Sequence" section of Reference Section contains the database structure of the data file titled "5_11_LinkTable.dbf" found in the "SHS Data" directory in the "TSA/Woodstock" directory. This database can be directly linked to the net landbase file, which contains the SHS referred to in Section 10.1 above, by the REMSOFT_ID field.

Reference Section: Harvest Schedule and Future Forest Condition

Harvest Schedule – 20 Year Spatial Harvest Sequence

As referenced in Section 8.11, Table App-1 serves as the data dictionary for the data file containing the timber supply outputs, "5_11_LinkTable.dbf".

Table App-1: Future Forest Condition Data Dictionary

Field Name	Data Type	Width	# Decimals	Description
REMSOFT_ID	Numeric	20	4	Remsoft assigned ID - 1,000,001 and greater
F_AGECLS	Numeric	6	0	Ageclass of the polygon in periods (5 years per period)
F_AREA	Numeric	20	4	Area in hectares of polygon
THEME2	Character	15		Yield curve assignment CPlABF Pine, AB density, F TPR CPlABMG Pine, AB density, M/G TPR CPlABMGS Pine, AB density, M/G TPR Smallwood stands CPlCDF Pine, CD density, F TPR CPlCDMG Pine, CD density, M/G TPR CSbalal Black Spruce, all densities, all TPRs CSwalal White Spruce, all densities, all TPRs CSwalalS White Spruce, all densities, all TPRs Smallwood stands DAwalal Deciduous, all densities, all TPRs CDMxalal Conifer/Decid mixedwood, all densities, all TPRs DCMxalal Decid/Conifer mixedwood, all densities, all TPRs CCompalal Composite conifer
CUT_PERIOD	Numeric	6	0	Period polygon scheduled for harvest
ACTION	Numeric	6	0	Woodstock action accessing stand 1 Conifer Harvest 2 Deciduous Harvest
HARVAGE	Numeric	6	0	Ageclass of the polygon at harvest, at specified CUT_PERIOD, in periods (5 years per period)
CONPCSIZE	Numeric	20	4	Average primary conifer piece size for polygon represented as stems/m^3
DECPCSIZE	Numeric	20	4	Average primary deciduous piece size for polygon represented as stems/m^3
NETCONVOL	Numeric	20	4	Total net conifer volume in polygon in m^3
NETDECVOL	Numeric	20	4	Total net deciduous volume in polygon in m^3
CONVOLHA	Numeric	20	4	Gross conifer volume per hectare in polygon
CONVOLHA	Numeric	20	4	Gross conifer volume per hectare in polygon

The attached map, as referenced in Section 8.11, provides the 20 year spatial harvest sequence based on the PFMS criteria.

Future Forest Condition

As referenced in Section 8.7, Table App-2 serves as the data dictionary for the data file containing the future forest condition, "5_10_future_condition.dbf".

Table App-2: Future Forest Condition Data Dictionary

Field Name	Data Type	Width	# Decimals	Description
TH1	Character	5		Woodstock theme 1 - Landbase Con Conifer SmCon Smallwood conifer Dec Deciduous
TH2	Character	15		Yield curve assignment CPlABF Pine, AB density, F TPR CPlABMG Pine, AB density, M/G TPR CPlABMGS Pine, AB density, M/G TPR Smallwood stands CPlCDF Pine, CD density, F TPR CPlCDMG Pine, CD density, M/G TPR CSbalal Black Spruce, all densities, all TPRs CSwalal White Spruce, all densities, all TPRs CSwalalS White Spruce, all densities, all TPRs Smallwood stands DAwalal Deciduous, all densities, all TPRs CDMxalal Conifer/Decid mixedwood, all densities, all TPRs DCMxalal Decid/Conifer mixedwood, all densities, all TPRs CCompalal Composite conifer
TH5	Character	8		Woodstock theme 5 - Active/Passive landbase Net Net or active landbase Passive Passive landbase
TH6	Character	5		Woodstock theme 6 - Interpretive Bulletin MPB ranking Rank0 Rank 0 stands Rank1 Rank 1 stands Rank2 Rank 2 stands
TH9	Character	4		Woodstock theme 9 - Compartment name Bolt Bolton Creek Deep Deep Valley Huck Huckleberry Musk Muskeg Simo Simonette Smok Smoky
AGE	Numeric	3	0	Ageclass of the polygon in periods (5 years per period)
AREA	Numeric	10	4	Area in hectares of polygon
PERIOD	Numeric	3	0	5 year period the state of the polygon is attributed to
RANK12AREA	Numeric	7	2	Pine stand ranking of 1 or 2 binary switch 0 Polygon not a Rank 1 or Rank 2 pine stand 1 Polygon classified as a Rank 1 or Rank 2 pine stand
RANK12OPAR	Numeric	7	2	Operable pine stand ranking of 1 or 2 binary switch 0 Polygon not an operable Rank 1 or Rank 2 pine stand 1 Polygon classified as an operable Rank 1 or Rank 2 pine stand
CONGROWPUR	Numeric	7	2	Volume in m^3/ha of primary conifer growing stock of polygon at time specified by PERIOD
CONGROWINC	Numeric	7	2	Volume in m^3/ha of secondary conifer growing stock of polygon at time specified by PERIOD
DECGROW	Numeric	7	2	Volume in m^3/ha of primary deciduous growing stock of polygon at time specified by PERIOD
DECGROWINC	Numeric	7	2	Volume in m^3/ha of secondary deciduous growing stock of polygon at time specified by PERIOD
OPCONGROW	Numeric	7	2	Volume in m^3/ha of primary operable conifer growing stock of polygon at time specified by PERIOD
OPDECGROW	Numeric	7	2	Volume in m^3/ha of primary operable deciduous growing stock of polygon at time specified by PERIOD
REGENSERAL	Numeric	7	2	Regenerating seral state binary switch 0 Polygon not in regenerating seral state 1 Polygon in regenerating seral state
YOUNGSERAL	Numeric	7	2	Young seral state binary switch 0 Polygon not in young seral state 1 Polygon in young seral state
MATURESERAL	Numeric	7	2	Mature seral state binary switch 0 Polygon not in mature seral state 1 Polygon in mature seral state
EARLYOLDGR	Numeric	7	2	Early old growth seral state binary switch 0 Polygon not in early old growth seral state 1 Polygon in early old growth seral state
LATEOLDGRO	Numeric	7	2	Late old growth seral state binary switch 0 Polygon not in late old growth seral state 1 Polygon in late old growth seral state

Two maps have been attached to this section. The first provides snapshots of the seral stage distribution in the E8 FMU for years 0, 10, 20, and 50 based on the PFMS SHS. The second provides snapshots of the patch size distribution in the E8 FMU for years 0, 10, and 50 based on the PFMS SHS.