4.0 Values, Objectives, Indicators, and Targets for the Desired Future Forest

4.0 Values, Objectives, Indicators, and Targets for the Desired Future Forest

The E8 Forest Management Plan (FMP) directs sustainable management of forest resources and other values in the E8 Forest Management Unit. To ensure that sustainable forest management occurs goals were developed. To ensure these goals were met, Values, Objectives, Indicators and Targets (VOITs) were developed to provide a foundation to achieve these goals.

The primary goals and desired outcomes of the E8 Forest Management Plan are to:

1. Determine spatially, operable and sustainable supplies of timber;
2. Reduce the susceptibility of pine forests to future mountain pine beetle infestations by following the "Healthy Pine Strategy";
3. Manage habitat supplies for Woodland Caribou and Grizzly Bear;
4. Ensure that traditional use of the management unit can continue;
5. To create a forest management plan that balances values of the forest based on current information and public input.

To ensure these goals are met, the E8 VOITs follow the criteria set out in Annex 4 of the *Alberta Forest Management Planning Standard* and Section 6 of CSA Z809-02. Quantitative targets were developed for each of the VOITs for the E8 FMP where required. These targets were developed over a three year period. During this period, the original goals changed due to unforeseen circumstances such as the implementation of the Caribou Recovery Plan, the Mountain Pine Beetle Action Plan and the Grizzly Bear Recovery Plan. Since the initiation of this plan, many meetings and public consultation opportunities were held to develop the final set of VOITs.

To be successful in implementing the E8 FMP, a strong process and all-inclusive content are required. Section 6 of CSA Z809-02 sets out the SFM performance requirements for all FMPs (CCFM SFM Criteria and CSA SFM Elements). There are 5 Criterion which must be considered, evaluated, measured and monitored for the plan to be a success. These Criterion are:

1. Biological Diversity;
2. Ecosystem Productivity;
3. Soil and Water;
4. Multiple Benefits to Society;
5. Accepting society's responsibility for sustainable development;

Each criterion is broken down in this section and sub-sections are shown on the detailed indicator sheets. Each sheet outlines the element, the value, the objective, the indicator and the target. The current status of each of these is outlined in detail in this section.

1 Biological Diversity-

1.1 Maintain biodiversity by retaining the full range of cover types and seral stages
1.2 Maintain biodiversity by avoiding landscape fragmentation
1.3 Maintain biodiversity by minimizing access
1.4 Maintain plant communities uncommon in DFA or province
1.5 Maintain unique habitats provided by wildfire and blowdown events
1.6 Retain ecological values and functions associated with riparian zones
1.7 Retain stand level structure
1.8 Retain stand level structure (downed woody debris downed woody debris)
1.9 Maintain integrity of sensitive sites
1.10 Maintain aquatic biodiversity by minimizing impacts of water crossings
1.11 Ensure that the Little Smoky and Al La Peche woodland caribou populations will persist
1.12 Ensure that a self sustaining grizzly bear population persists in E8 and adjacent potential grizzly bear habitats.
1.13 Genetic integrity of natural tree populations
1.14 Integrate transboundary values and objectives into forest management

2 Ecosystem Productivity

2.1 Accepting society's responsibility for sustainable development
2.2 Meet reforestation targets on all harvested areas
2.3 Limit conversion of productive forest landbase to other uses
2.4 Recognize lands affected by insects, disease or natural calamities
2.5 Control non-native plant species (weeds)

3 Soil and Water

3.1 Minimize impact of roading and bared areas across the landscape
3.2 Minimize incidence of soil erosion and slumping
3.3 Limit impact of timber harvesting on water yield
3.4 Minimize impact of operations in riparian areas

4 Multiple Benefits to Society

4.1 Establish appropriate Annual Allowable Cuts
4.2 To reduce wildfire threat potential by reducing fire behaviour, fire occurrence, threats to values at risk and enhancing fire suppression capability
4.3 To integrate other uses and timber management activities
4.4 Maintain Long Run Sustained Yield Average

5 Accepting society's responsibility for sustainable development

5.1 Implement Public Involvement Program

Detailed Indicator Sheets

Element 1.1: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the FMU

Indicator 1.1.1.1

Value: Landscape Scale Biodiversity

Objective: Maintain biodiversity by retaining representative cover types and seral stages

Indicator: Area of old, mature, and young forest in the E8 FMU by cover class

Target: Over the 20-year planning horizon;

a) Gross landbase: greater than 6.10% early and late old growth forest, greater than 58.40% mature plus old forest, less than 41.60% young and regenerating forest; and

b) Net landbase: greater than 4.37% early and late old growth forest, greater than 47.34% mature plus old forest, less than 52.66% young and regenerating forest

Note: Old forest retention shall include the full natural range of ages

Current Status: It is important that ecosystem diversity and integrity is conserved at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the FMU. To achieve this, the seral stage distribution was assessed in the timber supply analysis as shown in Section 8 of the TSA. More information on seral stages forecasting can be found in the TSA.

Seral stages were developed by SRD by natural subregion for the E8 FMP. A seral stage can be defined as any stage of development of an ecosystem from initiation to a mature climax plant community. Figure 1 provides information on each seral stage for each subregion. There are 4 sub-regions in the E8 FMU and each age class category varies in each sub-region and stand type. Figure 2 and 3 exhibits the age class distribution at year 0 and 20 respectively. Figure 4 illustrates the distribution of seral stages across the landscape.

Currently, there is a significant amount of forested area in the mature category. The pine leading strata found within this category are highly susceptible to mountain pine beetle infestation. One of the main goals of this plan is to reduce the susceptibility of pine forests to future mountain pine beetle infestations by following the “Healthy Pine Strategy. To meet this goal, these strata will be the main category in which most of the timber harvesting will occur.

Figure 1: Seral Stages used in the E8 FMP

Subregion	Strata	Regeneration	Young	Mature	Early Old growth	Late Old growth
Lower Foothills	D - Aw leading	0-20	21-70	71-130	131-160	>160
	D - Pb leading	0-25	26-80	81-140	141-180	>180
	DC - Pl leading	0-25	26-80	81-140	141-180	>180
	DC - Sw leading	0-30	31-90	91-150	151-190	>190
	CD - Pl leading	0-25	26-80	81-140	141-180	>180
	CD - Sw leading	0-30	31-90	91-150	151-190	>190
	C - Sw leading	0-30	31-90	91-180	181-230	>230
	C - Sb leading	0-40	41-100	101-200	201-250	>250
	C - Pl leading	0-30	31-80	81-160	161-210	>210
	C - Pj leading	0-30	31-80	81-140	141-180	>180
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
Subalpine	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

Figure 2: Age class distribution at year 0 (figure taken from the TSA)

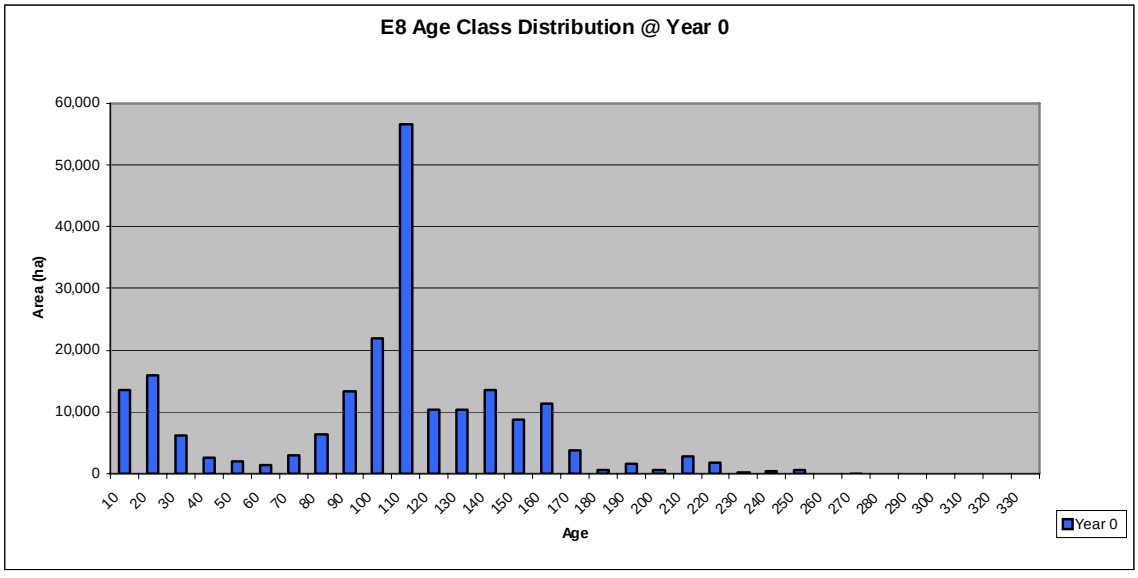


Figure 3: Age class distribution at year 20 (figure taken from the TSA)

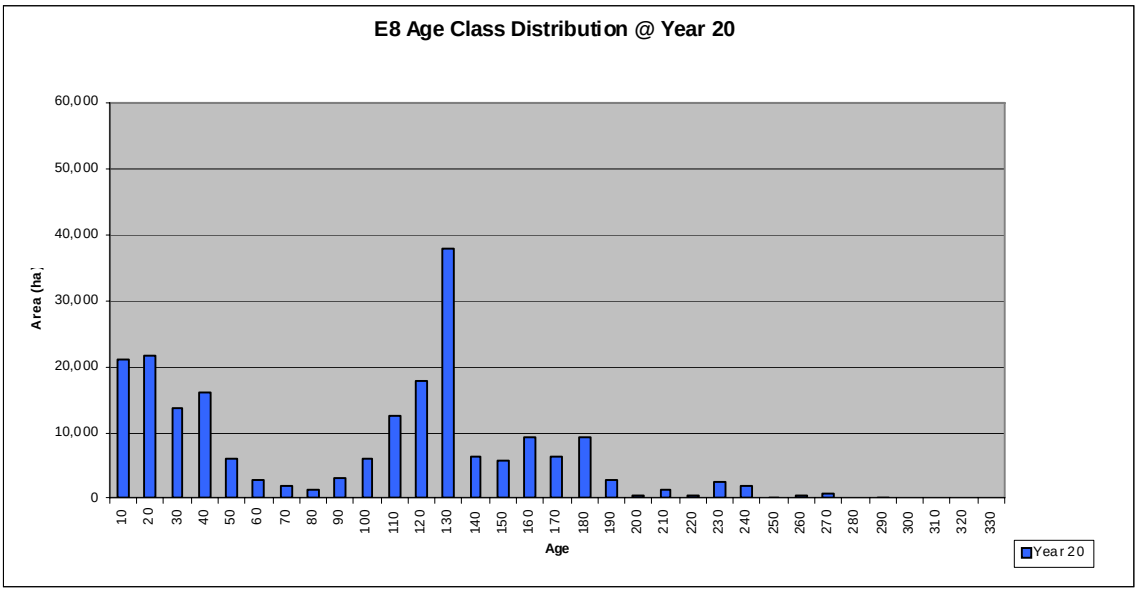
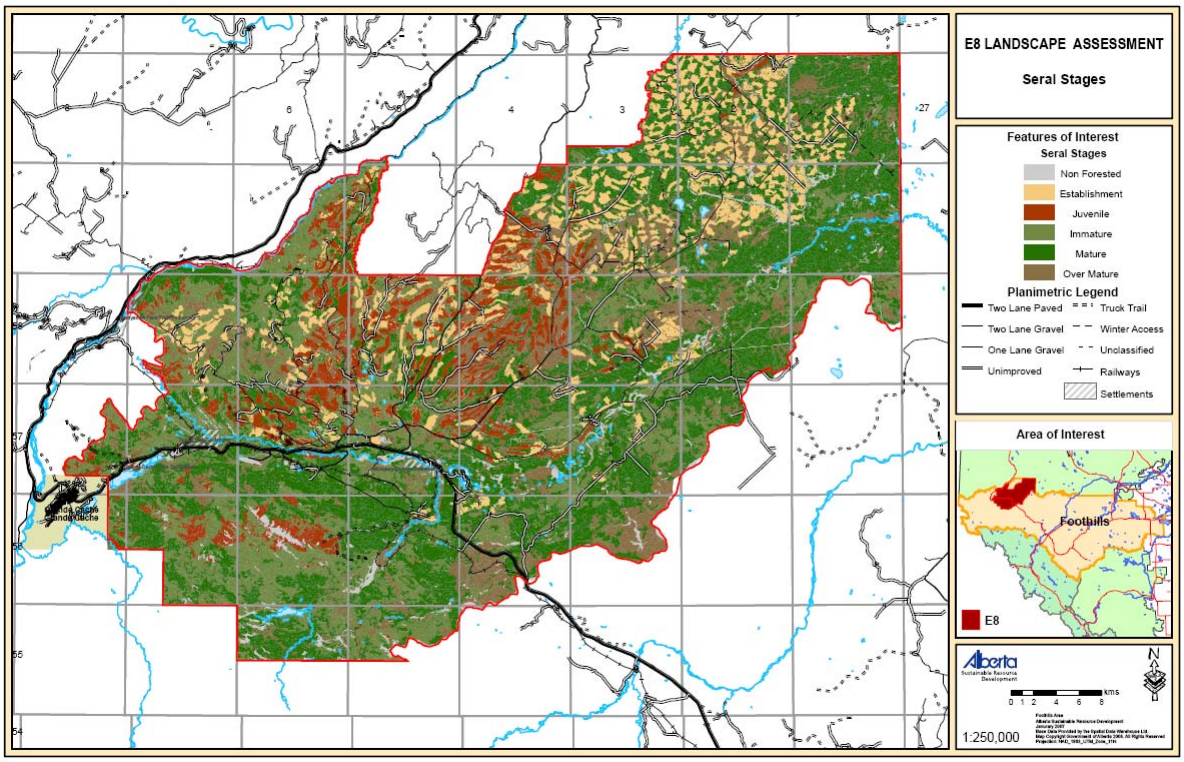


Figure 4: Seral Stage distribution in E8 at year 0



Forecast: In order to meet the goals the "Healthy Pine Strategy", there will be a decline in the percentage of area in the mature seral stage category. Area will be removed from the early and old growth strata by timber harvesting, but there will be an increase in the strata in these categories due to aging of the stands in the mature category. There will be an increase over time in the young and

regenerating seral stages due to the accelerated harvest levels developed to meet mountain pine beetle objectives. This will result in a younger forest which is more resistant to a mountain pine beetle infestation.

Table 1 and Table 2 illustrate the gross and net area and percentage of seral stages over the 200 year planning horizon.

Table 1: Gross area and percentage of seral stages over a 200 year planning horizon

	State Area (ha)						% of Total		
Period	Regen	Young	Mature	EOG	LOG	Total	Young + Regen (Z)	Mature (Y)	EOG + LOG (X)
0	35,771	24,922	139,953	6,677	1,617	208,939	29.05%	70.95%	3.97%
1	46,152	16,432	134,772	9,997	1,586	208,939	29.95%	70.05%	5.54%
2	53,368	20,047	125,011	8,999	1,515	208,939	35.14%	64.86%	5.03%
3	56,509	20,667	119,887	10,082	1,795	208,939	36.94%	63.06%	5.68%
4	58,236	28,693	109,271	10,960	1,779	208,939	41.60%	58.40%	6.10%
5	57,353	31,723	104,869	12,745	2,249	208,939	42.63%	57.37%	7.18%
6	55,928	37,825	100,369	12,469	2,348	208,939	44.87%	55.13%	7.09%
7	48,603	47,792	88,094	20,575	3,875	208,939	46.14%	53.86%	11.70%
8	42,656	58,592	84,068	19,804	3,819	208,939	48.46%	51.54%	11.31%
9	37,606	65,722	73,015	26,254	6,343	208,939	49.45%	50.55%	15.60%
10	32,650	75,301	69,587	24,987	6,415	208,939	51.67%	48.33%	15.03%
11	31,317	80,733	51,716	36,958	8,214	208,939	53.63%	46.37%	21.62%
12	31,090	83,000	51,010	35,510	8,330	208,939	54.60%	45.40%	20.98%
13	30,806	81,462	48,168	38,438	10,064	208,939	53.73%	46.27%	23.21%
14	31,058	81,020	47,043	39,501	10,318	208,939	53.64%	46.36%	23.84%
15	35,724	80,622	45,478	33,473	13,642	208,939	55.68%	44.32%	22.55%
16	39,830	75,612	48,374	32,531	12,592	208,939	55.25%	44.75%	21.60%
17	42,730	68,167	53,846	29,986	14,210	208,939	53.08%	46.92%	21.15%
18	44,793	62,942	56,218	31,163	13,823	208,939	51.56%	48.44%	21.53%
19	47,295	56,301	55,804	30,742	18,797	208,939	49.58%	50.42%	23.71%
20	49,374	51,362	60,082	29,750	18,371	208,939	48.21%	51.79%	23.03%
21	48,246	53,384	58,319	24,616	24,373	208,939	48.64%	51.36%	23.45%
22	48,908	54,779	57,428	24,612	23,212	208,939	49.63%	50.37%	22.89%
23	47,517	58,142	57,204	20,376	25,701	208,939	50.57%	49.43%	22.05%
24	46,652	62,534	53,821	22,167	23,765	208,939	52.26%	47.74%	21.98%
25	44,842	66,295	50,991	21,333	25,479	208,939	53.19%	46.81%	22.40%
26	46,093	67,866	48,041	21,583	25,356	208,939	54.54%	45.46%	22.47%
27	46,451	69,074	46,083	19,730	27,600	208,939	55.29%	44.71%	22.65%
28	46,143	71,949	43,657	20,298	26,892	208,939	56.52%	43.48%	22.59%
29	46,619	72,924	42,081	11,550	35,766	208,939	57.21%	42.79%	22.65%
30	47,184	73,751	40,884	11,215	35,905	208,939	57.88%	42.12%	22.55%
31	44,438	75,707	41,491	9,596	37,707	208,939	57.50%	42.50%	22.64%
32	42,457	81,174	39,398	9,662	36,248	208,939	59.17%	40.83%	21.97%
33	42,674	79,020	41,300	6,325	39,621	208,939	58.24%	41.76%	21.99%
34	48,693	77,379	43,778	5,909	33,180	208,939	60.34%	39.66%	18.71%
35	49,488	76,536	43,749	5,356	33,810	208,939	60.32%	39.68%	18.75%
36	51,803	75,518	45,133	4,967	31,519	208,939	60.94%	39.06%	17.46%
37	52,890	76,069	43,235	4,391	32,355	208,939	61.72%	38.28%	17.59%
38	58,515	76,489	42,710	4,154	27,071	208,939	64.61%	35.39%	14.94%
39	59,278	78,977	39,353	1,720	29,612	208,939	66.17%	33.83%	15.00%
40	60,379	81,292	37,266	2,423	27,579	208,939	67.81%	32.19%	14.36%

Table 2: Net area and percentage of seral stages over a 200 year planning horizon

	State Area (ha)						% of Total		
Period	Regen	Young	Mature	EOG	LOG	Total	Young + Regen (Z)	Mature (Y)	EOG + LOG (X)
0	34,789	14,849	102,025	4,482	1,004	157,149	31.59%	68.41%	3.49%
1	45,484	9,248	94,133	7,358	926	157,149	34.83%	65.17%	5.27%
2	52,782	12,780	84,788	5,944	855	157,149	41.72%	58.28%	4.33%
3	56,135	16,874	77,162	6,155	823	157,149	46.46%	53.54%	4.44%
4	57,989	24,774	67,513	6,066	808	157,149	52.66%	47.34%	4.37%
5	57,181	28,594	63,238	7,059	1,077	157,149	54.58%	45.42%	5.18%
6	55,868	34,584	58,936	6,588	1,173	157,149	57.56%	42.44%	4.94%
7	48,582	45,549	49,117	12,079	1,823	157,149	59.90%	40.10%	8.85%
8	42,647	56,336	45,549	10,851	1,766	157,149	62.99%	37.01%	8.03%
9	37,598	64,554	38,592	13,203	3,203	157,149	65.00%	35.00%	10.44%
10	32,650	74,126	35,293	11,807	3,274	157,149	67.95%	32.05%	9.60%
11	31,317	79,793	22,897	18,976	4,166	157,149	70.70%	29.30%	14.73%
12	31,087	82,135	23,001	16,647	4,279	157,149	72.05%	27.95%	13.32%
13	30,803	80,976	24,162	16,253	4,955	157,149	71.13%	28.87%	13.50%
14	31,056	80,629	26,650	13,614	5,201	157,149	71.07%	28.93%	11.97%
15	35,722	80,371	26,862	8,889	5,306	157,149	73.87%	26.13%	9.03%
16	39,464	75,475	30,364	7,230	4,616	157,149	73.14%	26.86%	7.54%
17	42,364	68,073	37,065	6,237	3,411	157,149	70.28%	29.72%	6.14%
18	44,138	62,882	41,935	4,886	3,309	157,149	68.10%	31.90%	5.21%
19	46,640	56,279	46,587	4,611	3,032	157,149	65.49%	34.51%	4.86%
20	48,713	51,350	51,132	3,442	2,512	157,149	63.67%	36.33%	3.79%
21	47,585	53,373	51,221	2,354	2,617	157,149	64.24%	35.76%	3.16%
22	47,621	54,527	51,081	1,634	2,286	157,149	65.00%	35.00%	2.49%
23	46,229	57,891	51,726	593	709	157,149	66.26%	33.74%	0.83%
24	43,859	62,271	50,856	41	122	157,149	67.53%	32.47%	0.10%
25	42,049	66,032	48,664	282	122	157,149	68.78%	31.22%	0.26%
26	43,322	67,294	46,010	402	122	157,149	70.39%	29.61%	0.33%
27	43,680	68,503	44,350	494	122	157,149	71.39%	28.61%	0.39%
28	42,969	71,035	42,503	520	122	157,149	72.55%	27.45%	0.41%
29	43,445	72,010	41,052	521	122	157,149	73.47%	26.53%	0.41%
30	44,001	72,578	39,913	511	146	157,149	74.18%	25.82%	0.42%
31	41,255	74,534	40,718	496	146	157,149	73.68%	26.32%	0.41%
32	38,768	79,284	38,493	485	119	157,149	75.12%	24.88%	0.38%
33	38,985	77,129	40,474	239	322	157,149	73.89%	26.11%	0.36%
34	39,256	74,418	42,953	121	402	157,149	72.33%	27.67%	0.33%
35	40,050	73,575	43,001	29	494	157,149	72.30%	27.70%	0.33%
36	40,145	72,117	44,364	3	520	157,149	71.44%	28.56%	0.33%
37	41,232	72,668	42,726	3	520	157,149	72.48%	27.52%	0.33%
38	42,111	72,758	41,757	3	520	157,149	73.10%	26.90%	0.33%
39	42,873	75,246	38,507	3	520	157,149	75.16%	24.84%	0.33%
40	42,862	76,680	36,310	777	520	157,149	76.07%	23.93%	0.83%

Monitoring: Aerial photography of all harvest areas will be completed annually to capture the changes from harvesting on the landscape. This information will be compiled and included in the next inventory update and landbase determination. The SHS will be followed and harvesting activities will fall within the acceptable variance allowances to ensure the targets developed are met.

Response: Variance from the SHS will be reported annually to SRD and in the Five-Year Stewardship Report.

Indicator 1.1.1.2 (a)

Value: Landscape Ecosystem Diversity

Objective: Maintain biodiversity by avoiding landscape fragmentation

Indicator: Range of patch sizes in the E8 Forest Management Unit

Target: A distribution of harvest area sizes that will result in a patch size pattern over the 200 year planning horizon approximating patterns created by natural disturbances

Current Status: The best forest management practices cannot duplicate nature, but a forest management plan which emulates the effects of a natural disturbance regime will maintain an environment close the one which preceded forestry practices. The goal set in this plan is to retain the full range of cover types and seral stages and to maintain biodiversity by avoiding landscape fragmentation.

A Patch Analysis was completed to show the areas of old, mature, and young forest in the management unit by cover class. This analysis can be found in Section 8 of the Timber Supply Analysis and shows the results of harvesting over a 200-year period at years 10, 50, 100 and 200.

As per the TSA, patches were defined as the aggregation of forested polygon in the same seral stage not separated by a distance of greater than 10 meters. At year 0, the greatest number or patches is found in the 0-5 ha range.

The figures below are taken from the TSA and illustrate the area in each patch size class, the number of patches in each patch size class and patch size distribution over time.

Figure 5: Patch size distribution – area by patch size class

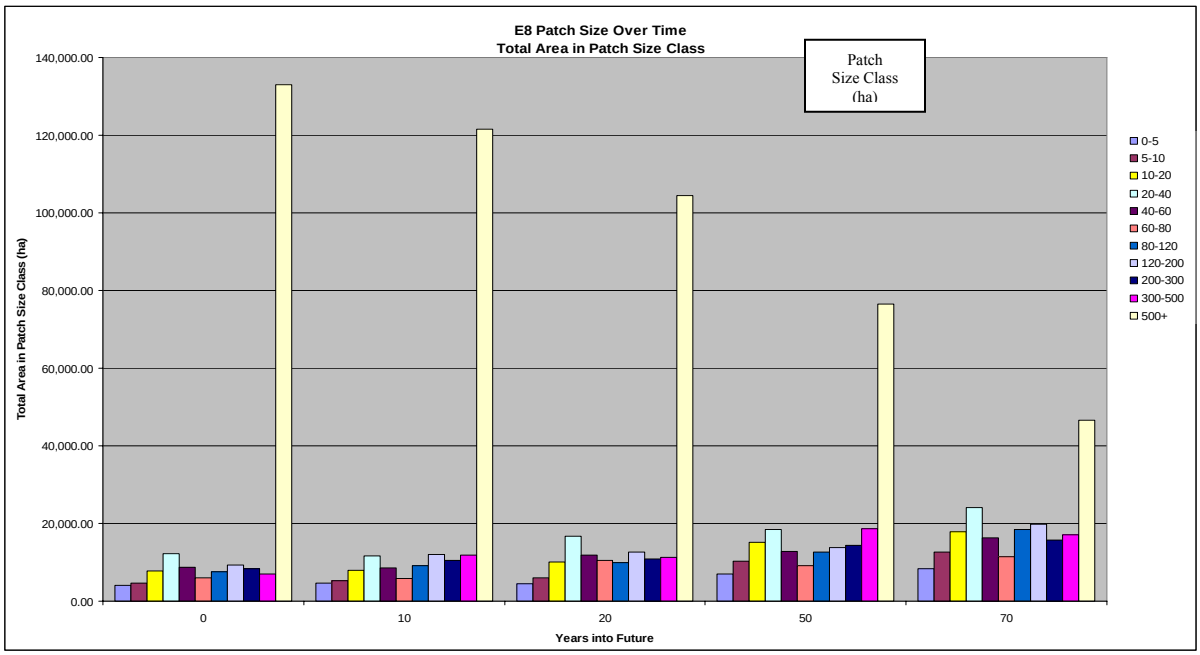
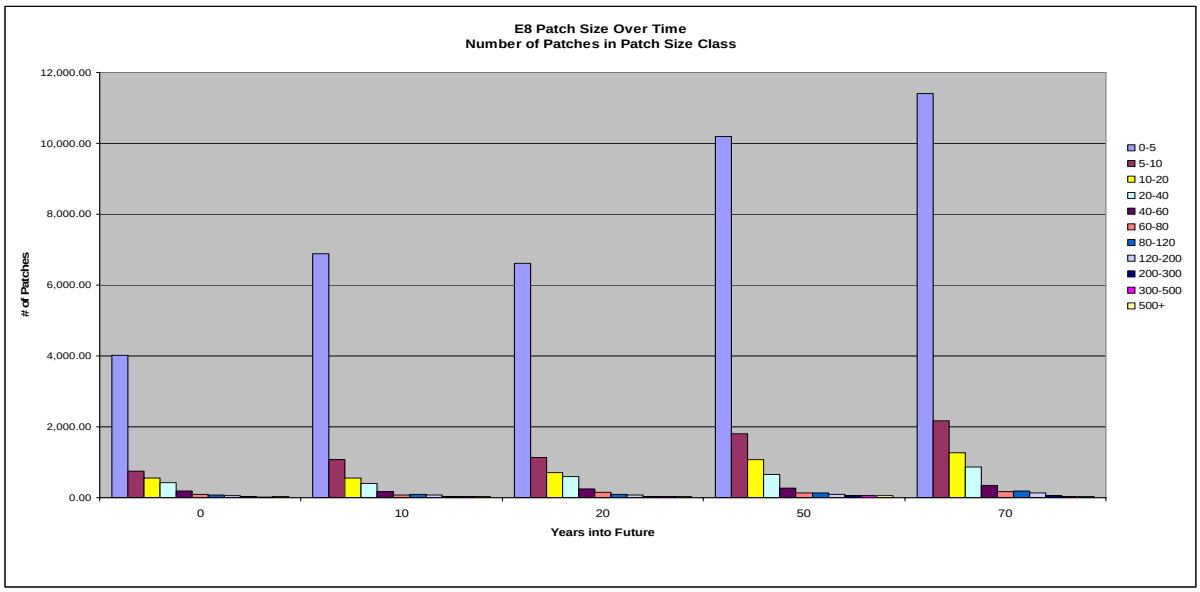


Figure 6: Patch size distribution – number of patches by patch size class



Forecast: The table below 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. Over time there will be an increase in the number and area of patches in the smaller patch sizes. As the forest ages and the SHS is implemented, there will be an increase number of patches in the larger patch sizes, and the total area will increase. There will be a reduction of 56 409 ha in the patch size class of 500+ even though the number of patches increased.

Table 3: 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

A full map sheet is provided in Reference Section 1 in the "Future Forest Condition" section which provides forecasts of the patch size distribution in the E8 FMU for years 0, 10, and 50 based on the PFMS SHS.

Monitoring: The SHS will be followed and harvesting activities will fall within the acceptable variance allowances to ensure the targets developed are met. Variances shall be reported as indicated in Section 4 of the operating ground rules.

Response: Variance from the SHS will be reported annually to SRD and in the Five-Year Stewardship Report.

Indicator 1.1.1.2 (b)

Value: Landscape Ecosystem Diversity

Objective: Maintain biodiversity by avoiding landscape fragmentation

Indicator: Area of old interior forest of each cover class by compartment and entire FMU.

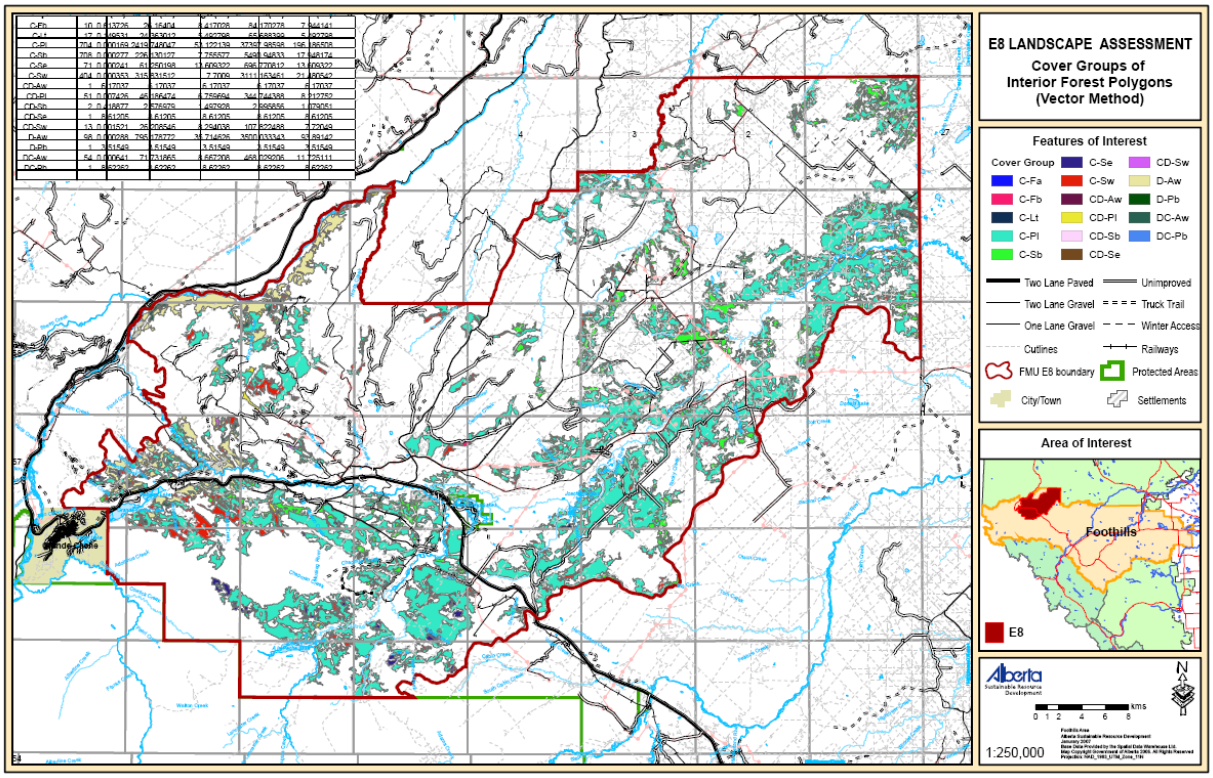
Target: Area of old interior forest will be an output of the Spatial Harvest Sequence.

Current Status: In 2005, an Interior Forest Analysis was completed by the Edson Resource Information Unit for the E8 Forest Management Plan to determine the amount of interior forest and its cover group. The processes used were a combination of the process used by Forest Management Branch as described in document "Interior Forest Analysis Procedure" and input from Forest Management Branch staff. The methodology can be found in the Appendix.

Interior forest is defined as a forested area greater than 100 hectares in size located beyond the edge effect buffer zone bordering the forest edge. A common age definition for all cover classes was used to prevent breaking up forest patches that have a common origin date. Forest Edge is defined in the *Alberta Forest Management Planning Standard* as a linear disruption in the forest cover greater than 8 m in width or the line along which forest seral stage class changes.

The map below demonstrates the interior forest distribution using the Vector methodology at year 0. A total of 96 polygons were created which resulted in an area of 55 688 ha.

Figure 7: Area of interior forest in E8



Forecast: The patch size analysis indicated that there would be a decrease in the total are in the larger patch size categories. This is a result of harvesting activities be meet mountain pine beetle objectives.

Monitoring: The SHS will be followed and harvesting activities will fall within the acceptable variance allowances to ensure the targets developed are met.

Response: Variance from the SHS will be reported annually to SRD and in the Five-Year Stewardship Report.

Indicator 1.1.1.3

Value: Landscape Ecosystem Diversity

Objective: Maintain biodiversity by minimizing access

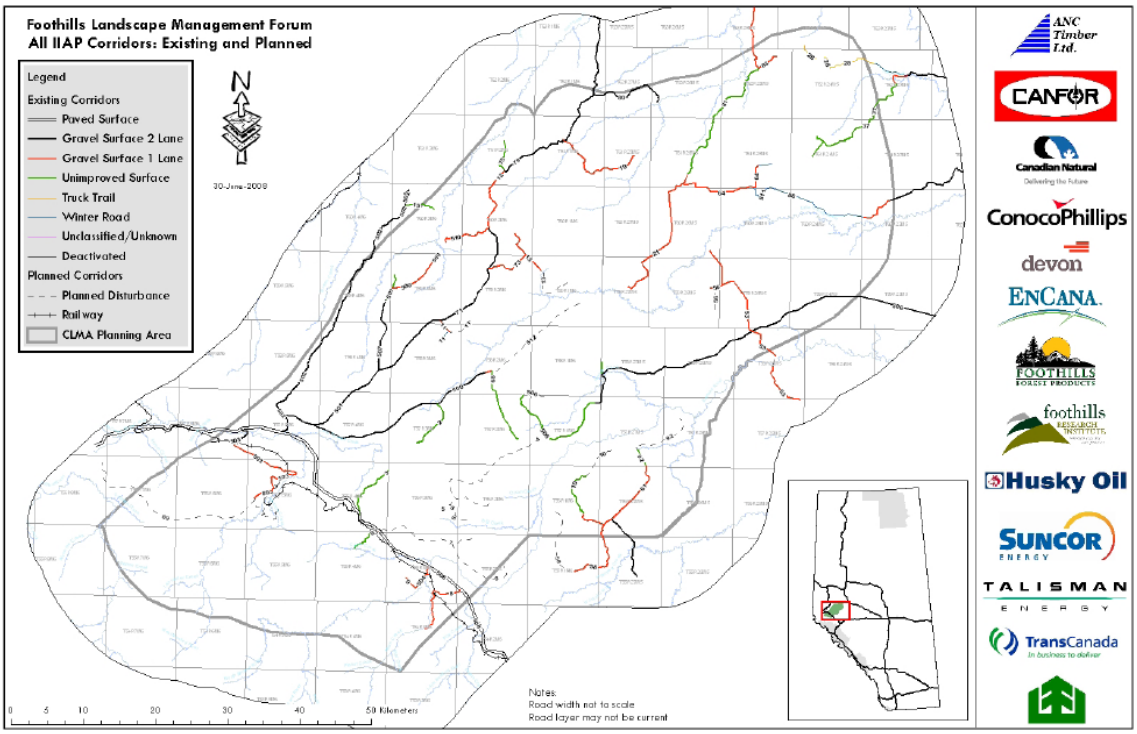
Indicator: Open all-weather forestry road density by compartment and Open seasonal / temporary forestry road length by FMU

Target: Integrate long and short term road developments to minimize long term impacts.

Current Status: Foothills Forest Products has been an active member of the Foothills Landscape Management Forum (formerly known as the Caribou Landscape Management Association) since April 2005 and has helped work towards the creation of the "Integrated Industry Access Plan" for the Smoky / Berland area.

This plan was endorsed by SRD on June 23, 2006. This plan has been developed to help minimize the overall footprint on the land base through integrated land management and access planning.

Figure 8: Map of the Smoky/Berland plan area (adapted from SRD's Information Letter 2008-05)



FFP has been planning and utilizing common corridors (both existing and planned) for its access requirements through communication, integrated future access planning, and extensive coordination between other industry users.

Forecast: FFP will continue to work on managing necessary access using an integrated land management approach. Minimizing the footprint of multiple industry uses through a coordinated long-term access approach will reduce permanent road construction, maintenance, and reclamation costs thus helping in the reduction of road densities.

Monitoring: Follow approved Operating ground rules on road planning, construction and reclamation while adhering to IIAP designated road corridors.

Temporary road access will be outlined in the Final Harvest Plan and General Development Plan in the AOP.

Response: Status updates on Foothills Forest Products' involvement in the Foothills Landscape Management Forum will be recorded in the Five-Year Stewardship Report.

Indicator 1.1.1.4

Value: Landscape Ecosystem Diversity

Objective: Maintain plant communities uncommon in FMU or province

Indicator: Area or occurrence of uncommon plant communities within the E8 Forest Management Unit

Target: 100% of total known areas of each community will be maintained within the Protected Areas and 80% of each community will be maintained within the operable and in-operable areas.

Current Status:

Alberta Tourism, Parks, Recreation and Culture is the Ministry which operates the Alberta Natural Heritage Information Centre (ANHIC). Information on ANHIC can be found at:

http://www.tprc.alberta.ca/parks/heritageinfocentre/default.aspx.

An inventory of rare plants and animals for E8 was obtained from the Alberta Natural Heritage Information Centre in March 2005. Thus far, 23 species of plants and animals have been identified.

Figure 9: Rare Plant Communities in E8

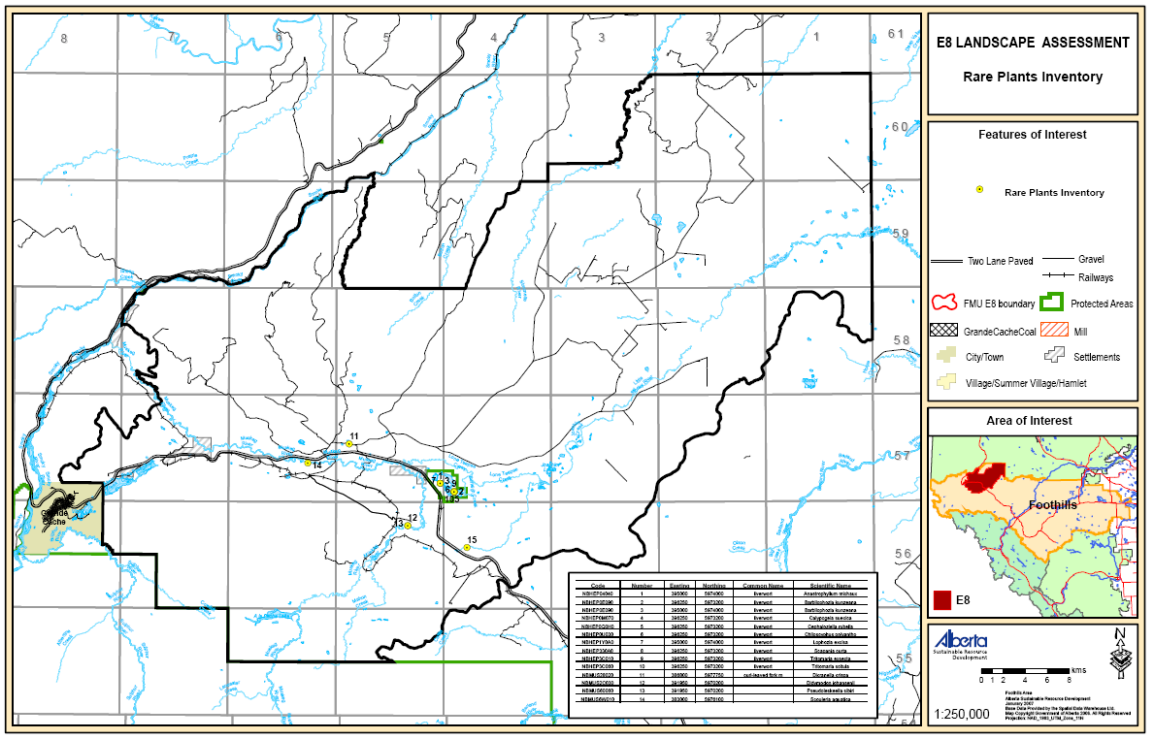


Table 4: Rare Plant and Animal Communities found within E8

Survey Date	Last Observation	1st Observation	Species Rank	Species Name	Species Common Name
1991-07-28	1991-07-28	1991-07-28	S2	Boloria napaea	Napaea Fritillary
1975-08-18	1975-08-18	1975-08-18	S1	Anastrophyllum michauxii	liverwort
1975-08-18	1975-08-18	1975-08-18	S2	Barbilophozia kunzeana	liverwort
XXXX-XX-XX	XXXX-XX-XX	XXXX-XX-XX	S2	Barbilophozia kunzeana	liverwort
1975-08-18	1975-08-18	1975-08-18	SNR	Calypogeia suecica	liverwort
1975-08-18	1975-08-18	1975-08-18	SNR	Cephaloziella rubella	liverwort
1975-08-18	1975-08-18	1975-08-18	S1	Chiloscyphus polyanthos	liverwort
1993-10-09	1993-10-09	1993-10-09	S1	Gymnocolea inflata	liverwort
1975-08-18	1975-08-18	1975-08-18	S2	Lophozia excisa	liverwort
1975-08-18	1975-08-18	1975-08-18	S2	Scapania curta	liverwort
1975-08-18	1975-08-18	1975-08-18	S1	Tritomaria exsecta	liverwort
1975-08-18	1975-08-18	1975-08-18	S2S3	Tritomaria scitula	liverwort
1972-06-06	1972-06-06	1972-06-06	S2	Dicranella crispa	curl-leaved fork moss
1972-06-06	1972-06-06	1972-06-06	S2	Didymodon johansenii	
1972-06-06	1972-06-06	1972-06-06	S2	Pseudoleskeella sibirica	
1993-10-09	1993-10-09	1993-10-09	S2	Scouleria aquatica	
1972-06-06	1972-06-06	1972-06-06	S1	Schistidium pulvinatum	
1993-10-10	1993-10-10	1993-10-10	S2S3	Rhizomnium magnifolium	
1980-08-14	1980-08-14	1980-08-14	S2	Cladonia cyanipes	
1964-08-05	1964-08-05	1964-08-05	S1	Nephroma isidiosum	

Foothills Forest Products Inc. staff complete pre-harvest assessments on all blocks laid out in the E8 Forest Management Unit. Upon discovering rare plants in the E8 FMU, Foothills Forest Products Inc. staff will complete a Rare Native Plant Report Form and submit it to Alberta Natural Heritage Information Centre, 2nd Floor, 9820 – 106 Street, Edmonton, AB, T5K 2J6.

Forecast: The number of uncommon plant communities found will likely increase with the implementation of this plan due to increased knowledge of the reporting system and presence in the area. Aboriginal consultation should also contribute to the increase as the AWN reports to SRD and FFP of areas that should be protected that contain plants traditionally used by the group.

Monitoring: All occurrences of rare plants will be recorded in the harvest area plans. Foothills Forest Products will report all finds of uncommon plant communities in the Five-Year Stewardship report. Any new information will be sent to ANHIC, which maintains an inventory of rare community types in a GIS database. These areas will be GPS'd and mapped to ensure that harvest planning does not compromise these areas.

Response: If uncommon plant communities are found, harvest plans will be modified to protect or conserve these areas as best as possible.

Indicator 1.1.1.5

Value: Landscape Ecosystem Diversity

Objective: Maintain unique habitats provided by wildfire and blowdown events

Indicator: Area of unsalvaged burned forest and Area of unsalvaged blowdown

Target:

1. In areas of significant blowdown, a minimum of 10% of the disturbed area will be left unsalvaged;
2. Live trees: Retain all unburned trees in green islands and retained patches recognizing timber condition, access, non-timber needs;
3. Burned trees - Compartment Scale;
4. Retain greater than 10% of merchantable black trees in patches greater than 100 ha;
5. Burned trees - Harvest Area Scale;
6. Retain greater than 10% of merchantable black trees in patches 10 -100 ha; and;
7. Retain greater than 5% of merchantable black trees in small patches, single trees according to loggers choice.

Current Status: Salvage of merchantable trees is a common occurrence in the forests of Alberta. This is a practice used when fire or wind events disturb a forest and cause mortality of merchantable trees. The E8 FMU is entirely committed to forestry activities which leaving few opportunities to maintain unsalvaged disturbed areas. Merchantability of disturbed stands and safety concerns in certain locations will drive the salvaging practices in the FMU. The "core" intactness areas are the sole areas which will likely not see salvage operations. Harvesting operations will not commence in this area for 20 years unless extenuating circumstances arise such as a large scale Mountain Pine Beetle infestation.

Salvage operations will occur in E8 in the event of a wildfire. This area contains a significant amount of mature coniferous timber which is susceptible to wildfire. The Landscape Fire Assessment located in Section 3, outlines where the greatest threat from wildfire exists. Another reason which may result in salvage operations is windthrow. Chinook conditions are fairly common in the E8 FMU and strong, unpredictable winds do occur. The incidence of damage associated with wind events is affected by biotic conditions such as stand composition, canopy structure, stand age, and stand vigour, as well as by abiotic conditions including wind severity and direction, exposure, landscape position, topography, and soil properties.

Forecast: N/A

Monitoring: GIS tools will be used to compare boundaries of salvage areas to the boundaries of fires and blowdown events. Areas greater than 8 ha will be recorded and this information will be summarized and reported in the Five-Year Stewardship Report. This information will be incorporated into the inventory updates as required and harvest levels may be adjusted if large scale events occur.

Response: The area remaining unsalvaged will vary from the targets identified within individual events, but not on a landscape scale. If targets are not achieved, strategies will be re-evaluated and adjusted to ensure targets are met. This will be adjusted through an amendment to the FMP.

Indicator 1.1.1.6

Value: Landscape Ecosystem Diversity

Objective: Retain ecological values and functions associated with riparian zones

Indicator: Maintenance of watercourse buffers

Target: Compliance with Foothills Forest Products Inc. Timber Harvest Planning and Operating ground rules.

Current Status: Section 6 of the Foothills Forest Products Inc. Timber Harvest Planning and Operating ground rules outlines the specific requirements that must be met to protect watersheds within E8. All practices carried out on the landscape must adhere to these rules to protect water quality and riparian values.

Forecast: Harvesting operations within the E8 FMU will commence as directed by the Operating ground rules to ensure that the ecological integrity of riparian areas is not compromised.

Monitoring: All harvest planning and operations will be conducted as the approved Annual Operating Plan and operating ground rules.

Response: If an incidence of a trespass into a watercourse buffer is discovered, immediate remedial action will be taken by the company and the company will report the incident to the inspecting forest officer.

Indicator 1.1.2.1 (a)

Value: Local/stand scale biodiversity

Objective: Retain stand level structure

Indicator: 4% of the Annual Allowable Cut (AAC) will be retained in residual structure within the E8 FMU as defined in the OGR's and the Foothills Forest Products Monitoring Program.

Target: A combination of single stems, clumps, and islands comprising 4% of the Annual Allowable Cut within a FMU will remain standing as stand level structure.

Note: A wide range in variability in harvest area-level retention within a FMU is desired as long as the target level is achieved

Current Status: Volume targets for structure retention will vary by block with an overall FMU target of 4% merchantable coniferous volume. With the implementation of the Alberta Pine Strategy, compartments with high percentages of pine are likely to have lower retention levels than compartments with higher percentages of black and white spruce. The monitoring system in place will allow for easy cross reference between target and actual values to help meet both short term and long term objectives. Tracking will be done both pre and post harvest as defined in the FFP monitoring program.

Forecast: A target of 4% of the AAC will be left as stand retention in the FMU over the course of each quadrant. Summaries of the proposed retention area and volume will be identified in the FHP and accruals summarized every year in the GDP. The final retention summary will be reported in the Stewardship report.

Monitoring: Foothills Forest Products will identify and track stand retention in the form of both area (in hectares) and estimated merchantable volume per block. This information will be tracked per compartment but targets will be measured across the FMU. Estimates will be based on the density of stems per hectare and an ocular assessment of merchantable volume per hectare present in each patch. There may be zero patches of residual structure in any particular harvest area as long as the amount identified in the TSA is met across the landscape over time. Summaries of the proposed retention area and volume will be identified in the FHP and accruals summarized every year in the GDP. Accruals will be reconciled at the end of every 5 year quadrant and merchantable coniferous volume retained will be charged as AAC production but not eligible for applicable stumpage fees.

Structure retention patches are defined as a patch of trees with 4 or more representative merchantable trees or meets a minimum of $50m^3$ of volume per hectare. Operational practices for structure retention will be directed to follow the following guidelines.

Retention patches will be dispersed randomly throughout the block with the focus on wetter areas, steeper slopes, as well as areas with higher densities of advanced regeneration and high amounts of snags valuable for cavity nesters. These patches may also be strategically placed to achieve the habitat management objectives as set out in the approved operating ground rules.

Indicator 1.1.2.1 (b)

Value: Local/stand scale biodiversity

Objective: Retain stand level structure

Indicator: Percentage of harvested area by subunit with downed woody debris (DWD) equivalent to pre-harvest conditions

Target: Pre-harvest levels of DWD will be maintained

Current Status: Historically forest fires were the natural disturbance regime of the forests of the east slopes. Forest fires, depending on intensity and type, typically burned everything including the DWD resulting in an area with very little or no DWD. Timber harvesting practices primarily only remove the live standing trees, leaving dead standing snags, and the downed woody debris that was present pre-harvest. The guidelines in the monitoring program outline the direction on snag retention, which will improve DWD accumulations.

Downed woody debris is wood lying at an angle of less than 45 degrees from the ground and having a diameter greater than 7.5 cm.

Forecast: In the absence of wildfire and with the presence of timber harvesting, the amount of downed woody debris (DWD) on the landscape should gradually increase over time. The objective is to ensure DWD is maintained across the landscape.

Monitoring: Downed woody debris will be monitored using pre and post harvest surveys. Currently all laid out blocks are given a downed woody debris ranking of Low, moderate or high in the Pre-Harvest summary (see attached form). Once the skidding has been completed in the block, another downed woody debris assessment will be made using the low, moderate or high ranking. Each year the total area of blocks in each category (low, moderate, high) pre- harvest will be compared to the totals in each category post harvest. The objective here will be to maintain DWD levels across the landscape each year. This will be reported annually in the GDP.

Although there are dozens of methods for surveying the exact amount of DWD per ha, we will focus on an estimate. Using the ranking system above ocular estimates of low, moderate and high will be associated to each block pre and post harvest.

Response: FFP will completed pre-harvest assessments on blocks. These will be made available to SRD upon request. If it appears that targets are not being met and the strategies in place are not working, SRD will follow up with the company to modify the DWD program.

Indicator 1.1.2.2

Value: Local/stand scale biodiversity

Objective: Maintain integrity of sensitive sites

Indicator: Sensitive sites (e.g. mineral licks, major game trails) by compartment and entire FMU

Target: Strategies to maintain sensitive sites area consistent with provincial guidelines / Compliance with Foothills Forest Products Inc. Timber Harvest Planning and Operating ground rules.

Current Status: There are many sites within E8 which are considered to be sensitive under Section 7.7.6 in the Operating ground rules. This rule outlines the site specific buffers for each sensitive site that could be found on the landscape. There may be additional sites that fall under The Watercourse Code of Practice and national and provincial Environmentally Significant Sites. Environmentally Significant Areas (ESAs) are important, useful and often sensitive features of the landscape. More information may be found at:

http://www.tpr.alberta.ca/parks/heritageinfocentre/environsigareas/default.aspx.

Forecast: Sensitive sites will be protected and identified in the final harvest plans and AOPs as best as possible and as directed by the Operating ground rules.

Monitoring: Sensitive sites will be GPS'd by the company and protected to maintain their integrity. This information will be stored in a company maintained database and reported in the Five-Year Stewardship Report.

Response: Locations of sensitive sites will be reported and added to necessary databases and inventories as discovered. Incidences that compromise the integrity of sensitive sites will be reported to SRD upon discovery.

Indicator 1.1.2.3

Value: Local/stand scale biodiversity

Objective: Maintain aquatic biodiversity by minimizing impacts of water crossings

Indicator: Forestry water crossings are in compliance with Code of Practice for Water Course Crossings within the E8 Forest Management Unit.

Target: Designs meet standards of the Code of Practice for Water Course Crossings under the provincial Water Act, the Foothills Forest Products Inc. Timber Harvest Planning and Operating Ground Rules, and the federal Fisheries Act.

Current Status: Water quality may be altered through timber harvesting operations, road construction, and silviculture activities. This is primarily caused by sedimentation, increases in water temperatures, increased water flow, decreased dissolved oxygen, and elevated dissolved nutrients. Watercourses will be protected by following the Code of Practice for Water Course Crossings under the provincial Water Act, the Foothills Forest Products Inc. Timber Harvest Planning and Operating ground rules, and the federal Fisheries Act. All crossings will be built and maintained according to these rules and pieces of legislation.

Forecast: Harvesting operations within the E8 FMU will occur in both the summer and winter. The appropriate crossing structures as directed by the OGR's and relevant legislation will be utilised to ensure that impacts on aquatic biodiversity are minimized.

Monitoring: A monitoring program has been developed for all temporary watercourse crossings. Field inspections will be completed by the company and audits will be completed by SRD as part of this monitoring program. This will ensure that the impacts of watercourse crossings on the integrity of aquatic environments are not compromised.

This monitoring program will ensure that all crossings are recorded and eventually reclaimed within the guidelines of the Operating ground rules. Summaries of the crossings and volumes will be calculated by compartment will be reported in the GDP each year.

The location of all watercourse crossings will be GPS'd in conjunction with the 'As-Built' road disturbance monitoring. The number of crossings will be tracked by block, by type of crossing and the associated volumes for each within a ledger system (see attached spreadsheet).

An additional inventory of all of the existing permanent watercourse crossings will be completed and maintained for the operating area to allow for proper monitoring of crossings along the existing road network. Annual inspections will be completed for all permanent and temporary watercourse crossings by the company. This will help ensure that environmental targets are met.

Response: If it appears that watercourse crossings are compromising the biodiversity and integrity of aquatic areas, immediate remedial action will be taken by the operator to correct the problem.

Element 1.2: Species Diversity. Conserve species diversity by ensuring that habitats for the native species found in the FMU are maintained throughout time.

Indicator 1.2.1.1 (a)

Value: Caribou Conservation

Objective: Ensure that sufficient habitat exists for the theoretical persistence of the Little Smoky and A La Peche woodland caribou populations.

Indicator: Maintenance of landscape conditions that allow sufficient habitat area for caribou.

Target: The "core" intactness areas will be maintained for 20 years.

Current Status: The woodland caribou range covers 166,601 ha of the 219 657 ha total in E8. There are two herds within this range in the E8 FMU and can be located on the map below. The A La Peche and Little Smokey Caribou herds are classified as "threatened" under both the federal *Species at Risk Act* (SARA) and Alberta's *Wildlife Act.* Due to this classification, the *Alberta Woodland Caribou Recovery Plan 2004/05 – 2013/2014* was developed. This plan recommends that action be taken to immediately stabilize woodland caribou populations within their current ranges and support growth into portions of their historic ranges which are unoccupied.

A Caribou Habitat Assessment was completed in May 2004 for the E8 FMP. This assessment can be found in the Appendix of this FMP. Since this assessment was completed, much work has been completed by the Caribou Land Management Association and the West-Central Alberta Caribou Committee. This FMP follows the work done by the Caribou Landscape Management Association (CLMA), which was formed under the umbrella of the Foothills Research Institute. The CLMA was formed to ensure collaboration among all industrial users on the landscape in an integrated fashion with the objective of finding opportunities for reduction of the collective footprint in the Caribou area.

The Intactness Rating System was developed by the CLMA for caribou habitat management purposes. The intactness rating approach identifies critical intact forest patches that are of optimum habitat for Caribou. The core intactness areas were formalized and incorporated into the Timber Supply Analysis (TSA) for E8. The new intactness rating system for Caribou habitat allows for more precise harvest planning on the landscape. The use of the intactness approach formalizes the important Caribou habitat types and replaces the old broad "Caribou Zone" approach.

In the new FMP, timber harvesting will not be scheduled in the "core" intactness areas in E8 for a period of 20 years. (Core intactness areas are those areas identified as having an intactness rating of 14, 15 and 16). After 10 years access may be granted to the areas to harvest stands that are SSI >50 with climate factor for MPB purposes if necessary. While the intactness approach has not been formally approved under the Caribou recovery planning process, both SRD and Foothills have agreed to work with this approach for the FMP.

Figure 10: High value intactness areas and period 1 SHS in E8

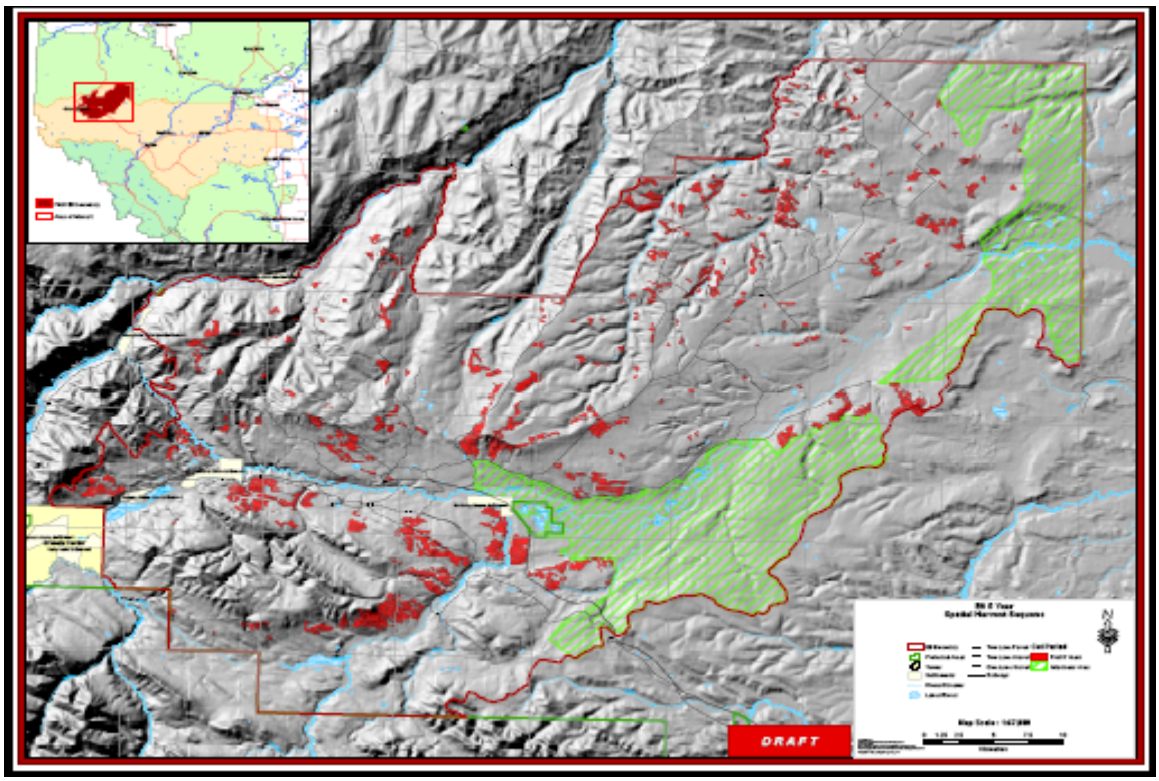
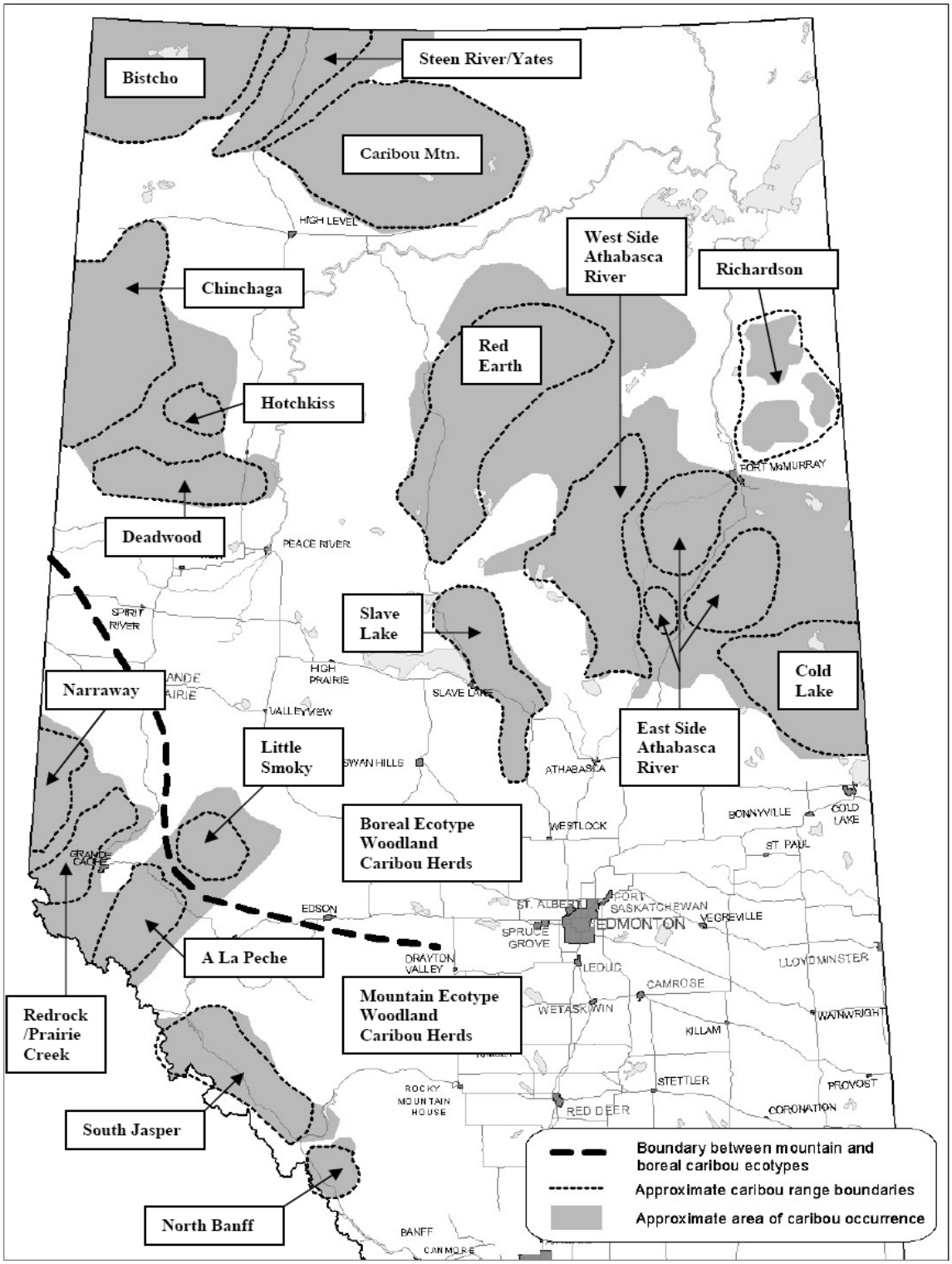


Figure 11: Woodland caribou range boundaries and areas of occurrence in Alberta (map taken from the Alberta Woodland Caribou Recovery Plan 2005)



Forecast: Forest Management activities within the E8 FMU can maintain suitable habitat within the core areas. Caribou use patterns may shift on the landscape as the forest ages and areas are harvested.

Suitable amounts of habitat may increase in the areas that are of less value if areas of mature and old growth forest increase in the FMU.

Monitoring: Variances from the Spatial Harvest Sequence will be reported annually and in the five-year Stewardship Report.

Information from the annual calf recruitment surveys and radio collar data may assist with future habitat management.

Response: Strategies for habitat management may be re-evaluated in the development of the next forest management plan.

Indicator 1.2.1.1 (b)

Value: Caribou Conservation

Objective: Ensure that sufficient habitat exists for the theoretical persistence of the Little Smoky and A La Peche woodland caribou populations

Indicator: Amount of permanent and temporary roads in the Little Smoky and A La Peche Woodland Caribou zones

Target: An integrated approach to the planning of new roads will be taken.

Current Status: Foothills Forest Products is a member of the Foothills Landscape Management Forum (formerly known as the Caribou Landscape Management Association). The group developed a landscape level Industrial Integrated Access Management Plan to co-ordinate planning for key primary road development in the Caribou areas. The Berland Smoky Access Plan identifies the primary access routing within the Berland Smoky Area.

Expectations and procedures for all access are outlined in Alberta's 2008-05 Information Letter. The objective is to have all industrial operators utilize the same road corridors for primary access to avoid duplication of road development.

Forecast: FFP will continue to work on managing necessary access using an integrated land management approach. Minimizing the footprint of multiple industry uses through a coordinated long-term access approach will reduce permanent road construction, maintenance, and reclamation costs thus helping in the reduction of road densities.

Monitoring: Foothills Forest Products will continue to integrate access requirements with other operators. The Berland Smoky Access Plan will be adhered to.

Response: Strategies for habitat management may be re-evaluated in the development of the next forest management plan.

Indicator 1.2.1.1 (c)

Value: Grizzly Bear Conservation

Objective: Ensure that sufficient habitat exists to allow for a self sustaining grizzly bear population in E8 and adjacent landscapes

Indicator: Maintenance of landscape conditions that allow sufficient habitat area for grizzly bears

Target: Integrate and promptly reclaim new and old access and ensure harvest areas provide acceptable habitat opportunities

Current Status: The Endangered Species Conservation Committee recommended that the Government of Alberta designate grizzly bears as threatened in 2002. Since this recommendation, the Alberta Grizzly Bear Recovery Plan 2008-2013 was developed and is now in the implementation stage. As a result of the research completed by the Foothills Research Institute (FRI) and the University of Alberta (U of A), many planning tools are now available for use to assist in the management of habitat for grizzly bears. These tools were used for the E8 plan and an analysis was completed for the E8 area to determine how future forest management activities would impact the integrity of grizzly bear habitat in E8. This document is titled Analysis of Forest Management Activities on Grizzly Bear Habitat in FMU E8 and is located in Section 13 of the FMP.

The recovery plan speaks to the creation of "Grizzly Bear Priority Areas" in high quality habitat, where there is a low risk of mortality. Grizzly bear "Core" and "Secondary" Areas SRDs review of high quality habitat areas identified in the recovery plan. The majority of the area in E8 falls within the core area as illustrate in Figure 12.

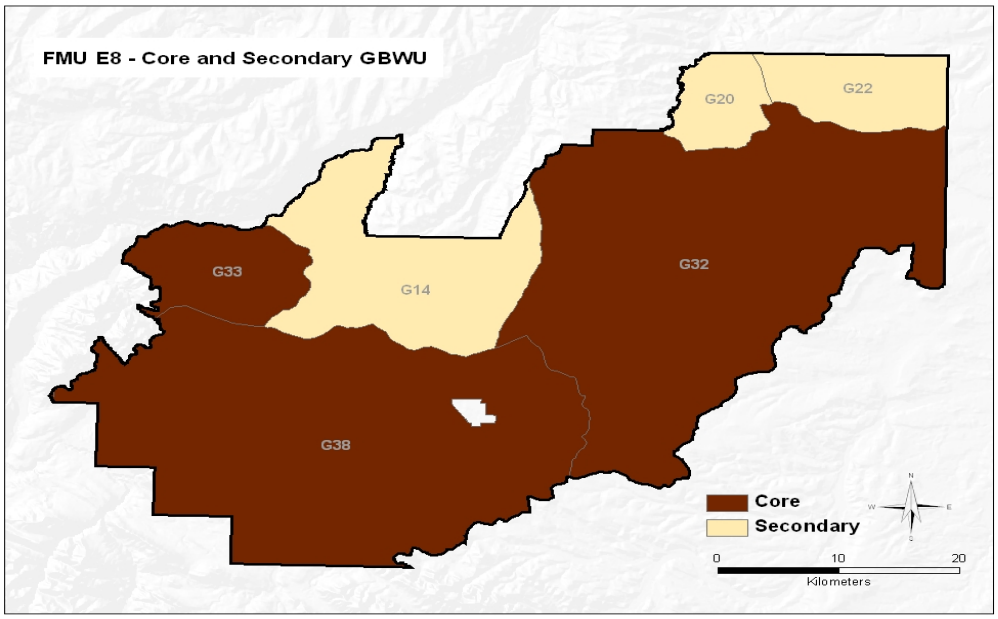
One of the management objectives of this FMP is to reduce impacts on grizzly bear habitat in E8. Efforts will be taken to create as much as edge as possible in harvest areas, minimize line of sight by leaving buffers, evaluate timing of operations in areas where bears are known to exist, control access by removing crossings as per the Operating ground rules, reclaim permanent roads as they are unneeded, and reclaim temporary access as per the operating ground rules. These efforts may reduce the % change in values as shown in the table below.

Table 5: FMU E8 - Mortality Risk, RSF, Open Road Density and Safe Harbour Summary (taken from Section 13 of the FMP)

GBWU	Habitat	Area (km^2)	Index	Current	Future	Difference +/-	% Change
G32	Core	831.6	Mean Mortality Risk	4.67	5.16	0.49	10.5%
			Mean RSF (max)	8.07	8.26	0.19	2.3%
			Mean Safe Harbour	40.71	38.05	-2.65	-6.5%
			Open Road Density (km/km^2)	0.51	0.74	0.23	44.0%
G33	Core	121.3	Mean Mortality Risk	6.68	6.91	0.24	3.6%
			Mean RSF (max)	8.54	8.62	0.08	1.0%
			Mean Safe Harbour	27.93	26.37	-1.56	-5.6%
			Open Road Density (km/km^2)	0.53	0.75	0.22	40.6%
G38	Core	792.0	Mean Mortality Risk	3.94	4.35	0.41	10.4%
			Mean RSF (max)	8.18	8.51	0.33	4.1%
			Mean Safe Harbour	48.44	47.46	-0.98	-2.0%
			Open Road Density (km/km^2)	0.48	0.68	0.21	43.0%
G14	Secondary	271.6	Mean Mortality Risk	7.23	7.46	0.23	3.2%
			Mean RSF (max)	9.06	9.03	-0.04	-0.4%
			Mean Safe Harbour	24.72	22.69	-2.04	-8.2%
			Open Road Density (km/km^2)	1.59	1.70	0.12	7.4%
G20	Secondary	66.6	Mean Mortality Risk	6.01	6.24	0.23	3.7%
			Mean RSF (max)	8.54	8.49	-0.05	-0.6%
			Mean Safe Harbour	33.41	31.48	-1.94	-5.8%
			Open Road Density (km/km^2)	0.97	1.21	0.25	25.5%
G22	Secondary	107.1	Mean Mortality Risk	5.29	5.61	0.32	6.0%
			Mean RSF (max)	8.07	8.16	0.09	1.1%
			Mean Safe Harbour	35.14	33.33	-1.81	-5.2%
			Open Road Density (km/km^2)	0.80	0.97	0.17	21.2%
FMU	**Habitat**	**Area (km^2)**	**Index**	**Current Mean**	**Future Mean**	**Difference +/-**	**% Change**
E8	Core	1745.0	Mean Mortality Risk	4.48	4.91	0.44	9.7%
			Mean RSF (max)	8.15	8.40	0.25	3.0%
			Mean Safe Harbour	43.33	41.51	-1.82	-4.2%
			Open Road Density (km/km^2)	0.50	0.71	0.22	43.3%
	Secondary	445.3	Mean Mortality Risk	6.58	6.83	0.25	3.8%
			Mean RSF (max)	8.75	8.74	-0.01	-0.1%
			Mean Safe Harbour	28.53	26.56	-1.97	-6.9%
			Open Road Density (km/km^2)	1.30	1.45	0.15	11.5%

Highlighted cells flag results that should be cause for review/mitigation by forest managers.

Figure 12: Core and Secondary Areas (taken from Section 13 of the FMP)



Forecast: Current and forecasted landscape and habitat conditions are located in the Analysis of Forest Management Activities on Grizzly Bear Habitat in FMU E8 (Section 13). The proposed SHS and proposed road network developed by the Foothills Landscape Management Forum was used to generate future habitat conditions for grizzly bears in E8. The road network is currently being updated and this information will be incorporated into a future analysis and subsequent FMP. Rolling Long Term Access Plans will be submitted annually to SRD. All temporary access will be reclaimed as per the Operating ground rules. All new access will be integrated where feasible.

The increased harvest rate will result in a larger number of stands in a younger seral stage. This should result in an increase of forage available to bears.

Monitoring: Ongoing research and population monitoring completed by SRD, FRI and the University of Alberta will aid in the management of grizzly bear habitat. The grizzly bear planning tools will be used to re-assess habitat and the results will be reported in the Five-Year Stewardship Report.

Response: Strategies for habitat management may be re-evaluated in the development of the next forest management plan or as new information is made available.

Element 1.3: Conserve genetic diversity by maintaining the variation of genes within species.

Indicator 1.3.1.1

Value: Genetic integrity of natural tree populations

Objective: Retain "wild forest populations" for each tree species in each seed zone through the establishment and implementation of a seed collection program.

Indicator: Amount of seed collected and success of regeneration of these seeds.

Target: Complete a cone collection program to have a store of five years of seed for all species stored at the Smoky Lake Nursery. The program will follow Standards for Tree Improvement in Alberta

Current Status: No in situ genetic conservation areas have been established in the E8 area. A controlled parentage program has not been developed by SRD or Foothills Forest Products for the E8 FMU.

To ensure that genetic integrity persists, Foothills Forest Products will implement a seed collection program within the E8 FMU. Cone collections for lodgepole pine, white spruce and black spruce are organized in the areas with superior genetic traits around abundant seed years or when seed inventories become deficient.

Currently FRIAA provides funding to increase the lodgepole pine seed inventory. This is in anticipation of the imminent Mountain Pine Beetle infestation and is conducted in accordance with the Provincial Mountain Pine Beetle Mitigation strategy. FFP plans to utilize this funding to increase seed inventories, and will purchase seed from adjacent forest operators when available if it is found to be more cost effective than conducting an in-house collection program.

Forecast: Foothills Forest Products may establish in situ genetic conservation areas in the future. At the time this plan was developed, sufficient areas of genetic diversity exist within the E8 FMU.

Monitoring: Cone collections will follow requirements in the operating ground rules and Standards for Tree Improvement in Alberta.

Response: This seed collection program will follow the procedures within the Standards for Tree Improvement in Alberta.

Element 1.4: Protected Areas - Respect protected areas identified through government processes

Indicator 1.4.1.1

Value: Areas with minimal human disturbances within managed landscapes

Objective: Integrate transboundary values and objectives into forest management

Indicator: Stakeholder consultation

Target: Ongoing consultation with relevant protected areas agencies

Current Status: A communications plan was developed and implemented for the E8 FMP as per the requirement in the Forest Management Planning Standard. Consultation for will be ongoing with affected stakeholders as new plans are developed and annual operations occur. This plan is located in Section 7 of the FMP.

Forecast: Consultation efforts will be made with stakeholders on an annual basis and as necessary. This will aid SRD and Foothills Forest Products in identifying, protecting or managing areas or points of significance in the E8 FMU.

Monitoring: All consultation efforts for forest management purposes will be documented by SRD and Foothills Forest Products. FFP will maintain a documentation system and consultation efforts will be reported in the Five-Year Stewardship Report.

Response: If it appears that consultation and communication efforts are insufficient or ineffective, strategies will be readjusted to ensure that effective consultation occurs.

Element 2.1: Ecosystem resilience

Indicator 2.1.1.1 (a)

Value: Reforested harvest areas

Objective: Meet reforestation targets on all harvested areas

Indicator: Annual % of SR regeneration surveys

Target: 100% of harvested areas will receive a silviculture treatment.

Current Status: Foothills Forest Products has developed a silviculture plan and matrix to ensure that all areas harvested will meet the Provincial reforestation requirements. This plan and matrix can be found in the Section 6 of the FMP. The goal of this program is to ensure that prompt, effective reforestation is occurs which will result in 100% reforestation success.

Forecast: All harvest areas will receive a silviculture treatment within the allowed time period. The final TSA assumes that all stands harvested or that die will regenerate back to the same yield strata at an age of 0.

Monitoring: Foothills Forest Products reports reforestation activities three times a year; a silviculture submission with the Annual Operating Plan (AOP) detailing the upcoming timber years planned activities and two Alberta Reforestation Information System (ARIS) submissions. The first ARIS submission (prior to May 15th) reports the company's activities including all silviculture activities that were completed from October of the previous year up to May 15th of the current year. The second submission is submitted in October. This submission reports all company activities including silviculture activities occurring between May 15th and October.

The Silviculture AOPs contain a series of tables and matrixes of the year's planned activities. The ARIS submission is completed digitally using Data Information of Reforestation Technologies (DIRT) software. DIRT is setup to precisely fit the requirements of SRD.

Response: The regeneration strategy outlined in Section 6 of the FMP will be compared to planned and actual silviculture activities to ensure that targets are being met on an annual basis. If acceptable variance targets are not met then regeneration strategies will be re-evaluated and revised. The Company and SRD will work progressively to review information, identify issues and to provide for continual improvement.

FFP will submit a series of tracking summaries for all silviculture activities (i.e. regeneration surveys, planting, site preparation, and other reforestation stage treatments) in the Five-Year Stewardship Plan.

Indicator 2.1.1.1 (b)

Value: Reforested harvest areas

Objective: Meet reforestation targets on all harvested areas

Indicator: Cumulative % of reforested areas that meet reforestation target

Target: 100% of blocks will pass establishment and performance surveys.

Current Status: Foothills Forest Products is committed to an effective silviculture strategy in order to achieve sustainable forest management objectives in E8. Foothills Forest Products has developed a silviculture plan and matrix to ensure that all areas harvested will meet the Provincial reforestation requirements. This plan and matrix can be found in the Section 6 of the FMP.

To ensure that all blocks pass the establishment and performance surveys, all surveys will be carried out as required by the Timber Management Regulation.

Forecast: All harvest areas will receive a silviculture treatment within the allowed time period.

Monitoring: All harvest areas are surveyed at the establishment and performance stage. These surveys are submitted to SRD annually and the data is entered into ARIS. If harvested areas are consistently failing surveys, the silviculture techniques will be revisited to ensure that reforestation targets are met. In addition to the required establishment and performance surveys, Foothills Forest Products conducts in-house walk through assessments in year 4 or 5 after harvest to ensure the natural regeneration or planting has successfully established. If a block has not properly established, further planting will be completed to ensure that the harvest areas meet the height and density requirements before the establishment survey.

Response: Surveys are annually submitted to SRD and data is entered into ARIS. Results from these surveys will be compiled and submitted to SRD as part of the Five-Year Stewardship Report.

Indicator 2.1.2.1

Value: Maintenance of forest land base

Objective: Limit conversion of productive forest landbase to other uses

Indicator: Amount of change in forest landbase

Target: Reforest abandoned landuse dispositions within harvest areas.

Current Status: Current SRD policy does not allocate E8 Timber Damage Assessment (TDA) funds directly to the re-establishment of productive lands. The fees collected flow into general government revenues.

Abandoned landuse dispositions that fall within harvest areas will be reforested where operationally feasible. This will result is a conversion of unproductive forest into forested landbase which will contribute to a future productive forest. These areas will be incorporated into the future net landbase.

Forecast: The amount of conversion may increase since land use activities are on the rise in the E8 FMU. There are currently no Forest Management Agreement (FMA) holders in the E8 FMU resulting in the absence of collection of TDA by these FMA holders. Therefore, funds are unavailable for reclamation programs to convert unproductive land into productive forests.

Foothills Forest Products encourages SRD to re-evaluate current policies regarding TDA funds within E8. Management of other land uses will be focused on utilizing existing non-productive lands or on existing disturbances (i.e. cutlines for access, log deck sites for camps, etc). Additionally, SRD encourages all operators within E8 to integrate their operations to minimize the overall footprint on the landscape.

Monitoring: SRD tracks all new dispositions that are applied for and approved on Crown land in a Provincial database. Reclamation summaries are submitted to SRD by disposition holders as dispositions are reclaimed.

Response: SRD encourages all operators to integrate their operations to minimize impacts on the landscape.

Indicator 2.1.2.2 (a)

Value: Maintenance of forest land base

Objective: Monitor incidences of insect and disease infestations in E8.

Indicator: Occurrence of forest pests on the landscape.

Target: Minimize the incidences of insect and disease infestations in E8.

Current Status: All forests have endemic insects and diseases that limit tree growth, cause abnormal growth, weaken, and even kill trees. These forest disturbance factors can play an important role in forest renewal by removing less vigorous trees and creating openings in the canopy. Thus, while a given forest health agent may cause considerable damage at a local level or over a long time period, concern is generally only raised when populations reach epidemic levels. Some non-native forest health agents occurring in an area outside of their natural distribution can be particularly troublesome as they have few natural controls in the new area. Major insect pests of mature forests in Alberta include defoliators (e.g., spruce budworm, forest tent caterpillar) and bark beetles (e.g. mountain pine beetle); the most important diseases are root and trunk rot.

Table 6: Forest health agents in the E8 FMU

Agent	Target Species	Target Species Age	Damage Caused	Historical Occurrence	Management Implications
Spruce Beetle	All spruce	80+	Mortality of entire tree in one year	Low	Although somewhat similar to mountain pine beetle, this insect prefers stressed/dying trees to healthy trees. Healthy trees can be attacked and killed once populations build.
Spruce Budworm	All fir Tamarack All spruce	All ages	Growth loss, top kill, and mortality caused by defoliation	Low	The species normally found (C. biennis) in the E8 FMU takes two years to develop; therefore, the trees always have one year to recover from defoliation. If the population of budworm increases significantly, some spruce stands may lose volume.

Continued...

Aspen Defoliaters - forest tent caterpillar - Bruce spanworm - Large aspen tortrix	Aspen, Birch, other deciduous trees	All ages	Growth loss, top kill, and mortality caused by defoliation	Moderate to High	These insects are common in the E8 FMU, defoliating deciduous trees to varying degrees in June. The trees normally recover and reflush leaves later in the summer. Some mortality of trees can occur if populations persist in one area over several years.
Root Collar Weevils	All pine All spruce Tamarack All fir	All ages attacked, damage occurs on trees <10 years	Mortality in young trees by girdling, growth loss in older trees	Low to Moderate	These insects can kill several seedlings and young trees. The weevils prefer wet ground and heavy duff and are often associated with Armillaria root disease. There are few management options available.
Armillaria Root Disease	All species but much more prevalent in coniferous forests	All ages but most impact in stands <15 years old	Growth loss and mortality caused by tree girdling and root rot. Infected trees susceptible to wind throw.	Low to Moderate	This fungus can kill over 500 species of tree and woody plants. It is found throughout the E8 FMU. It spreads by root-to-root contact and rhizomorphs. In E8 the main impacts are the reduction in productivity of a site and in the stocking levels in plantations possibly to NSR status. Removing the stumps from a site can be an option but has not been warranted in E8.
Tomentosis root disease	All coniferous forests	Mature trees	Growth loss and mortality caused by root and butt rot. Infected trees susceptible to wind throw.	Low	This fungus is present in E8 but is generally at an endemic level. It causes butt rot that can reduce the value of timber and predispose trees to wind throw.

Forecast: Annual surveys will be completed and outbreaks discovered by operators in the area will be reported to SRD as they are discovered.

Monitoring: Forest health programs are run annually by SRD. These focus on detection, survey and monitoring, risk and impact assessment, and implementation of management programs in forest stands.

Annual aerial surveys are typically conducted to assess location, area disturbed, severity, possible causal agent, and host tree species for insect and disease disturbances. Aspen Defoliation/Spruce Budworm aerial survey takes place June 20 to July 10 after defoliation but prior to re-flush. MPB aerial survey takes place August 15 to September 15. Monitoring sites baited with pheromone are in place for mountain pine beetle, spruce budworm and gypsy moth (invasive).

Response: In the event that any significant disturbances occur on the landbase, these areas will be mapped and management action will be initiated based on the severity of the disturbance. All occurrences discovered by Foothills Forest Products will be reported in the Five-Year Stewardship Report. Results from annual surveys conducted by SRD will be reported in the annual Forest Health Report. These reports can be located at:

http://www.srd.gov.ab.ca/forests/health/publications/reports.aspx.

Indicator 2.1.2.2 (b)

Value: Maintenance of forest land base

Objective: Reduce the impact of Mountain Pine Beetle.

Indicator: Stand Susceptibility Index.

Target: 48% reduction in highly susceptible stands over a 20 year period.

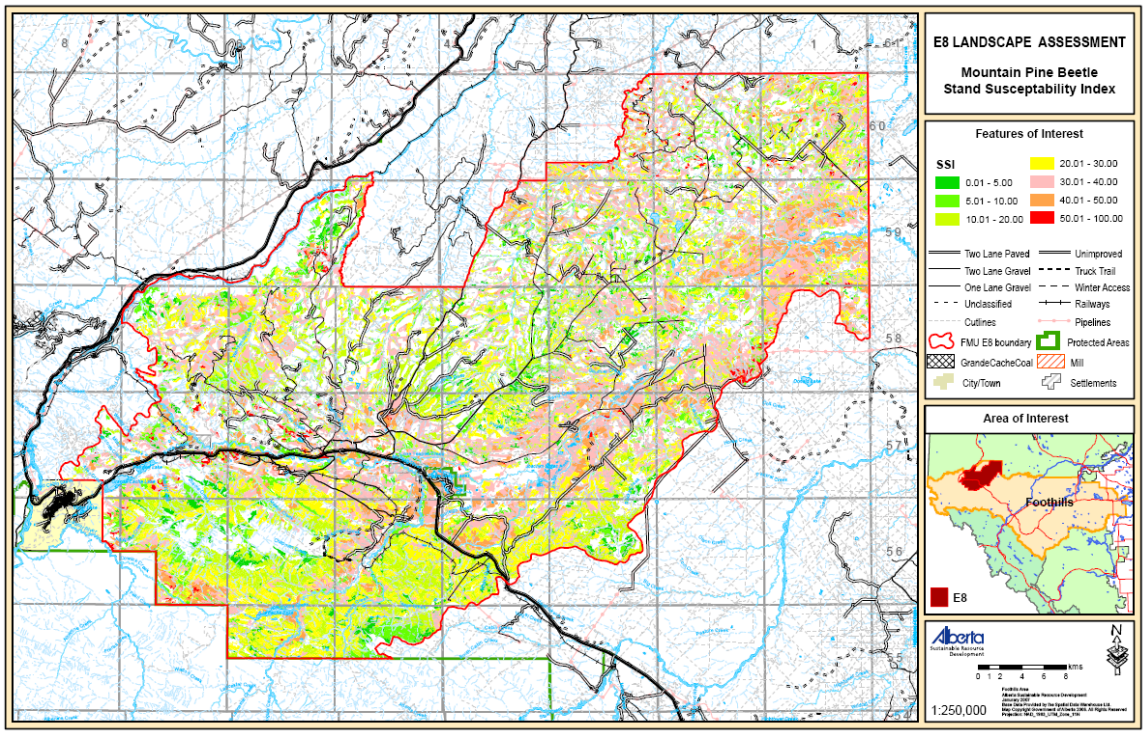
Current Status: The mountain pine beetle is a native insect pest in temperate, lodgepole pine forests of western North America: the eastern edge of the beetle distribution lies along the Rockies near the Alberta-British Columbia border. Accordingly, lodgepole pine forests in Alberta have evolved largely in the absence of mountain pine beetles. However, altered fire regimes which have left more mature and old-growth forests on the landscape, coupled with a changing climate which has increased over-winter survival of larvae, have given rise to mountain pine beetle infestations in areas considered outside their historical distribution. British Columbia is dealing with a major mountain pine beetle outbreak, and the beetle continues to spread eastward into Alberta.

From 2002 through 2007, MPB presence in Willmore Wilderness Park and in E10 FMU has increased steadily largely through continuous immigration. The infestation has also moved steadily eastward with detection in E8 occurring in 2006. While still at very low levels (<400 trees) within E8, the mountain pine beetle could potentially cause high pine mortality and could have a major impact on the forests in E8. The Forestry Division of Alberta Sustainable Resource Development has undertaken an aggressive control program to cut and burn individual infested trees in E8, E10 and the Willmore. Alberta Sustainable Resource Development is actively planning and implementing programs to manage for this pest in E8.

The E8 FMP follows the Mountain Pine Beetle Action Plan for Alberta as closely as operationally possible. The Pine Strategy has been adopted by Alberta Sustainable Resource Development and Foothills Forest Products Ltd. The goal in the preferred management scenario is to reduce the highly susceptible pine by 48% over 20 years. This will reduce the number of rank 1 and rank 2 stands in the FMU. Foothills Forest Products will be focusing their efforts in highly susceptible stands outside of the area which has been identified as important Caribou habitat.

Mountain Pine Beetle Susceptibility maps were created using the Stand Susceptibility Index (SSI) with the climate factor. SSI is based solely on stand characteristics while SSI_CF incorporates climate characteristics (Climate Factor). The climate factor in essence is the probability of a 1 yr lifecycle in a given area. If a stand had an SSI of 30 based on stand characteristics and the CF was 0.8, the SSI_CF would be 24.

Figure 13: Mountain Pine Beetle Stand Susceptibility Index for E8 (without Climate Factor)



Forecast: Mountain Pine Beetles will not usually attack young regenerating stands and will not attack downed wood. Thus, if the preferred management scenario is successfully implemented and carried out, there will be a 48% reduction in the highly susceptible pine stands.

Monitoring: Annual aerial surveys are typically conducted to assess location, area disturbed, severity, possible causal agent, and host tree species for mountain pine beetle infested trees. MPB aerial survey takes place August 15 to September 15. Monitoring sites baited with pheromone are in place for mountain pine beetle, spruce budworm and gypsy moth (invasive). Any significant disturbances are mapped, and if deemed necessary, management actions are initiated.

Variances from the spatial harvest sequence (SHS) will be recorded and tracked annually in the GDP and submitted as part of the Five-Year Stewardship Report. Stands that are harvested outside the SHS which fall under Level 2 harvest will be tracked and reported to SRD annually as part of the Annual Operating Plan and summarized in the Five Year Stewardship Report.

Response: If the SHS is not adhered to within the allowable variances or the mountain pine beetle infestation situation changes, the FMP may be revised or reopened to ensure that the highly susceptible or infested stands can be managed.

Indicator 2.1.3.1

Value: Control invasive species

Objective: Control non-native plant species (weeds)

Indicator: Noxious weed program

Target: Noxious weed program in place and implemented

Current Status: Non-native, invasive plants species, often referred to as weeds, are species that have been introduced into an area beyond their natural range of occurrence. They have few natural enemies, and where uncontrolled, can spread and create severe damage by altering the forest habitat while displacing native species. Several non-native invasive plants have been identified within or immediately adjacent to E8 including oxeye daisy, scentless chamomile, tall buttercup, common tansy, Canada thistle and perennial sow thistle. Weed sites are typically treated by either hand-picking or herbicide application.

Forecast: Weed infestations will be addressed as outlined in Alberta's Directive 2001-06 for weed management in forestry operations. Weed populations should decrease with annual inspections and removal.

Monitoring: Annual inspections will occur along all of the roadways within the E8 FMU between July and September to monitor and eliminate the spread of noxious weeds. Areas with noxious weeds will be evaluated and a control method will be formulated and implemented based on which of the removal methods would be best suited for the situation as per Alberta's Directive 2001-06.

Weed infestations found within harvest areas will be addressed as directed in Alberta's Directive 2001-06.

Response: Noxious weed occurrences and removal strategies will be included in annual operating plans for all harvest areas. Incidences will be reported in the Five-Year Stewardship Report.

Element 3.1: Soil quantity and quality

Indicator 3.1.1.1

Value: Soil productivity

Objective: Minimize impact of roading and bared areas in forest operations

Indicator: Compliance with Foothills Forest Products Inc. Timber Harvest Planning and Operating Ground Rules.

Target: Disturbance caused by roads must account for less than 5% of block area.

Current Status: As per Alberta's 2008 In-Block Road Interpretive Bulletin, Foothills Forest Products (FFP) will ensure prompt reforestation of all in-block roads (see Silviculture Matrix). By using a silviculture strategy to reforest in-block roads, FFP will opt out of the original automatic 5% reduction in AAC that was previously mandatory as per the planning standard. FFP will however continue to monitor the reforestation success of these areas using an in-house monitoring program.

Forecast: Greater than 90% regeneration success is expected on all roads within harvest areas. Road disturbance will account for less than 5% of the total harvest area as per the OGR's.

Monitoring: Foothills Forest Products has developed a program to ensure that roads are regenerating successfully. All operations will be conducted as the approved Annual Operating Plan OGRs.

Response: If regeneration strategies are not successful, a reduction of 5% will be applied to the AAC. The actual disturbance and regeneration success rate by compartment will be reported in the General Development Plan each year.

Indicator 3.1.1.2

Value: Soil productivity

Objective: Minimize incidence of soil erosion and slumping

Indicator: Incidence of soil erosion and slumping

Target: Compliance with Foothills Forest Products Inc. Timber Harvest Planning and Operating ground rules.

Current Status: Foothills Forest Products has developed a monitoring and remediation program to minimize the incidence of soil erosion and slumping. Erosion control applies to all road construction, maintenance and reclamation activities for both permanent and temporary road systems. The road monitoring program will allow FFP to minimize transportation of soil via surface flows from roads, ditch lines and bared areas into watercourses. Erosion control measures must be implemented in conjunction with disturbance activities and regularly assessed for their functional value.
The most economical erosion control measure is to retain existing vegetation where possible.

Forecast: In-block roads and landings will be reclaimed progressively as per approved OGR's.

Monitoring: Foothills Forest Products will follow the developed monitoring and remediation program to minimize the incidence of soil erosion and slumping. All operations will be conducted as the approved AOP and Operating ground rules.

Response: If an incidence of soil erosion or slumping is discovered, immediate remedial action will be taken by the company.

Element 3.2: Water quantity and quality

Indicator 3.2.1.1

Value: Water quantity

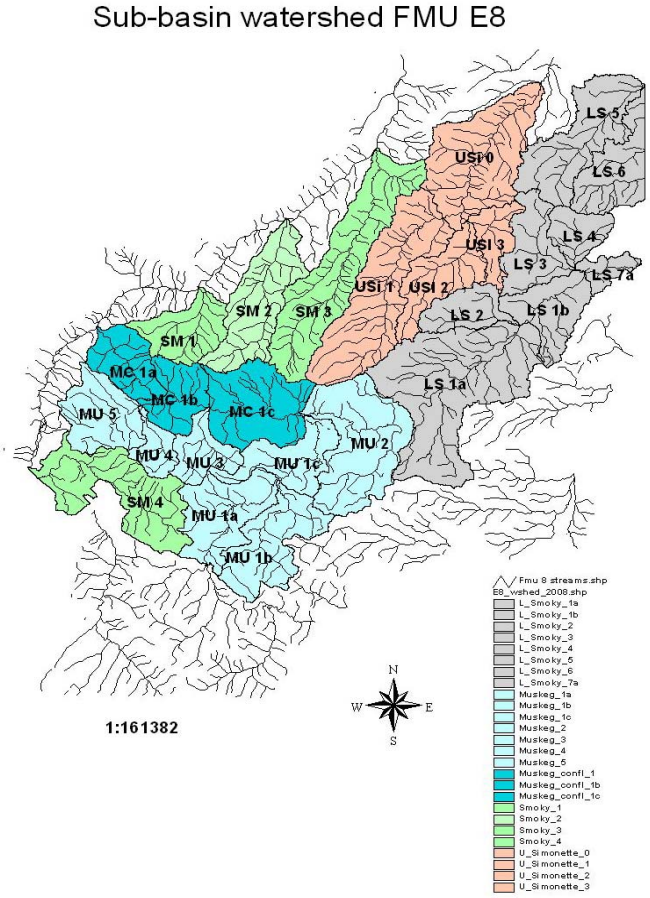
Objective: Limit impact of timber harvesting on water yield

Indicator: Forecast impact of timber harvesting on water yield.

Target: Zero Water Act penalties, complete compliance with FMP

Current Status: The Wrenss model was used to simulate the hydrologic effects of forest harvesting in FMU E8. 35 watersheds were used for the simulation and are shown in Figure 12.

Figure 12: Hydrologic land base for planned spatial harvest in FMU E8 showing sub-basins within major drainages (From Section 14 of the FMP).



The assessment was completed for a 200 year period and also included the historical harvest areas (1985-2007). The 70 year SHS was also utilised to ensure that all effects of harvesting would be included in this assessment. This assessment can be found in Section 14 of the FMP.

According to the assessment, the maximum percent watershed ECA, ranged from 6.5% to 30% with an overall average of 16% for all watersheds. Hydrologic recovery for watersheds in the FMU varied from 30-119 years. The level of watershed disturbance in terms of % ECA varied from low to moderate (6.5-30%). In this assessment 8 watersheds had ECA values ranging from 22-30.7%.

Forecast: It was concluded in the assessment that no long lasting changes to streamflow, stream channel morphology, aquatic habitats or water quality are expected to result from the proposed spatial harvest. The water yield and peak flows were considered to fall within the natural range of variability in the region.

Monitoring: The SHS will be followed and harvesting activities will fall within the acceptable variance allowances to ensure the targets developed are met. Variances shall be reported as indicated in Section 4 of the Operating ground rules.

Response: If significant changes to stream flow, stream channel morphology, aquatic habitats, or water quality are noticed, the harvest plan will be reassessed and adjusted to ensure that the impact of timber harvesting on water yield is reduced.

Variance from the SHS will be reported annually to SRD and in the Five-Year Stewardship Report.

Indicator 3.2.2.1

Value: Effective riparian habitats

Objective: Minimize impact of operations in riparian areas

Indicator: Riparian buffers maintained as outlined in the Foothills Forest Products Inc. Timber Harvest Planning and Operating ground rules.

Target: Compliance with Foothills Forest Products Inc. Timber Harvest Planning and Operating ground rules.

Current Status: As stated in the OGR's, "Riparian areas adjacent to watercourses and water source areas perform a number of ecological functions. Riparian areas help to regulate stream flows (storage and release of surface and groundwater), reduce sheet, rill and gully erosion, and moderate stream temperature. Functional riparian areas provide bank stability, debris for creating aquatic habitats and provide a source of food and nutrients for aquatic organisms. Riparian areas also provide habitats supporting a high diversity of wildlife species and other "terrestrial biota, and provide corridors that can link different landscape and habitat features.

Forecast: Complete compliance with OGR's is expected in all riparian and harvest areas.

Monitoring: An inventory of all of the existing temporary watercourse crossings will be completed for the operating area to allow for proper monitoring of crossings along the existing road network by Foothills Forest Products. Annual inspections will be completed for all permanent and temporary watercourse crossings to help ensure that environmental targets are met. More in-depth information and observations will be tracked and document using the Road Inspection Report, Culvert Inspection Report, or the Bridge Inspection Report.

Riparian buffers will follow Table 2 (Standards and Guidelines for Operating Beside Watercourses) in the Foothills Forest Products Inc. Timber Harvest Planning and Operating ground rules. Regular field inspections by SRD will be completed to ensure the OGR's are followed

Response: If field inspections find that harvesting and related operations within riparian areas deviate from approved plans or OGR's, immediate remedial action will be taken. If operations must occur within these areas, application must be made to SRD and each application will be reviewed and approved if acceptable to the Crown.

Element 4.1: Timber and non-timber benefits

Indicator 4.1.1.1 (a)

Value: Sustainable timber supplies

Objective: Establish appropriate Annual Allowable Cuts

Indicator: Process described in Annex 1 is followed and standards are met

Target: Complete compliance

Current Status: A Timber Supply Analysis (TSA) was completed for the E8 Forest Management Unit. The TSA completed for E8 shows allowable cut levels for 2 periods. These cut levels are shown in the table below which is part of Section 8.1 of the TSA.

Table 6: E8 AAC levels (taken from the TSA)

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	

Forecast: Harvest levels will not exceed the Quadrant Allowable Cut.

Monitoring: Actual harvest and projected harvest volumes will be submitted to Alberta Sustainable Resource Development (SRD) before April 1st of each year as part of the General Development Plan. Volumes may be balanced off over 5 year quadrants.

Response: If the AAC is overachieved, the AAC will be adjusted using most current and relevant method and information.

Indicator 4.1.1.1 (b)

Value: Sustainable timber supplies

Objective: Establish appropriate Annual Allowable Cuts

Indicator: Compliance with SRD strategy for recording and charging timber drain from other industry developments from the E8 net landbase.

Target: All salvage wood being generated by other industries is tracked.

Current Status: Volumes determined by multiplying the area of the industrial dispositions by a defined (currently using the Alberta average of 37m3/ha) volume per hectare to reflect the chargeable production. Operating as a quota holder, FFP has expressed concerns regarding the inability to accurately track salvage volumes without the appropriate notification protocols and enforcement put in place at the Land Use level in SRD. Issues will continue if the appropriate changes are not in place.

Forecast: Harvest levels will follow the AAC. Other industry salvage volumes will be monitored to minimize the potential for quadrant over cuts.

Monitoring: All forest management agreement and quota holders are required to submit to the Department by April of each timber year the volume of industrial salvage that is chargeable production against their tenures.

All operators are required to balance their harvest levels with the inclusion of the industrial salvage volumes. Where unforeseen circumstances in the final year of a periodic or quadrant cut causes an operator to exceed their allowable harvest, the Department recognizes that this is outside of the control of the tenure holder and consideration consistent with the principles in directive 98-03 Quota Chargeability will be given to mitigate this situation.

FFP is awaiting the reconfiguration and approval of the proposed Industrial Salvage Chargeability Directive which SRD has been working on over the past several months.

Response: N/A

Element 4.2: Timber and non-timber benefits

Indicator 4.2.1.1

Value: Risk to communities and landscape values from wildfire is low.

Objective: To reduce wildfire threat potential by reducing fire behaviour, fire occurrence, threats to values at risk and enhancing fire suppression capability

Indicator:

1) Percentage reduction in Fire Behaviour Potential area (ha) within the FireSmart Community Zone

2) Percentage reduction in Fire Behaviour Potential area (ha) across the FMU now and over the planning horizon

Target:

1) Reduce the area (ha) in the extreme and high Fire Behaviour Potential rating categories by 20 % within the FireSmart Community Zone

2) Reduce the area (ha) in the extreme and high Fire Behaviour Potential rating categories by 20 % across the FMU

Current Status: Wildfire threat assessments, determine fire behaviour potential, in conjunction with fire occurrence, values at risk, and suppression capabilities. The Alberta Wildfire Threat Ratings Model has analyzed the E8 forest management unit, for summer, spring and fall. The current fire behaviour statuses can be found in the Landscape Wildfire Threat Analysis in Section 3 of the FMP. A variety of harvesting treatments and FireSmart initiatives will be used to reduce the amount of area falling into the High and Extreme fire behaviour categories.

In recent history, disturbance caused by fire has been low. Between 1994 and 2004, 54 fires were recorded and burned a total of 42.1 hectares of forested area. Currently, the northern portion of E8 is fragmented due to oil and gas activity and timber harvesting making it unlikely that a devastating fire will burn this area. The southern portion of the management unit is still relatively untouched since it is considered to be prime Caribou habitat and commitments have been made to restrict harvesting to a degree. Due to the tracks of mature timber, poor access and lack of fragmentation, there is a higher probability of fire occurrence.

Forecast: A Landscape Wildfire Threat Assessment was completed to analyze the current condition of the landscape and suggest areas that could be harvested to reduce the threat of wildfire. This assessment is located in Section 3 of the FMP.

Monitoring: Assessments will be completed to ensure that high and extreme fire behaviour classes are being reduced. Actual burns, harvesting treatments and other treatments, will be considered when completing these assessments.

Response: The harvest sequence or prescribed burns will be changed or modified, depending if the targets are not met.

Indicator 4.2.2.1

Value: Provide opportunities to derive benefits and participate in use and management

Objective: To integrate other uses and timber management activities

Indicator: Extent of various uses

Target: Meaningful consultation with other agencies and plans.

Current Status: There are numerous projects occurring and plans being developed that overlap this area and will guide operations in E8. As well, there are numerous stakeholders which operate and reside within this area. This FMP provides landscape level direction for an area where multiple values must be considered. Some of the plans that were referenced and used in the development of this plan include:

- A Policy for Resource Management of the Eastern Slopes, Revised 1984
- The Caribou Recovery Plan
- Grizzly Bear Recovery Plan
- Integrated Industrial Access Management Plan (2008 SRD Information Letter)
- Highway 40 Demonstration Project
- Mountain Pine Beetle Action Plan
- West Central Caribou Landscape Plan and subsequent implementation plan (Currently under development and review)
- Grande Cache FireSmart Plan

Forecast: Consultation efforts will be made on an annual basis and as necessary.

Monitoring: E8 stakeholders and land managers will be consulted as plans change or new plans are implemented. FFP and SRD will maintain a documentation system and consultation efforts will be reported in the Five-Year Stewardship Report.

Response:

Indicator 4.2.3.1

Value: Forest Productivity

Objective: Maintain Long Run Sustained Yield Average

Indicator: Regenerated stand yield compared to natural stand yield

Target: No net decrease from the natural stand productivity

Current Status: Long run sustained yield average (LRSYA) is defined as a measure of forest productivity calculated as the sum of growth per year of regenerated stands at a selected rotation age. It is derived from the concept that in a regulated forest, there will be a static and homogenous age class distribution with a single rotation age, a single yield function and all sites are equally productive. Using this concept, it is assumed that annual harvest volumes will equal the maximum mean annual increment. This is also known as peak MAI.

One of the main goals of this FMP is to reduce the susceptibility of pine forests to future mountain pine beetle infestations by following the "Healthy Pine Strategy". To achieve the goal of reducing the number of highly susceptible stands of pine in E8 over a 20 year period, the LYRSA was overachieved. In most cases, a constraint is applied in the TSA to ensure that an even flow harvest level is achieved over the planning horizon. To achieve the goal of reducing mountain pine beetle risk infestation, this even flow harvest level constraint was not applied. Over the 200 year planning horizon, the LRSYA will recover as shown in the TSA. Table 4-1 of the TSA displays the peak MAI ages and the associated LRSYAs and the minimum and maximum harvest ages within 10 % of peak MAI.

Table 7: LRSYA vs. AAC for years 1-20 and 21-70

	LRSYA (m^3)	Year 1-20 AAC (m^3)	Year 21-70 AAC (m^3)
Conifer Landbase	308 344	450 951	193 871
Deciduous Landbase	10 611	7 948	7 948

Assumptions haven not been made in the TSA regarding any changes or improvement to forest productivity. No analysis was completed or programs implemented addressing stand transitions or improving forest productivity. Therefore the theoretical value of the long run sustained yield average will not change.

Forecast: The AAC will decrease after the first 20 year period. This is a result of an overachievement of the LRSYA for this harvest period.

Table 8: E8 AAC levels (taken from the TSA)

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	

Monitoring: Actual harvest levels for the quadrant each year will be reported to SRD in the GDP each year. All volume harvested and weighed will be tracked through the Timber Production Reporting System (TPRS).

Response: Actual harvest levels for the quadrant will be summarized in the Five-Year Stewardship Report. If an overachievement of the AAC occurs, it will be adjusted using most current and relevant method and information.

Element 5.1: Aboriginal and treaty rights and aboriginal forest values

Indicator 5.1.1.1

Value: Compliance with government regulations and policies

Objective: Maintain meaningful communication through consultation with the local First Nations

Indicator: Meet Alberta's current expectations for aboriginal consultation

Target: Consult at the community level with designated representatives of affected aboriginal communities

Current Status: The Alberta Government has a duty to consult with First Nations in areas where natural resource management activities have the potential to impact the traditional uses of Crown lands. Consultation for all forest management in Alberta must follow the requirements set out in the Government of Alberta's First Nations Consultation Policy on Land Management and Resource Development (Government of Alberta 2006a). The Historical Resources Act protects all archaeological, paleontological and historical resources in Alberta.

Throughout the development of the E8 Forest Management Plan, meaningful consultation opportunities with the Aseniwuche Winewak Nation (AWN) and Cooperatives were provided. The Communications Strategy identifies the AWN and each of the Cooperatives as primary stakeholders. These are the only co-ops set up in the Province to deal with Native Land Issues. These Cooperatives are Grande Cache Lake (Kamisak), Susa Creek, Joachim Enterprise, Victor Lake, Muskeg-Seepee, Wanyandie Flats East, and Wanyandie Flats West.

Consulting with the local First Nations is incredibly valuable at the operational level as they are able to identify areas that have significant or important environmental, cultural and historic values.

Forecast: Consultation efforts will be made with the AWN and the Cooperatives on a regular basis. This will help SRD and Foothills Forest Products identify and protect areas of cultural or historic significance.

Monitoring: All consultation efforts for forest management purposes will be documented. This documentation can be found in the Foothills Area Consultation and Aboriginal Relations database. Foothills Forest Products will maintain a documentation system and consultation efforts will be reported in the five year Stewardship Report.

Response: If sufficient consultation is not completed by Foothills Forest Products, SRD will review their consultation program and work with them to ensure the program is effective. Additionally, SRD will regularly discuss the effectiveness and adequacy of the consultation program with the AWN and the Cooperatives to ensure this value is met.

Element 5.2: Public participation and information for decision-making

Indicator 5.2.1.1

Value: Meaningful public involvement is achieved

Objective: Implement public involvement program

Indicator: Meet expectations of Section 5 of CSA Z809-02

Target: To provide meaningful public consultation opportunities in a way that allows the stakeholders to be involved proactively in sustainable forest management practices for the purpose of meeting expectations as per Section 5.0 of "Z809-02 Sustainable Forest Management: Requirements and Guidance" the Alberta Forest Management Planning Standard, and The Government of Alberta's First Nations Consultation Policy on Land Management and Resource Development.

Current Status: A Communication Strategy was developed to provide meaningful public consultation opportunities. This was done in a way that allows the stakeholders to be involved proactively in sustainable forest management practices for the purpose of meeting expectations set out in relevant documents. These documents include:

- Section 5.0 of "*Z809-02 Sustainable Forest Management: Requirements and Guidance";*
- the *Alberta Forest Management Planning Standard;* and
- *The Government of Alberta's First Nations Consultation Policy on Land Management and Resource Development.*

Forecast: Consultation efforts will be made with the public on an annual basis and as necessary. This will help SRD and Foothills Forest Products identify and protect areas of cultural or historic significance.

Monitoring: All consultation efforts for forest management purposes will be documented. Foothills Forest Products will maintain a documentation system and consultation efforts will be reported in the Five-Year Stewardship Report.

Response: If sufficient consultation is not completed by Foothills Forest Products, SRD will review their consultation program and work with them to ensure the program is effective.