

Sustainable Forest Management

2015 Facts & Statistics

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Agriculture and Forestry

Annual Allowable Cut

Sustainable forest management requires long-term planning. The forest industry and the Alberta government look at the possible impacts of today's harvesting practices on the forest 200 years in the future.

The Annual Allowable Cut (AAC) is the annual amount of timber that can be harvested on a sustainable basis within a defined forest area. The AAC is measured in cubic metres and is based on what the forest will grow. Forest managers use a variety of sample plots and statistical methods to predict the future growth. AACs are approved separately for coniferous (e.g. lodgepole pine or white spruce) and deciduous (e.g. trembling aspen) species groups (Figure 1).

In Alberta, AACs are set for Forest Management Units in the Green Area. A Forest Management Unit (FMU) is an area of forested public land designated by the department, under the authority of the *Forests Act*, as an administrative unit to manage timber.

The Alberta government has developed standards for determining the AAC. The approved AAC reflects

the area available for harvest and the forest management strategies applied to that area. Forest management strategies also take into account other forest uses outside of timber harvesting.

The approved AAC does vary over time. This can be a result of updates or changes to:

- forest inventory, and growth and yield information;
- the area available for timber harvest (i.e., changes and additions to provincial parks and other reserved areas);
- Forest Management Agreement (FMA) and FMU boundaries;
- calculation procedures and models;
- catastrophic events, such as wildfire, insects and diseases;
- management strategies.

Individual yearly harvest levels may be greater than the AAC. However, the total harvest level over a five-year period will not exceed the total allowable cut for the five-year period.

Figure 1. Examples of types of forests in Alberta



Statistics

As of April 30, 2015, the Green Area of Alberta had a total AAC of 32.4 million cubic metres. A total of 19.6 million cubic metres of this AAC was coniferous and 12.8 million cubic metres was deciduous. Figure 2 and Table 1 show the percentage of AAC by tree species group.

Table 1 and Figure 3 show that the Upper Peace, Upper Athabasca, and Lower Peace regions contributed the majority (80.76%) of the total AAC in 2014/15.

The Lower Athabasca, North Saskatchewan and South Saskatchewan regions contributed a combined total of 19.19 per cent of the AAC.

The Red Deer Region contributed only a fraction of a percentage (0.05%), as it is mainly comprised of non-forested private land.

Figure 2. Annual Allowable Cut (%) in Alberta's Green Area by tree species group, 2014/15

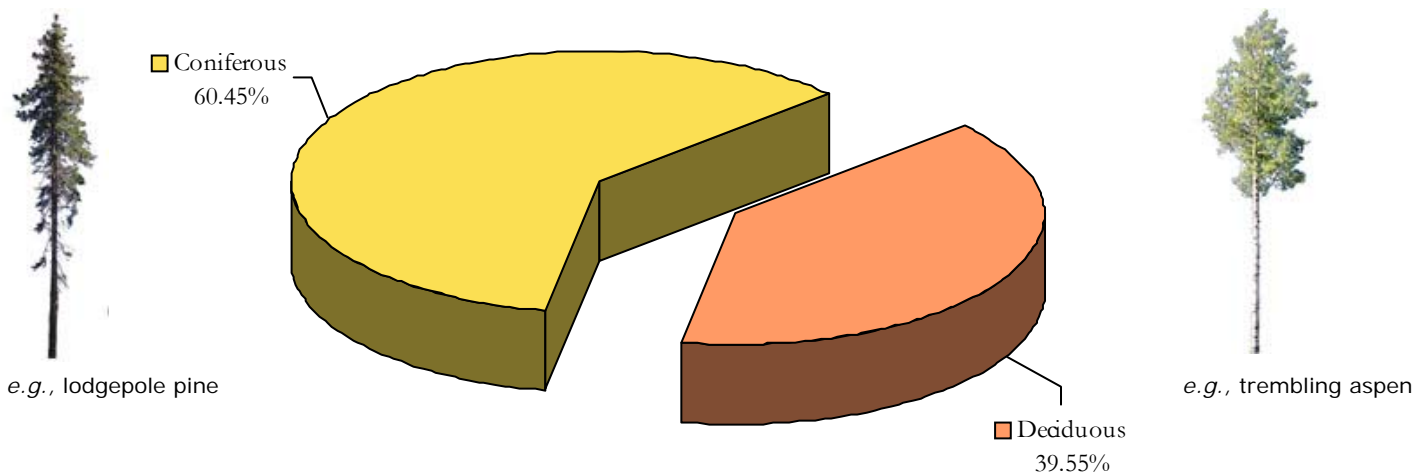


Table 1. Annual Allowable Cut in Alberta's Green Area by Land-use Framework Planning Region, 2014/15

Land-use Framework Planning Region	Coniferous Annual Allowable Cut (m ³ /yr) ¹	Deciduous Annual Allowable Cut (m ³ /yr) ²	Total Annual Allowable Cut (m ³ /yr)
Lower Athabasca	1,210,188	1,661,363	2,871,551
Lower Peace	4,222,735	4,862,960	9,085,695
North Saskatchewan	2,291,342	479,754	2,771,096
Red Deer	14,181	1,656	15,837
South Saskatchewan	518,590	52,494	571,084
Upper Athabasca	5,509,187	2,536,928	8,046,115
Upper Peace	5,809,501	3,211,843	9,020,344
Provincial Total	19,574,724	12,806,998	32,381,722

¹Depending on the area, this may include Douglas fir, subalpine fir, balsam fir, alpine larch, tamarack larch, western larch, Jack pine, lodgepole pine, black spruce, Englemann spruce and/or white spruce. Limber pine and whitebark pine are Endangered Species under the *Alberta Wildlife Act* and do not contribute to Annual Allowable Cuts in Alberta.

²Depending on the area, this may include balsam (black) poplar, trembling aspen and/or white birch.

Statistics cont'd

Figure 3. Total Annual Allowable Cut (%) in Alberta's Green Area by Land-use Framework Planning Region, 2014/15

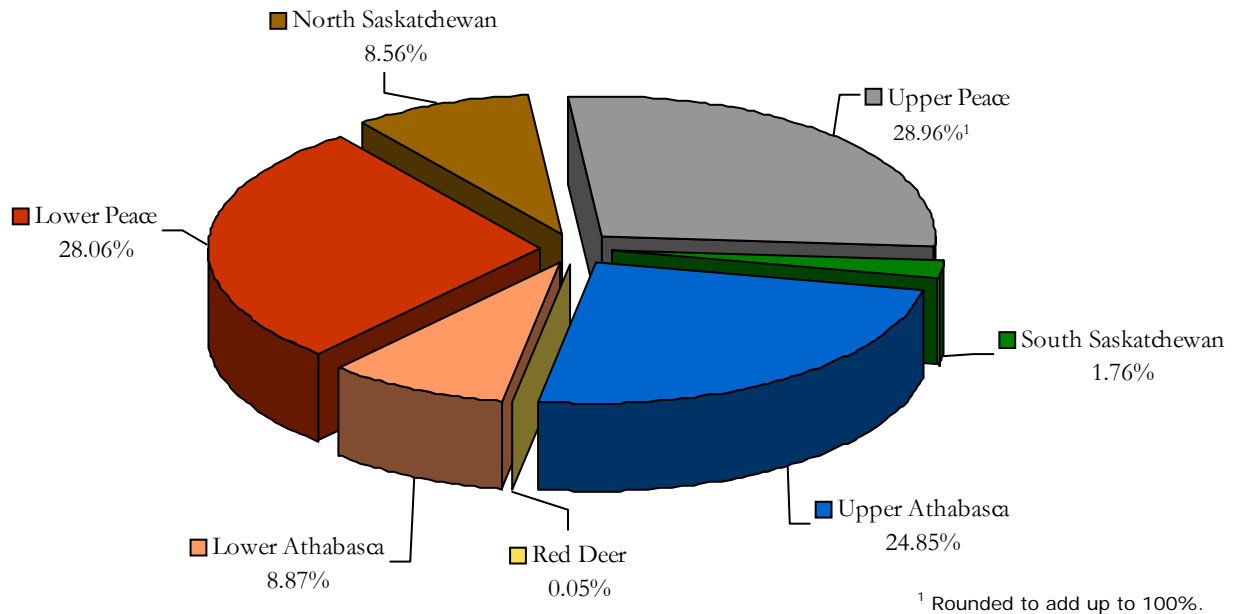


Table 1, and Figures 4 and 5 show the AAC in 2014/15 separated by coniferous and deciduous species groups.

The Upper Athabasca and Upper Peace regions contributed the majority (57.81 per cent) of the coniferous AAC. The Lower Peace, North Saskatchewan and Lower Athabasca regions contributed a combined total of 39.46 per cent.

In contrast, the South Saskatchewan and Red Deer regions contributed a combined total of only 2.72 per cent of the coniferous AAC.

The Lower Peace, Upper Peace and Upper Athabasca regions contributed the majority (82.86 per cent) of the deciduous AAC, with the Lower Peace contributing a significant portion (37.97 per cent) of the total.

The Lower Athabasca Region had 12.97 per cent of the deciduous AAC. The AAC contributions decreased further south in the province with the North Saskatchewan, Red Deer and South Saskatchewan regions contributing 4.17 per cent of the deciduous AAC.

Table 2 shows the AAC for each Forest Management Unit within the Green Area of the Province in 2014/15.

Statistics cont'd

Figure 4. Coniferous Annual Allowable Cut (%) in Alberta's Green Area by Land-use Framework Planning Region, 2014/15

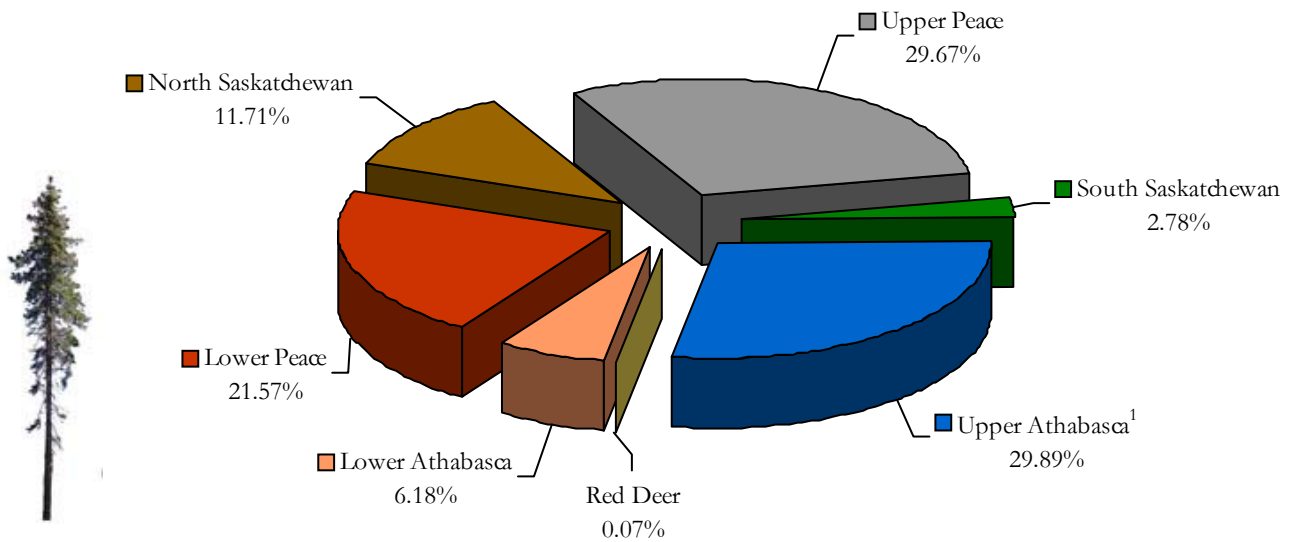
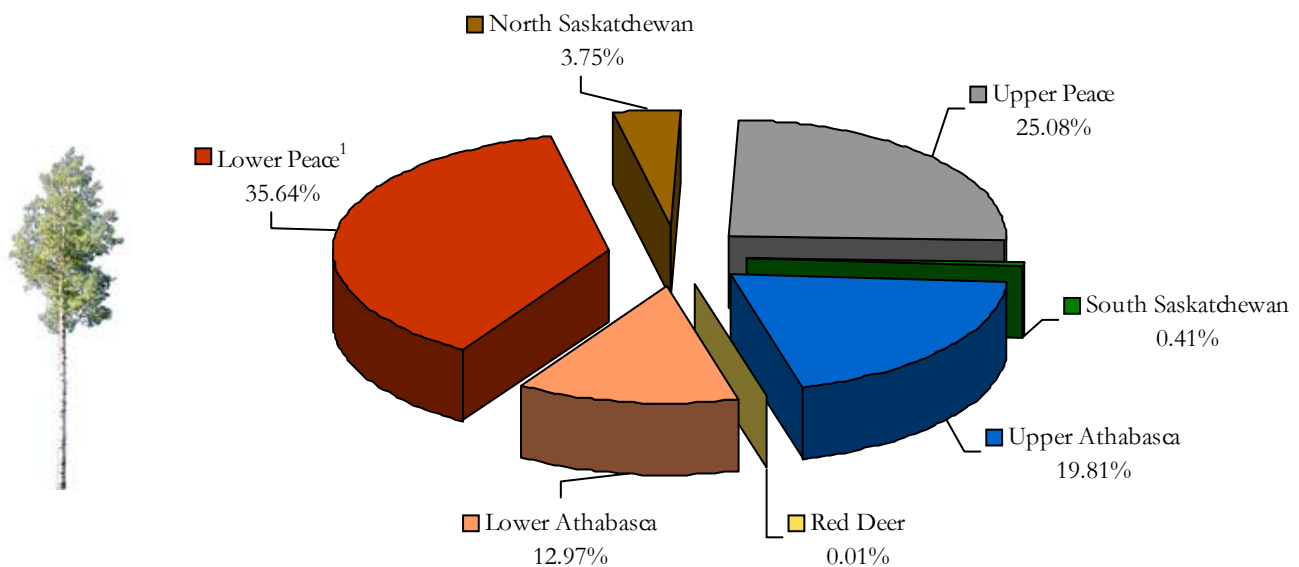


Figure 5. Deciduous Annual Allowable Cut (%) in Alberta's Green Area by Land-use Framework Planning Region, 2014/15



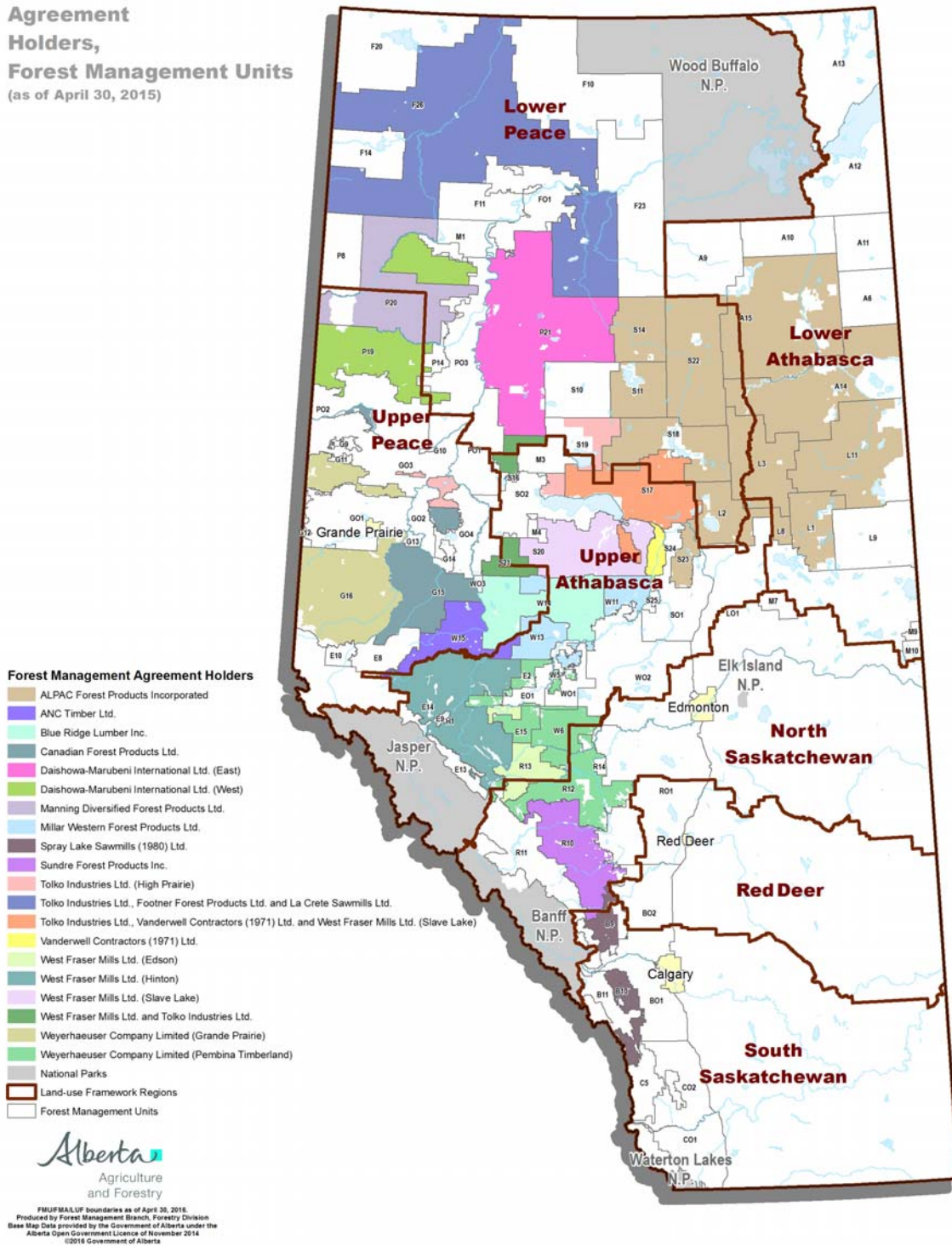
¹ Rounded to add up to 100%.

Table 2. Annual Allowable Cut by Forest Management Unit in Alberta, 2014/15

Forest Management Unit(s)	Coniferous Annual Allowable Cut (m ³ /yr)	Deciduous Annual Allowable Cut (m ³ /yr)	Total Annual Allowable Cut (m ³ /yr)
A09	23,298	18,670	41,968
A10	8,442	0	8,442
A14	213,574	164,587	378,161
A15	526,744	721,346	1,248,090
B09	173,056	53,677	226,733
B10	144,944	0	144,944
C04	1,536	0	1,536
C05	197,226	0	197,226
E02	97,268	90,572	187,840
E08	452,716	13,621	466,337
E09	1,600	2,100	3,700
E14	1,766,576	249,832	2,016,408
E15	142,037	40,178	182,215
F11	43,281	137,660	180,941
F14	78,856	77,771	156,627
F20	0	1,500	1,500
F23	270,798	304,251	575,049
F26	1,450,000	1,000,000	2,450,000
G09	11,600	11,000	22,600
G11	9,000	9,000	18,000
G12	6,569	33,000	39,569
G13	1,795	18,257	20,052
G14	15,897	21,000	36,897
G15	715,000	452,529	1,167,529
G16	2,278,112	1,478,041	3,756,153
L01	85,910	177,113	263,023
L02	114,634	144,528	259,162
L03	171,912	98,099	270,011
L08	39,528	65,751	105,279
L11	184,632	345,274	529,906
P08	0	73,400	73,400
P14	74,191	98,327	172,518
P19	736,300	679,100	1,415,400
P20	591,700	325,500	917,200
P21	664,300	1,004,300	1,668,600
PO1	3,723	5,183	8,906
PO2	20,491	32,954	53,445
PO3	1,712	7,777	9,489
R10	1,410,825	157,505	1,568,330
R12	954,301	278,372	1,232,673
R13	841,666	60,041	901,707
R14	9,122	8,170	17,292
S10	109,752	180,260	290,012
S11	123,926	175,687	299,613
S14	113,124	152,398	265,522
S16	8,018	13,330	21,348
S17	446,334	765,576	1,211,910
S18	215,199	279,997	495,196
S19	63,400	453,371	516,771
S20	802,255	538,896	1,341,151
S21	216,500	281,000	497,500
S22	177,052	375,585	552,637
S23	44,679	102,740	147,419
S24	6,581	3,915	10,496
W05	30,169	46,386	76,555
W06	245,382	151,528	396,910
W11	94,903	106,049	200,952
W13	435,844	209,412	645,256
W14	808,234	389,682	1,197,916
W15	1,098,500	121,200	1,219,700
Provincial Total	19,574,724	12,806,998	32,381,722

Figure 6. Alberta's Forest Management Units and Forest Management Agreement holders as of April 30, 2015

Forest Management Agreement Holders, Forest Management Units
(as of April 30, 2015)



Historical Trends

Table 3 and Figure 6 show the AAC in Alberta's Green Area from the 2005/06 fiscal (April 1 to March 31) year to the 2014/15 fiscal year.

The AAC was increased from 2005/06 to 2011/12. This was a result of new management strategies, especially in regards to mountain pine beetle (MPB). Alberta is experiencing an unprecedented expansion of MPB populations forests along the eastern slopes of the Rocky Mountains and further east in the boreal forest.

Alberta is implementing a strategy to reduce the area of pine trees at greatest risk of insect infestation and catastrophic wildfires.

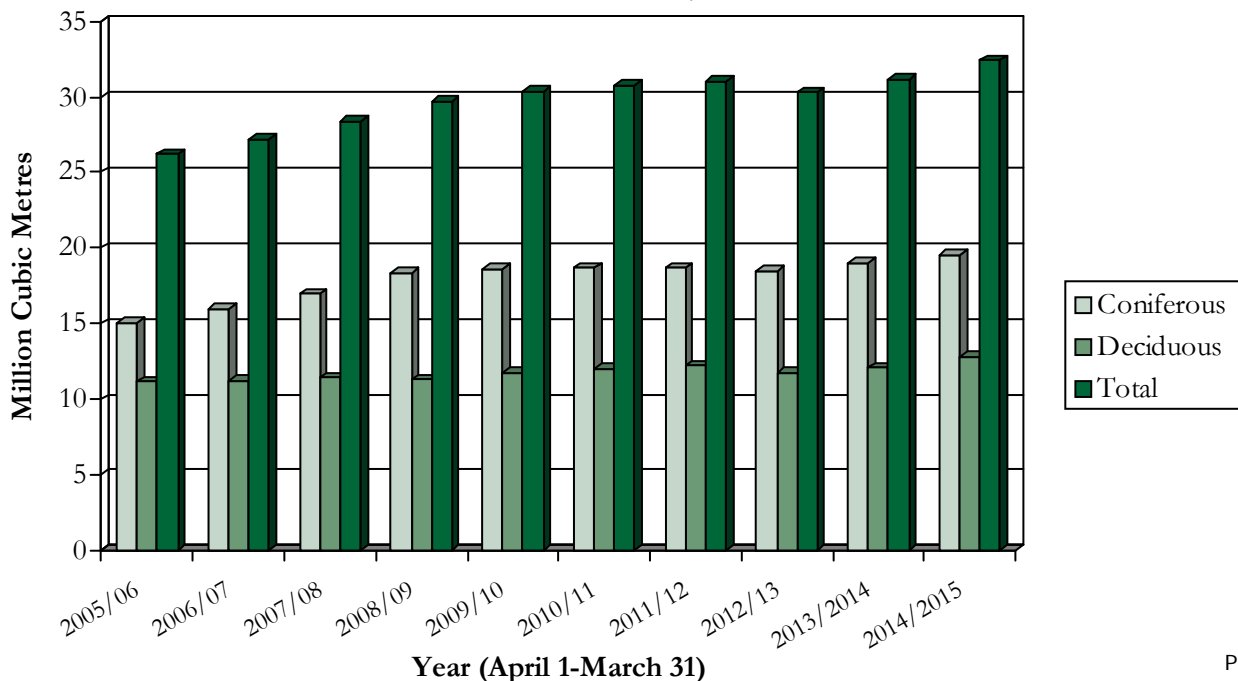
Removing the most susceptible stands will help slow the spread of beetles and reduce the impact on Alberta's forest.

The 2012/13 AAC was decreased to account for estimated reductions due to wildfire impacts and Lower Athabasca Regional Plan land withdrawals.

Table 3. Annual Allowable Cut in Alberta's Green Area, 2005-2015

Year (April 1-March 31)	Coniferous Annual Allowable Cut (m ³ /yr)	Deciduous Annual Allowable Cut (m ³ /yr)	Total Annual Allowable Cut (m ³ /yr)
2005/2006	15,051,721	11,172,066	26,223,787
2006/2007	15,976,797	11,213,099	27,189,896
2007/2008	16,976,217	11,426,427	28,402,644
2008/2009	18,352,167	11,323,780	29,675,947
2009/2010	18,614,646	11,766,048	30,380,694
2010/2011	18,689,685	12,031,775	30,721,460
2011/2012	18,831,536	12,223,868	31,055,404
2012/2013	18,521,015	11,785,819	30,306,834
2013/2014	19,051,547	12,104,704	31,156,251
2014/2015	19,574,724	12,806,998	32,381,722

Figure 7. Annual Allowable Cut in Alberta's Green Area, 2005-2015



Historical Trends cont'd

The approval of several Forest Management Plans resulted in an increase in the 2013/14 and 2014/15 AACs.

All Alberta forest tenures, including FMAs, Timber Quotas and Timber Permits with a term of more than one year are balanced over five-year periods. Fluctuations in total timber volume harvested from year to year reflect trends in the lumber, panelboard, and pulp and paper markets. Figure 7 shows that while the total timber harvest in Alberta gradually increased from 2001 to 2009, it remained below the total AAC.

Comparing the five-year average timber volume harvested with the five-year average amount of timber allowed to be cut provides an indication of the status of Alberta's timber supply. To ensure sustainability, harvest levels should not exceed average allowable cut.

The harvested timber volumes in Table 4, and Figures 7, 8 and 9 only include allocated timber on Alberta public land. Timber volumes from some industrial salvage, private and federal lands, and

other volume from undersized or burned timber are excluded from the reported harvested volume. In Figures 8 and 9, a comparison between the AAC and the actual timber volume harvested as a five-year rolling average for the two tree species groups is shown.

Figure 8 shows that the gap between the five-year rolling average of coniferous AAC and of coniferous timber volume harvested has closed over the 2001-2005, 2002-2006 and 2003-2007 reporting periods. This shows that the coniferous AAC was fully utilized during these periods. The gap between the five-year rolling average of the coniferous AAC and the coniferous timber volume harvested has increased over the next four reporting periods. This is due to the approval of increased coniferous AACs to deal with the MPB threat. The coniferous harvest level did not show a corresponding increase because of recent market conditions.

A large difference remains between the five-year rolling average of deciduous AAC and of deciduous timber volume harvested, as shown in Figure 9.

Table 4. Annual Allowable Cut compared to the timber volume harvested in Alberta's Green Area as a five-year rolling average (million cubic metres), 2001-2014¹

5-yr Range April 1 to March 31	Coniferous			Deciduous			Total		
	AAC	Harvested	% Harvested	AAC	Harvested	% Harvested	AAC	Harvested	% Harvested
2001-2005	13.95	13.58	97.39%	10.25	6.41	62.55%	24.20	20.00	82.63%
2002-2006	14.23	14.01	98.45%	10.40	6.47	62.18%	24.63	20.47	83.13%
2003-2007	14.68	14.49	98.69%	10.62	6.76	63.70%	25.30	21.25	84.01%
2004-2008	15.32	14.61	95.36%	10.89	6.74	61.94%	26.21	21.35	81.48%
2005-2009	16.10	14.44	89.70%	11.08	6.63	59.88%	27.18	21.08	77.56%
2006-2010	16.99	14.27	83.99%	11.38	6.52	57.29%	28.37	20.79	73.28%
2007-2011	17.72	14.14	79.80%	11.55	6.22	53.85%	29.27	20.36	69.56%
2008-2012	18.29	13.89	75.94%	11.75	5.89	50.13%	30.04	19.78	65.85%
2009-2013	18.60	14.26	76.67%	11.83	5.94	50.21%	30.43	20.20	66.38%
2010-2014	18.74	14.53	77.51%	11.95	6.24	52.11%	30.72	20.77	67.61%

¹Excludes some industrial salvage, private and federal lands, and other volume from undersized or burned timber.

Historical Trends cont'd

Figure 8. Total Annual Allowable Cut compared to the total timber volume harvested in Alberta's Green Area as a five-year rolling average, 2000-2014

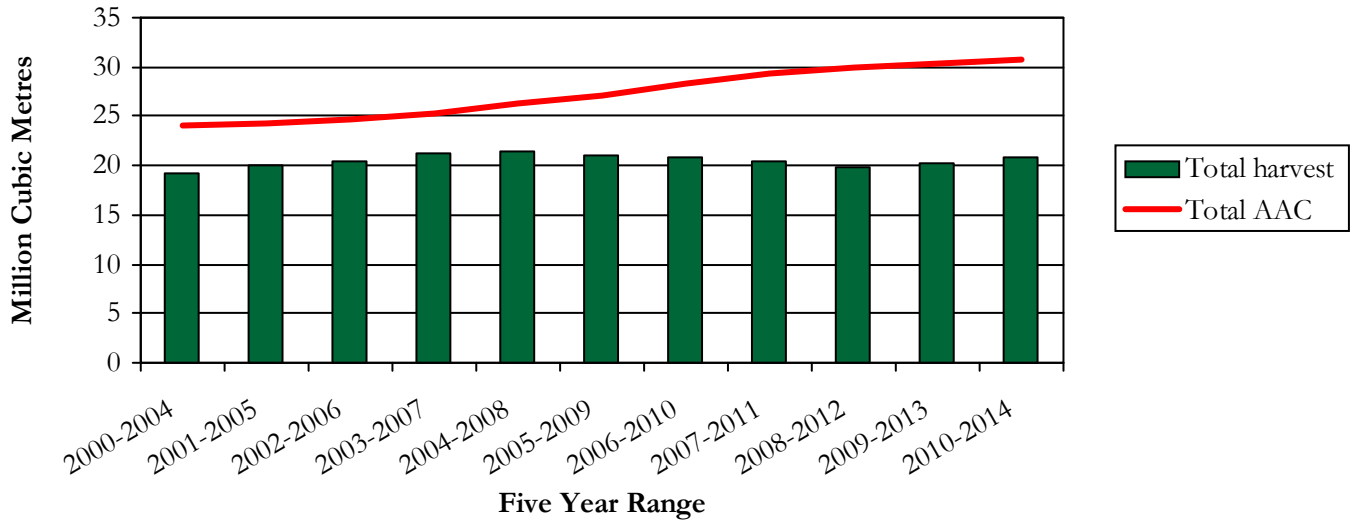


Figure 9. Coniferous Annual Allowable Cut and timber volume harvested in Alberta's Green Area as a five-year rolling average, 2000-2014

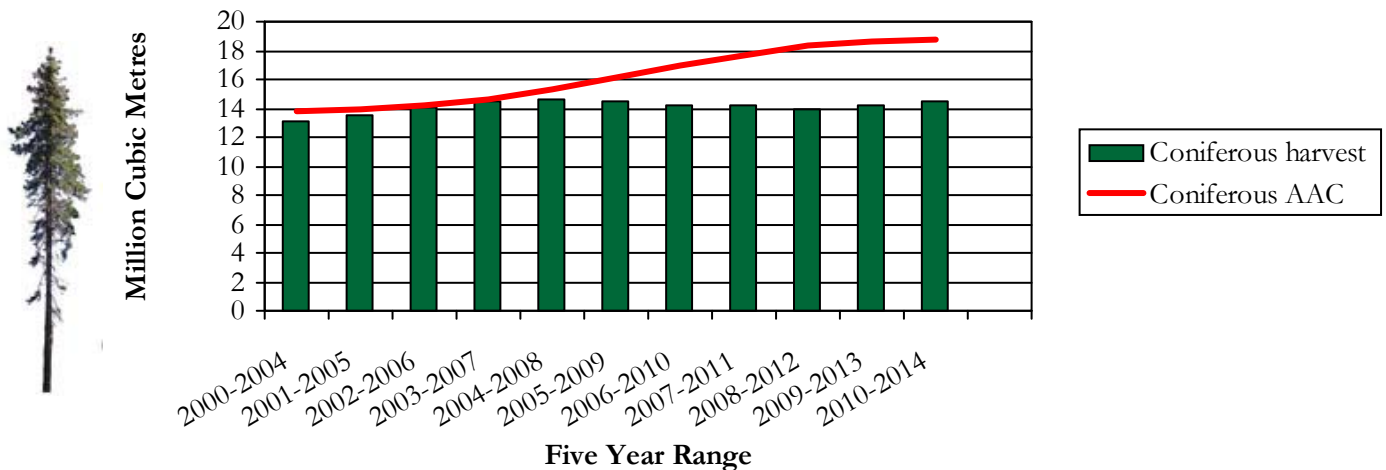
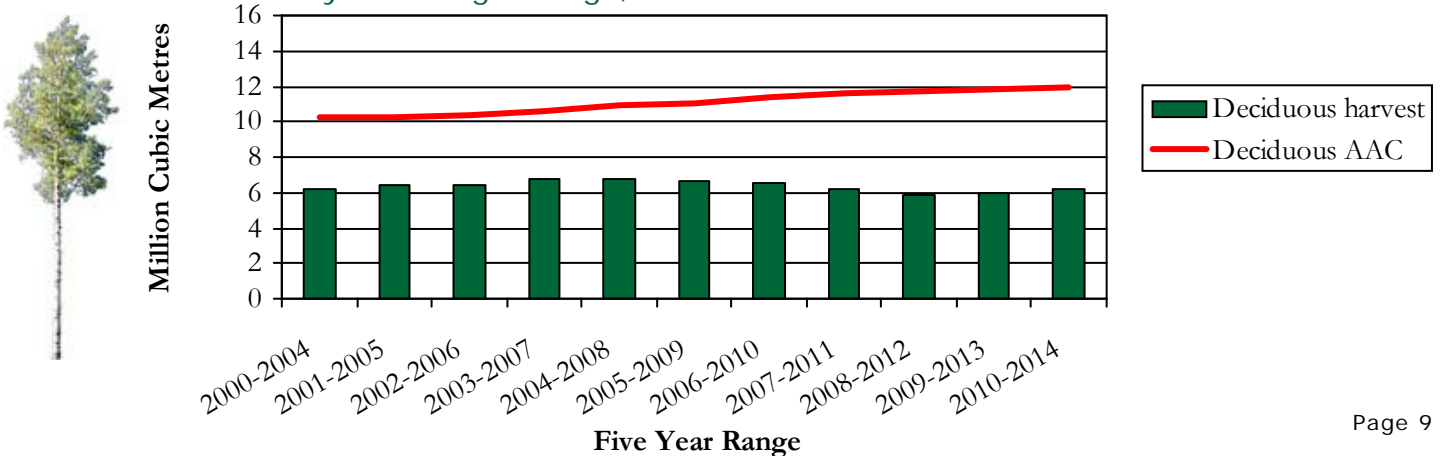


Figure 10. Deciduous Annual Allowable Cut and timber volume harvested in Alberta's Green Area as a five-year rolling average, 2000-2014



Future Outlook

The total AAC will remain higher than in the past as companies in mountain pine beetle-affected areas implement harvest strategies to address the situation.

The corresponding actual harvest completed should increase as well during this period. AACs will also change over time as new Forest Management Plans are approved.

The five-year rolling average coniferous level shown in Figure 8 will remain at or below the five-year rolling average coniferous AAC and may vary over time depending on market conditions.

The difference between the five-year rolling average deciduous harvest level and the five-year rolling average deciduous AAC may vary over time depending on market conditions.