

Alberta

# Alberta's Forest Inventory and Timber Supply

March 5, 2013

Daryl Price

Alberta Environment and  
Sustainable Resource Development

# Green Area

35.2 million ha

- Since 1948, Alberta has been divided into two main areas, the Green Area (58%) and White Area (42%).
- The White Area (settled portion) consists of the populated central, southern and Peace River areas of the province.
- The Green Area (forested portion) includes most of northern Alberta as well as the mountain and foothills areas along the province's western boundary.
- In the Green Area, public lands are managed for timber production, watershed, fish and wildlife, recreation, energy development, and other uses. Agricultural use is limited to grazing where it is compatible with other uses.



# Forest Management Units (FMUs)

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- In Alberta, the Green Area public lands and some adjacent areas in the White Area are sub-divided into Forest Management Units.
- A Forest Management Unit (FMU) is an area of forested public land designated under the authority of the *Forests Act* as an administrative unit to manage timber.
- The Alberta government uses a forest tenure system to allocate the right to harvest Crown timber in the FMUs to companies and individuals.

# Forest Tenure System

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- **There are three main forest tenure systems in Alberta:**
  - **Forest Management Agreement (FMA)**
  - **Timber quota**
  - **Timber permit**
- **The forest tenure specifies details, such as the term of the agreement, tree species, the location, and the responsibilities for reforestation and forest management planning.**

# Forest Management Agreement (FMA)

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- A type of forest tenure defined by a contract between the province of Alberta and the FMA holder whereby the province provides an area-based Crown timber supply.
- The FMA gives the FMA holder the right to access Crown fibre. In return, the FMA holder commits to forest management responsibilities, which may change from time to time.
- This disposition is issued pursuant to the Forests Act authorizing a person to harvest Crown timber. This renewable contract becomes an Order in Council and has a reforestation requirement.

# Timber Quotas

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- A timber quota is a type of renewable forest tenure that lasts for 20 years.
- Timber quotas can be area-based tenures or volume-based tenures, which give the tenure holder the right to a percentage of the Annual Allowable Cut (measured in timber volume) within a specific area, or a specified volume from a specific area.
- There are two types of timber quotas in Alberta:
  - coniferous timber quota (CTQ)
  - deciduous timber allocation (DTA)

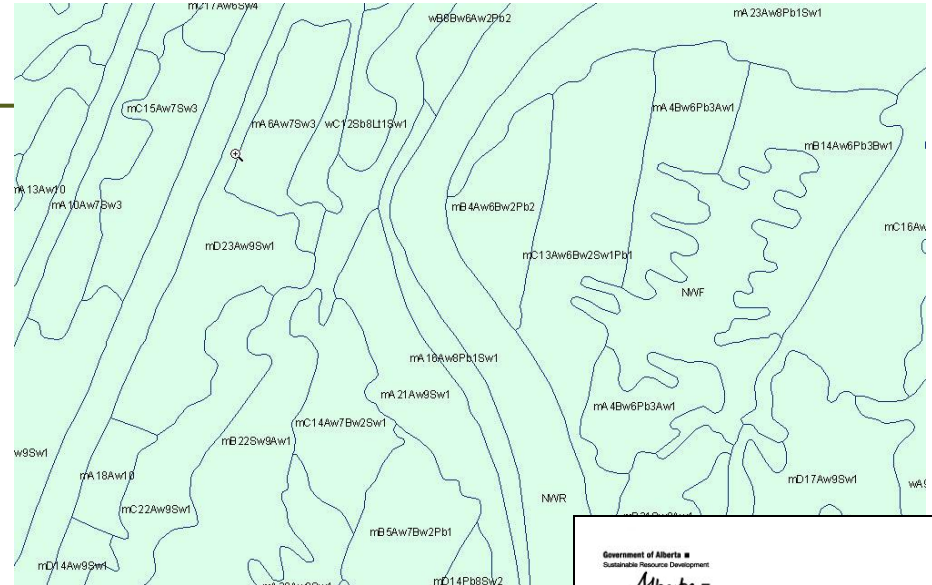


# Inventory Standards – AVI 2.1.1

## Alberta Vegetation Inventory Interpretation Standards

Version 2.1.1  
March 2005

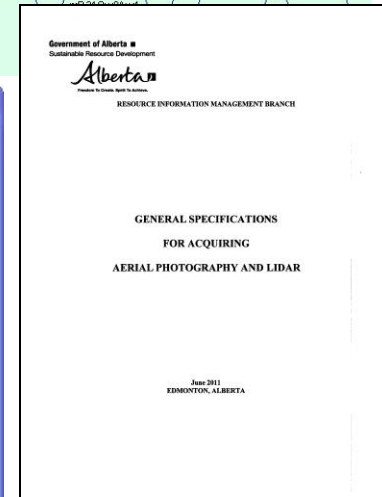
Chapter 3 –  
Vegetation Inventory Standards and Data Model Documents



Attributes of AVIE

POLY_NUM	MOIST_REG	DENSITY	HEIGHT	SP1	SP1_PER	SP2	SP2_PER	SP3	SP3_PER	SP4	SP4_PER	SP5	SP5_PER	STRUC	STRUC_VAL	ORIGIN	TPR
1	w	B	2	Sb	10		0		0		0		0		0	1940	U
2	m	B	11	Pl	6	Aw	3	Sw	1		0		0	M	0	1940	M
3	m	C	10	Pj	8	Aw	2		0		0		0	M	0	1940	M
4	w	C	2	Sb	10		0		0		0		0		0	1950	U
5	m	C	10	Aw	7	Pj	3		0		0		0	M	0	1940	F
6	w	A	6	Sb	10		0		0		0		0	M	0	1900	U
7	m	C	10	Pj	10		0		0		0		0	M	0	1940	M
8	w	A	6	Sb	10		0		0		0		0	M	0	1910	U
9	w	A	6	Sb	10		0		0		0		0	M	0	1910	U
10	m	C	10	Pj	9	Aw	1		0		0		0	M	0	1940	M
11	m	C	10	Pj	10		0		0		0		0	M	0	1940	M
12	m	C	10	Pj	10		0		0		0		0	M	0	1940	M
13	m	C	10	Pj	10		0		0		0		0	M	0	1940	M
14	w	A	12	Sb	10		0		0		0		0	M	0	1870	M
15	w	A	6	Sb	9	Pj	1		0		0		0	M	0	1900	U
16	m	C	10	Pj	6	Aw	4		0		0		0	M	0	1940	M
17	m	D	12	Aw	10		0		0		0		0	M	0	1940	M
18	w	A	6	Sb	10		0		0		0		0	M	0	1910	U
19	m	D	10	Aw	10		0		0		0		0	M	0	1940	F
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21	w	A	6	Sb	10		0		0		0		0	M	0	1920	F
22	w	A	9	Pj	8	Aw	1	Sb	1		0		0	M	0	1940	F

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# AVI 2.1.1 Standards

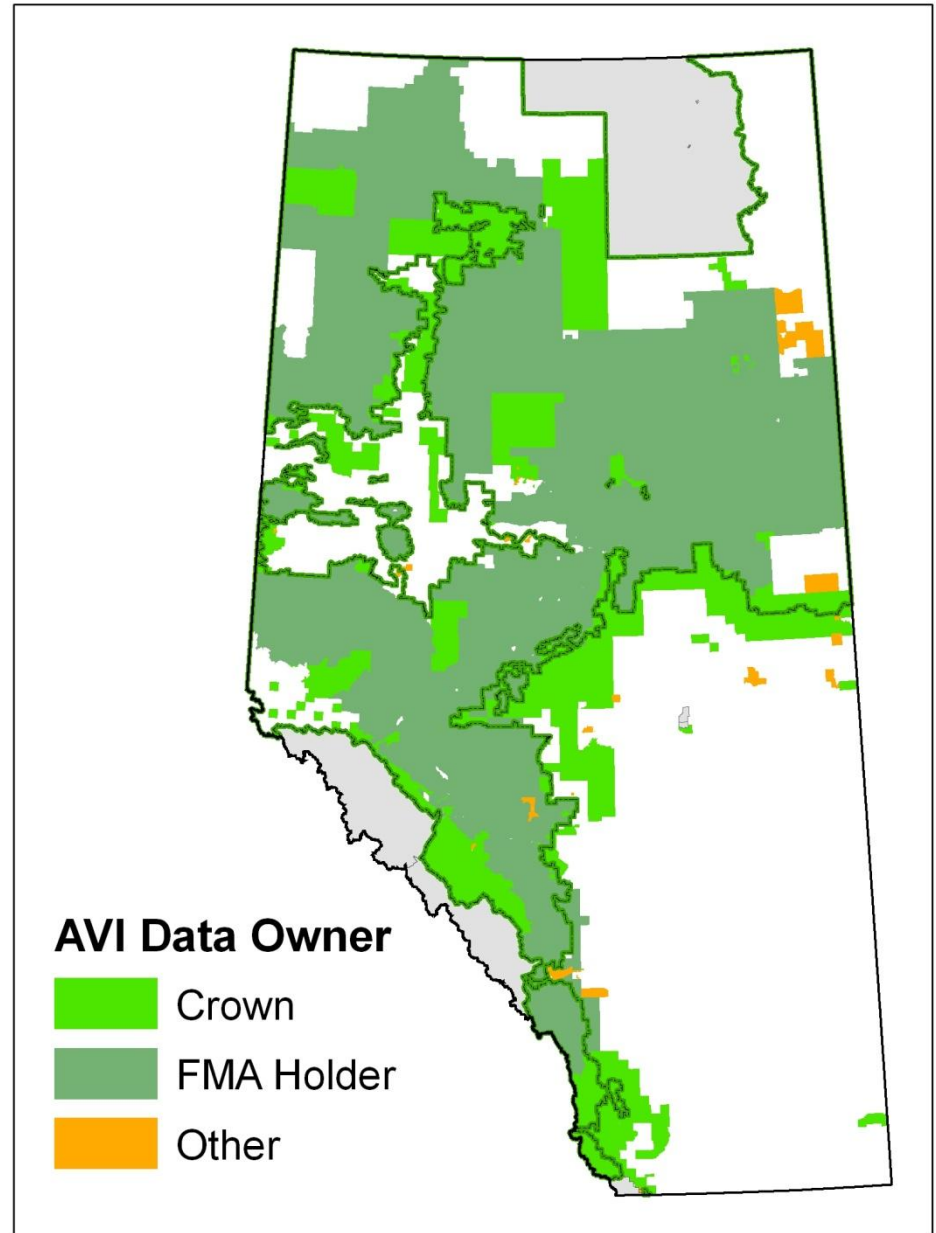
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- **Ensure standardized inventory system throughout province.**
- **Create a detailed, flexible inventory useful for many applications.**
- **Designed to be stored in a digital (GIS ready) format.**
- **Meant to be a continuous inventory.**
- **Data primarily used for strategic planning.**
- **FMA holders are required to complete a forest inventory on their tenure areas to the provincial standards.**

# AVI Extent

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- **Crown**
  - 8.96 million ha
  - 4.4 million ha with allocations
- **FMA Holders**
  - 23.3 million ha
- **Others (EIA, IR)**
  - 480,600 ha

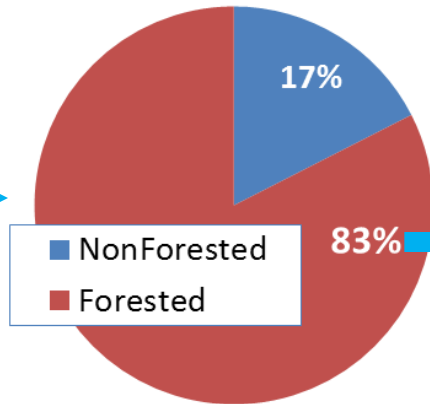


# AVI Summary



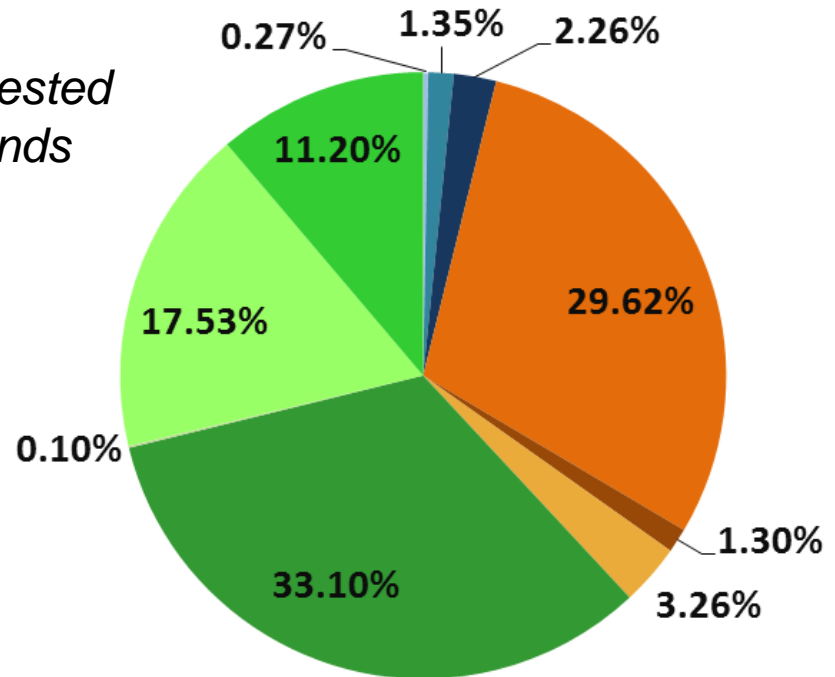
27,043,234 ha

All Green Area AVI  
Protected Areas Removed  
No Other Updates Applied



- Coniferous/Deciduous Black Spruce
- Coniferous/Deciduous Pine
- Coniferous/Deciduous White Spruce
- Deciduous
- Deciduous/Coniferous Pine
- Deciduous/Coniferous Spruce
- Pure Black Spruce
- Pure Douglas Fir
- Pure Pine
- Pure White Spruce

Forested  
Stands



# Forest Management Plans

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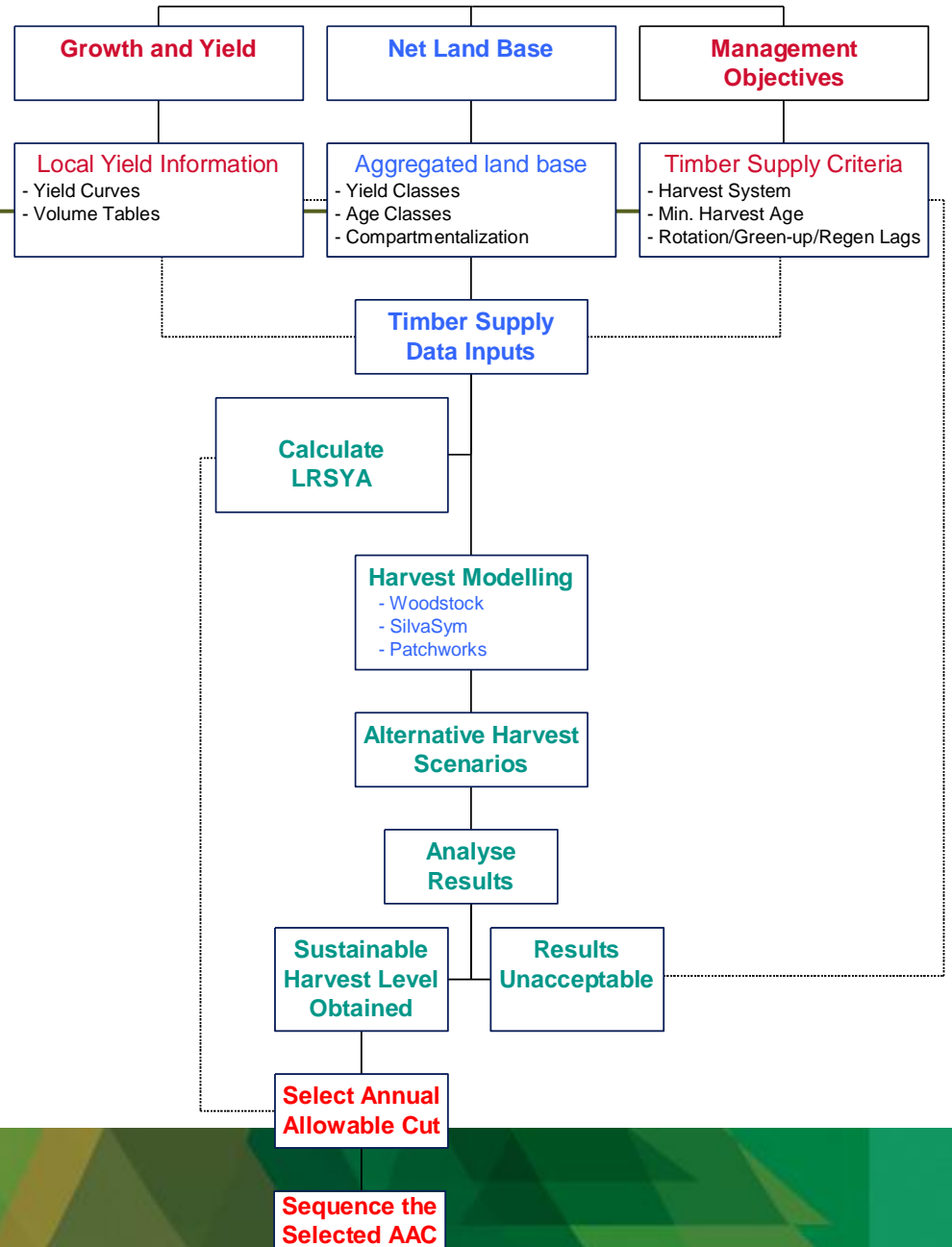
- The details of where, when and how trees on Crown land in Alberta are harvested and managed for sustainability are contained in Forest Management Plans (FMPs) approved by the Government of Alberta, with input from public and other stakeholders.
- FMPs prepared by industry are a requirement of Forest Management Agreements negotiated between the Government of Alberta and forest companies.
- The crown is responsible for preparing Forest Management Plans for forest management units not included in Forest Management Agreement areas.

# Annual Allowable Cut (AAC)

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- 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) and deciduous (e.g. trembling aspen) species groups.
- 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.

# Determination of the AAC - timber supply analysis



# Area Available For Timber Harvest

Administrative area	Area not available for timber harvest (ha)	Area available for timber harvest and included in the AAC (ha)	Total area (ha)
FMUs within FMAs	11,953,372	11,426,693	23,380,065
Non-FMA FMUs with timber dispositions	2,263,022	1,767,276	4,030,298
Non-FMA FMUs without timber dispositions	7,799,850	0	7,799,850
<b>Provincial Total</b>	<b>22,016,244</b>	<b>13,193,969</b>	<b>35,210,213</b>

# Changes to AACs

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- 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.



# Annual Allowable Cut

<b>Land-use Framework Planning Region</b>	<b>Coniferous Annual Allowable Cut (m<sup>3</sup> /yr)</b>	<b>Deciduous Annual Allowable Cut (m<sup>3</sup> /yr)</b>	<b>Total Annual Allowable Cut (m<sup>3</sup> /yr)</b>
Lower Athabasca	1,259,183	1,718,312	2,977,495
Lower Peace	3,641,449	4,366,221	8,007,670
North Saskatchewan	2,290,085	479,203	2,769,288
Red Deer	14,854	1,776	16,630
South Saskatchewan	529,997	52,376	582,373
Upper Athabasca	5,573,668	2,593,484	8,167,152
Upper Peace	5,522,300	3,012,496	8,534,796
<b>Provincial Total</b>	<b>18,831,536</b>	<b>12,223,868</b>	<b>31,055,404</b>

# Status of Provincial Allocation

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- **Coniferous**

AAC  $\approx$  18.8 million m<sup>3</sup>

- FMA = 71%
- Quota = 26%
- Commercial Timber Permit Program = 2%
- Unallocated = 1%

- **Deciduous**

AAC  $\approx$  12.2 million m<sup>3</sup>

- FMA = 65%
- DTA = 31%
- Commercial Timber Permit Program = 2%
- Unallocated = 2%

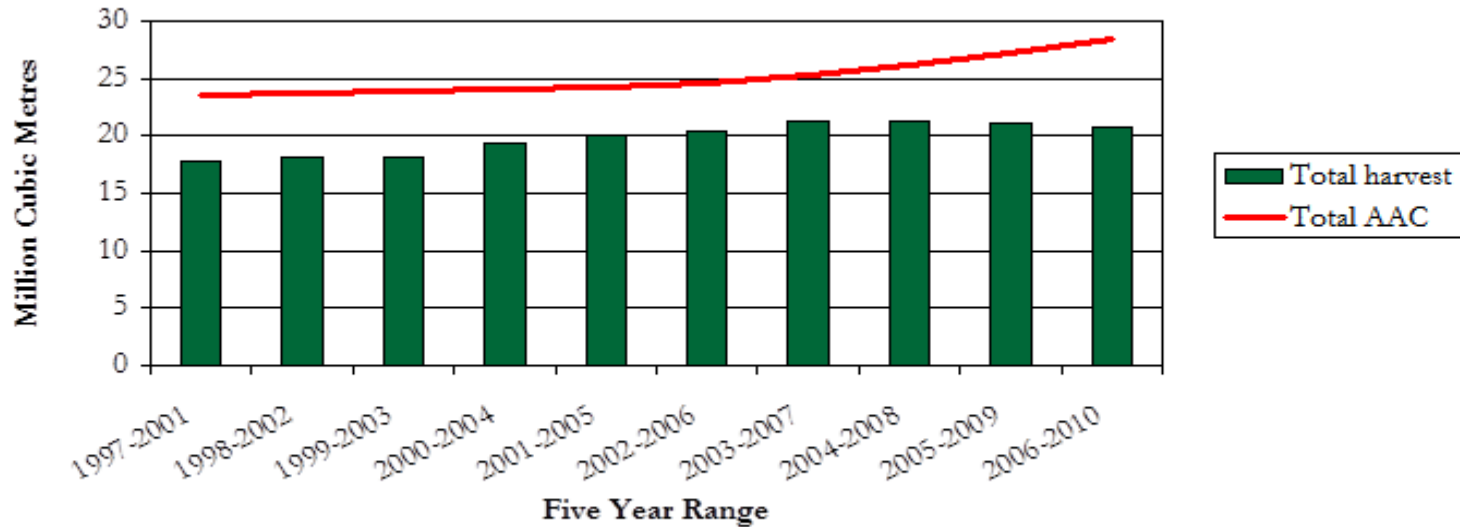
# AAC Trends

Expressed on an annual basis

Year (April 1-March 31)	Coniferous Annual Allowable Cut (m <sup>3</sup> /yr)	Deciduous Annual Allowable Cut (m <sup>3</sup> /yr)	Total Annual Allowable Cut (m <sup>3</sup> /yr)
2002/2003	13,807,400	10,073,398	23,880,798
2003/2004	14,445,162	10,373,976	24,819,138
2004/2005	14,140,175	10,263,577	24,403,752
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

# Timber Harvest Compared to AAC

Expressed on a rolling 5-year average basis



# Alberta's Forest Industry

- 7 pulp mills
- 23 sawmills
- 6 panelboard mills
- 1 laminated veneer lumber facility



# Potential Biomass Sources

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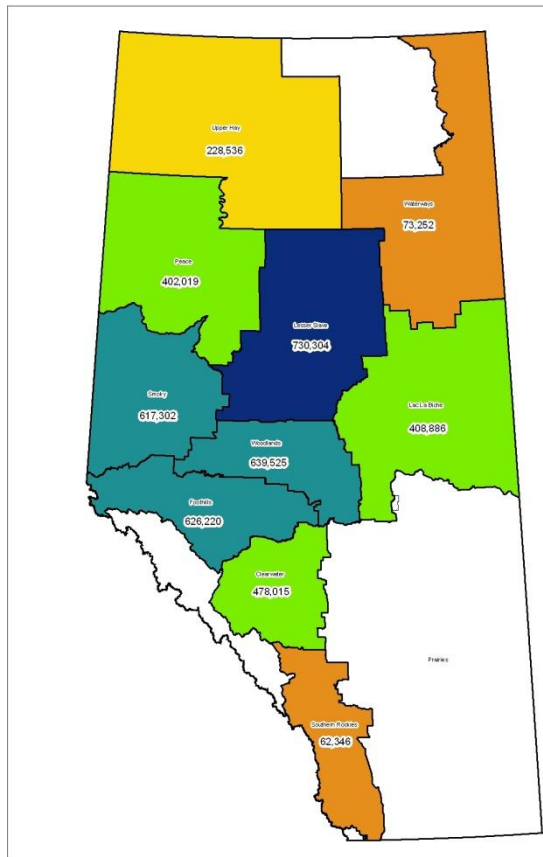
- In Alberta, currently under-utilized forest biomass offers opportunity for diversification. Potential sources of available biomass include:
  - Roadside residue (e.g. low quality trees or parts of the tree not collected during traditional harvesting);
  - Chipping of undersized trees and tops (whole tree utilization) not included in the AAC within merchantable stands;
  - Trees killed by insects and disease outbreaks or fire;
  - Non-merchantable salvage;
  - Woody waste located at mill sites and log sort yards;
  - Hog fuel;
  - Pulp mill black liquor and separated lignin;
  - Existing peat harvesting licences.

# Biomass Opportunities

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- **Tenure holders will have the most accurate estimates of the volumes of the additional biomass generated from their operations.**
- **Individual tenure holders should be contacted for further information.**

# Wood Residues – 2007 study



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## Potential Roadside Residue Within Each ASRD Forest Area (ODt/y)



Source: MacDonald, A.J. Inventory of Wood Biomass From Harvesting Residues and Non-merchantable Forests In Alberta Contract Report CR-4222A-1. November, 2007

Government of Alberta

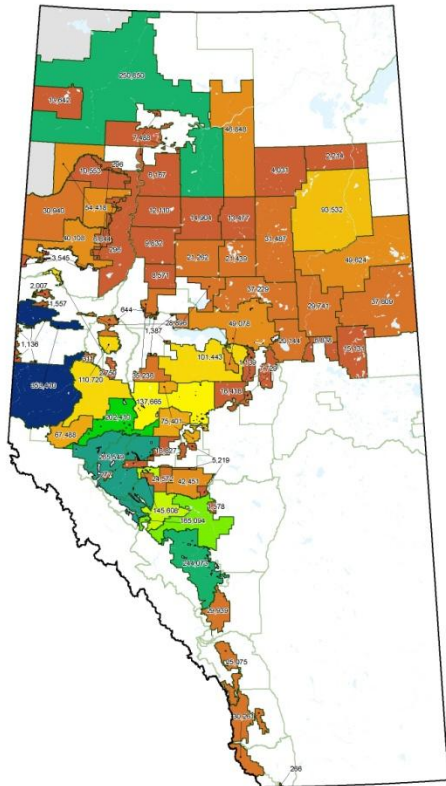
Produced by Sustainable Resource Development Forestry Division  
2010, Government of Alberta

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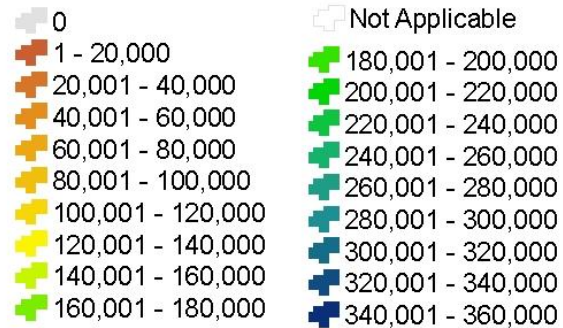
# Potential Conifer Volumes

## Incremental volume from whole tree chipping



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**Potential Increase in Coniferous Volume Over Approved AAC Utilizing Whole Tree Chipping at a 0/0 cm Utilization Standard (m<sup>3</sup>/yr)**



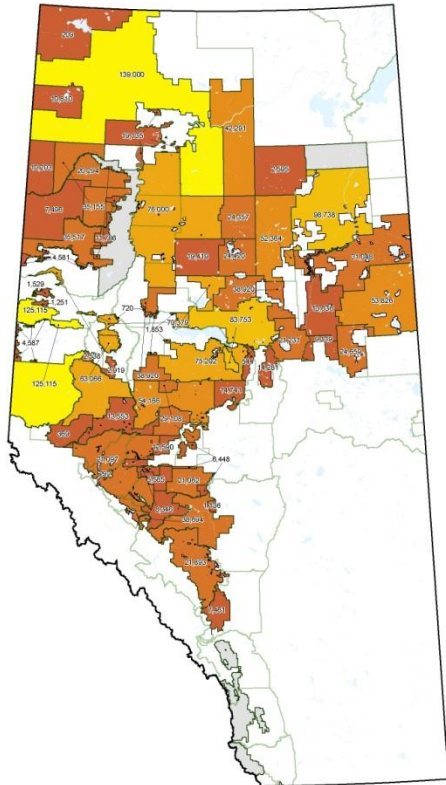
**Government of Alberta**

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Forestry Division  
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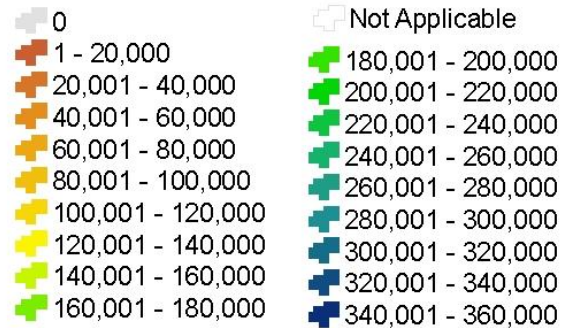
# Potential Deciduous Volumes

## Incremental volume from whole tree chipping



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**Potential Increase in Coniferous Volume Over Approved AAC Utilizing Whole Tree Chipping at a 0/0 cm Utilization Standard (m<sup>3</sup>/yr)**



**Government of Alberta**

Produced By Sustainable Resource Development  
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# Additional Information Sources

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- **Forest Management Facts and Statistics**
  - <http://srd.alberta.ca/LandsForests/ForestManagement/ForestManagementFactsStatistics/Default.aspx>
- **Approved FMA forest management plans**
  - <http://srd.alberta.ca/LandsForests/ForestManagement/ForestManagementPlans/Default.aspx>
- **Forest Products & Markets**
  - <http://srd.alberta.ca/LandsForests/ForestBusiness/documents/AlbertaForestProductsSector-OverviewAndContacts-Sep2012.pdf>

# Questions?

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