

Reforestation in Alberta



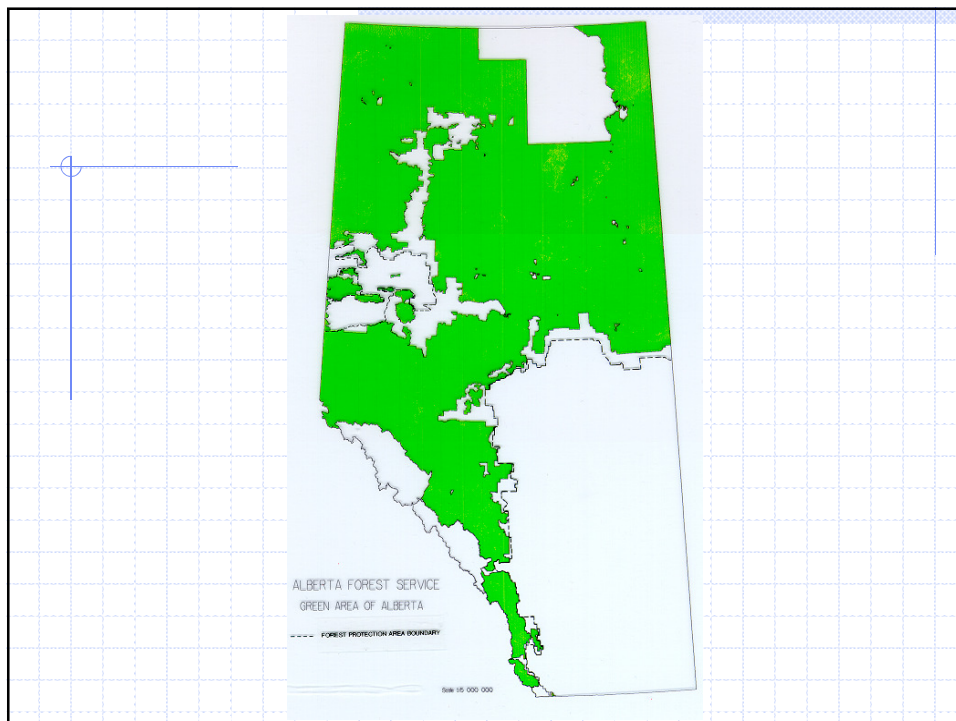
TOLKO High Level Public Advisory Committee Meeting
High Level, April 7, 2009

Presentation Objectives

- ◆ A perspective of reforestation as it relates to the forest industry in Alberta
- ◆ Show the drivers to reforestation choices
- ◆ Brief detail of the application of reforestation and silviculture
- ◆ Answer questions of PAC specific to queries or concerns

The Forest

- ◆ Covers 60 percent of the landbase of Alberta (Green Area; ~ 38 million hectares)



The Forest

- ◆ Boreal, Montane and Sub-alpine
- ◆ Composed of deciduous and coniferous species
- ◆ Fire dependent ecosystem (~ 1-in-60 fire return)

The Forest

- ◆ Forests provide many other inherent values to Albertans:
 - Timber resource
 - Wildlife habitat
 - Grazing
 - Watershed
 - Recreation
 - Aesthetics
 - Spiritual and historic

Alberta Forest Industry

- ◆ Forest Industry contributes ~ \$8.4 billion to the GPP of Alberta (ref: AFPA statistic, 2007)
- ◆ Forest Industry provides ~54,000 jobs (24,195 primary sector; 24,490 secondary sector) (ref: AFPA statistic, 2007)



Alberta Forest Industry

- ◆ Significant investment in infrastructure and mills (tenures > 20 years)



Perspective:

The Forest is renewable:

- Through natural processes



Perspective:

The Forest is renewable:

- Applied reforestation strategies



Perspective:

- ◆ *Reforestation* is the act of renewing the forest to meet specific objectives using adequate investment.
- ◆ *Silviculture* is the art and science applied to forest renewal.

Reforestation: The Goal (Why reforest?)

- ◆ Ensure timber resource and industry maintained for future generations (utilize resource responsibly and put it back)
- ◆ Ensure that harvested sites are stabilized (minimize soil erosion and potential for soil instability and contamination)
- ◆ Ensure that desirable species are maintained on site (may have to forgo natural regeneration processes in order to meet specific rotation time periods)

Reforestation – The Goal (why reforest?)

- ◆ Ensure that regenerated yield assumptions in the Timber Supply Analysis are met on the ground (in support of the AAC)

Reforestation is the Law

- ◆ Legislation - Forest Act and Timber Management Regulation
- ◆ All timber disposition holders responsible for reforestation
- ◆ Reforestation results must meet a specific standard within 14 years
- ◆ Each timber operator is subject to an annual allowable cut that is calculated. Part of the calculation is a projection into the future for regenerated yield

Reforestation is the Law

- ◆ Failure to meet the standard results in a reduction in the Annual Allowable Cut
- ◆ The Reforestation Standard is tied to regenerated yield achievement, as measured and reported at Year 14 after harvest

Reforestation: Getting to Successful Outcomes

- ◆ Careful and detailed planning
- ◆ Clear and achievable objectives
- ◆ Responsible, committed delivery
- ◆ Awareness of consequences to decisions made in relation to objectives to be achieved
- ◆ Reforestation planned prior to harvest

Reforestation – The Objective

- ◆ Reforestation intended to achieve:
 - **Survival:** getting the desired species to regenerate on the cutover site and remain there until the mortality risk is reduced.
 - **Productivity:** having the desired species perform to the expectations of regenerated stand production, with a projection of that level of performance until rotation.

Reforestation - Survival

- ◆ Silviculturist assesses the site to understand the structure/composition, dynamics and plant/soil relationships (using PHA)
- ◆ Silviculturist formulates a prescription
- ◆ Silviculturist plans and reports as follows:
 - ◆ FMP – landscape
 - ◆ Silviculture AOP – operational
 - ◆ Alberta Regeneration Information System (ARIS) – reporting
 - ◆ Audited with FOMP and SAM

Reforestation - Survival

- ◆ Silviculturist chooses:
 - Silviculture system (how the forest is harvested)
 - Site Preparation method
 - ◆ Mixing
 - ◆ Elevated microsite
 - ◆ Scalp microsite
 - ◆ Dragging



Reforestation - Survival

- Reforestation method
 - ◆ Natural regeneration
 - ◆ Direct Seeding
 - ◆ Advanced Regeneration
 - ◆ Planting
 - ◆ Vegetative reproduction





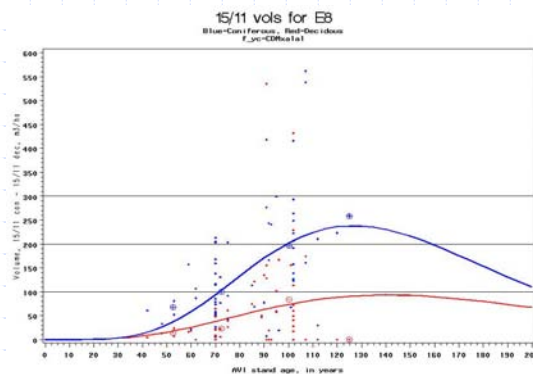
Reforestation - Survival

- Stand Tending
 - ◆ Control of competitive grass, shrubs or trees
 - ◆ Mechanical
 - Brushsaw spot treatment
 - Broadcast gyromow-type treatment
 - ◆ Chemical (herbicide)
 - Broadcast treatment
 - Injection or spot treatment



Reforestation - Productivity

- ◆ Strategies to enhance *productivity* involve “moving the growth curve to the left”



Reforestation - Productivity

- May need to meet robust regenerated yield objectives to support an increased AAC
- May need to overcome productivity losses on other parts of the landscape
- Greater productivity on smaller landbase = same total productivity

Reforestation - Productivity

- ◆ Silviculturist may choose:
 - Genetic or Improved Seedling
 - Stand Tending
 - Thinning (PCT or CT)
 - Fertilization

Categories of a Reforestation Strategy

1. Seed Collection, Extraction & Storage
2. Seedling Production
3. Genetics & Tree Improvement
4. Silviculture Prescription
5. Site Preparation
6. Establishing Regeneration
7. Stand Tending
8. Enhanced Forest Management (EFM)
 - Post reforestation period treatment
 - Crop planning



