

# The Use of LSP with Satellite or Aerial Super High Resolution Imagery to Project and Track Stand Development

Forest Ecosystem Science Co-op

Science Day

April 22, 2008

# Project Objectives

- It should be possible to use high resolution imagery and individual tree crown (ITC) techniques to determine density (stems per ha) and other tree attributes (i.e DBH, height, species).
- This information will be used to determine more precise yields based on values derived from the analysis of managed forest stands with height diameter models and density management diagrams.

# Project Description

This project involves:

- Push broom digital imagery would be used to create the inventory (40-60 cm resolution);
- Applied to stands over 2 metres tall
- Field sampling of regenerating areas, including plantations and thinned stands to determine base data;

# Project Description – cont'd

- Large Scale Photography (LSP) would then be used to develop SPP, ES, SC, density, ITC equations;
- LIDAR or IFSAR data to accurately measure height for development of site indices;
- Inventory value applied to SDMD and other algorithms to predict what “managed curve” the stand is developing on.

# Other uses

- Identify stands that need remediation (e.g. fill plant or thin) to achieve the desired density or commercial thinning opportunities
- Identify the species composition of the block to aid in planning competition control
- Statistically valid effectiveness monitoring can be developed in a cost effective manner
- Early stand development information

# Project Status

- R&B Cormier has agreed to provide interpretation using a combination softcopy & ITC hybrid approach
- The timelines to produce the inventory are longer than originally estimated, however, this approach is closer to the direction provided by the MNR in its enhanced inventory program
- By matching the enhanced inventory specification it should mean our results are more easily adopted by the MNR and forest industry