

## **News from the Inventory Section, Forest Analysis and Inventory Branch, Ministry of Forests Lands and Natural Resource Operations**

**August 18, 2015**

### **Special Theme Issue – Looking back over the last few years**

In this issue of our newsletter we deviate from our standard format of short updates on current projects. Instead, we reflect on some of the more significant changes and developments in the ministry's forest inventory and growth and yield program over the last several years. In the next newsletter issue, we will return to our traditional format.

### **10-Year Strategic Plan**

In February 2013, Minister Thomson announced a new 10-year strategic plan to guide the ministry's forest inventory and growth and yield (GY) program. The plan sets out the goals, targets and priorities that drive the annual activities of the program. Most importantly, the plan has provided stability and clarity of purpose. Over the last few years, the endorsement and implementation of this plan was one of the most significant developments in the ministry's forest inventory and GY program.

### **Expanding Network of Stand Growth Monitoring Plots**

In 2013, the ministry began establishing forest growth monitoring plots as part of the inventory field sampling program. Beginning in the MPB-affected areas, long-term monitoring plots are being established on a grid across broad regions of the province. In 2013 and 2014, plots were established over the full extent of the Prince George, Quesnel, Williams Lake, 100 Mile House and Merritt TSAs. Sampling in 2015 will cover the Kamloops, Lillooet, and Okanagan TSAs. Sampling over the next few years will complete the plot coverage across the central and southern interior – and expand into other areas. Within the inventory/GY program, this evolution in forest inventory field sampling is among the most significant developments of the past few years.

### **The Development of TASS-3**

Since the 1980s, the stand growth model TASS-2 has been of critical importance to stand growth and yield prediction in BC. During the last few years, we have focussed efforts on developing the next generation of the model, TASS-3. The development of TASS-3 has been a huge task with many difficulties and occasional setbacks. Finally, in July 2015, TASS-3 was released to a group of 30 internal and external power users and GY experts. Over the past few years, the

development of TASS-3 has been of great significance in the ministry's inventory and GY program.

### **FLNRO Re-organization Consolidates Program**

In late 2010, the government re-organization that created the Ministry of Forests, Lands and Natural Resource Operations brought together into one work group the research and inventory GY programs, and the region and branch forest inventory programs. For the ministry's inventory and GY activities, this change was one of the most important developments of the past few years. Consolidation has reduced duplication, brought specialists together, and strengthened the ministry's ability to deliver a targeted and co-ordinated provincial program.

### **Millions of Hectares of VRI Photo-interpretation Completed**

Since 2011, a long list of VRI photo-interpretation projects have been completed (Haida Gwaii, eastern Williams Lake, 100 Mile House, Kamloops, a large portion of Mid Coast, portions of Pacific TSA, and TFLs 14, 23, and 35). Currently, VRI photo-interpretation projects are underway in Morice, Lakes, and western Quesnel TSAs and Vanderhoof district. The 2015 projects are starting now in southern Vancouver Island and southern Fort St James District. Air photo acquisition in 2015 will be followed by new projects in Merritt TSA and Prince George District. For the inventory/GY program, the completion of millions of hectares of new VRI photo-interpreted inventory is among the major achievements of the past few years.

### **Better Data, Better Management**

Permanent sample plots (PSPs) are fixed-area plots re-measured periodically to track tree and stand growth. The forest inventory/GY program maintains a large data set of PSPs, established under various programs over the years, typically subjectively located in healthy, well-stocked, uniform areas within stands. Among the PSPs in the ministry database there is considerable variation in plot quality, number of plots sampling a given stand/site type, length of observation, and years since remeasurement. In recent years, we have greatly improved our use of information on the characteristics of existing PSPs for better, more efficient management of the PSP program. This evolution (better data leading to better management) is among the important developments of the past few years in the inventory/GY program.

### **Provincial Site Index Map**

The timber growing potential of a site (its site index) is one of the most significant factors governing stand growth and future yield. However, it is only in the last 3 years that a fine-scale, province-wide site index map has been available. This map was created by gathering,

standardizing, and stitching together existing PEM and TEM coverages, assigning SIBEC site index to eco-polygons, and filling gaps with estimates from a biophysical site index prediction model. The creation of a province-wide site index map is another major advance in the past few years.

### **Expansion of Inventory Analysis Reporting**

When a ground sampling project is completed, an analysis report is produced. Over the last four years, we have broadened and enhanced our standard reporting. While continuing the traditional comparisons of ground attributes (such as volume/ha) to inventory polygon attributes, new analyses and report formats have been added. For example, for each TSA in which a Young Stand Monitoring (YSM) plot network has been established, a brief 4-page analysis summary is now produced – in addition to a more lengthy technical report. The set of topics addressed in inventory analysis has grown to include a comparison of ground measured site index to the provincial site index map, an examination of both VDYP and TIPSYS yield predictions, forecasts of future stand yields, and more detailed characterization of the forest. The expansion of inventory analysis reporting merits mention in our list of significant developments in the inventory/GY program over the last several years.

### **New Kid on the Block - LVI**

For decades, polygons in the provincial forest inventory database have been produced by photo-interpretation. In 2010, we began development of a radically different approach in which Landsat imagery, automated delineation, high resolution photo-sampling, and imputation are used to delineate and attribute polygons. With this new approach – named LVI (Landscape Vegetation Inventory) - 2.8 million hectares of new inventory has been completed. Compared to traditional photo-interpretation, LVI costs less but achieves lower accuracy for individual polygons. Currently, LVI is being used to produce new inventory coverage for the massive and remote Cassiar TSA. The addition of LVI to the inventory toolkit is another major advancement in the ministry's inventory/GY program over the last several years.

### **Backlog of Updates**

To keep the inventory current the file must be updated for disturbances (such as wildfire and harvesting) and silviculture surveys. By 2011, a large backlog of updates to the inventory database had accumulated. Reports by the Forest Practices Board, the ABCFP and the Auditor General urged improvement in this area. Since that time we have doggedly pursued a set of initiatives to catch up. We have adopted new approaches (such as Landsat-based fire severity classification), engaged the consulting sector to help clear the backlog, implemented improvements to our software, tightened data quality checks, improved the linkage to

RESULTS, increased staffing – and generally put in a whole lot of hard work. Each year we've made progress. The substantial improvement in currency and completeness of updates is another significant development in the inventory/GY program over the past few years.