



Forest Inventory Issues in British Columbia

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Abstract

The forest inventory of the province is a major issue in resource value and planning, and affects political decisions. The current inventory needs work, the Ministry of Forests, Lands and Natural Resources Operations needs expertise, and technology is not yet sufficient to overcome either problem.

The inventory work of British Columbia (BC) is broken into short-term and long-term realms. In the short term (to sell or harvest stands) the Valuation Branch¹ has traditionally been in charge because it sets the rate of “stumpage” payments in the Province. With very few people, it sets the procedures for forest measurements - then timber buyers or their contractors carry out the work, subject to audits by the government. This work is largely confined to older stands and is not a sample of the Province. This is where most of the important day-to-day measurement techniques are decided and some of those are carried into the long range provincial inventories that are done by the Inventory Branch.

The large projects that sampled the entire province in the *past* were usually done by Forest Service staff, and that provided necessary experience and judgment to the organization. In recent years, the Ministry of Forests, Lands and Natural Resource Operations staff has not done this work. The lack of experience was noted in the “Peel Report²” and the decision was made that the most recent forest inventory would be designed by an outside group. The inventory staff simply did not have the experience and judgment to carry this out. Presently, the lack of field experience is a problem in the government service. Their large scale inventory is used for planning purposes and to set overall harvest levels and therefore should be a sample of the entire BC land base. Such overall inventory projects were usually carried out every 20 years or so, but the trend is to update them in parts where time and budgets permit.

Companies that work on large scale areas usually have their own inventory performed and this is often done at a much more precise level than the overall inventory of the Province. The Province has a fairly active professional group of timber cruisers, many of whom are contractors, and that is where the technical expertise lies within the Province. In general, BC timber cruisers are more restricted in their techniques and have less training than their counterparts on the rest of the West

¹ The exact names of these branches seem to change about once a year, but these are the terms traditionally used for the groups involved. The two roles have been quite stable, regardless of name changes.

² 1991 - Forest Resources Commission — The Future of Our Forests / A.L. (Sandy) Peel, Chairman. This is currently available on the Internet website <http://www.for.gov.bc.ca/hfd/pubs/mr.htm> He also provides a good summary of several types of inventory in the province in addition to timber.

Coast. This is simply because of the uniformity and slowly changing methods on a land base almost completely controlled by the government. This is improving, and in the last few decades we have drawn nearly equal in many regards. Inexperience within the government service is a consistent problem that is relieved occasionally when private foresters move to government positions. In general, they are understaffed, travel too little, and are professionally isolated in Victoria.

The trends in forest inventory are reasonably consistent throughout North America. BC has much more in common with the Pacific Northwest of the United States than it does with the eastern part of Canada. BC is moving toward the traditional field methods of evaluating logs and trees used in Oregon and Washington. The government has done a good job in checking some of the technical issues such as verifying the volume tables it uses.

The trends in forest inventory are fairly predictable for the next few decades. There will be increasing use of some technology, particularly airborne lasers (LIDAR). This technique is very useful for describing the land surface and as a byproduct it provides information on the forest above it. The direct use of remote sensing for estimating values has been only moderately successful and that will likely continue. Any future success will probably be to use overall totals derived from field plots but use remote sensing to better distribute that total within the Province. One way to do this is with “nearest neighbor” processes that use ground measurements in one area to describe other stands that “look similar” but have not been visited. The high speed and nearly infinite capacity of computers makes very small and precisely designated stands of trees possible to maintain. Aggregations into forest “types” are no longer necessary but the tradition of doing so is taking time to overcome.

The projection of these inventory stands into the future is as sophisticated in BC as anywhere on the West Coast of North America. One of the main needs for correct prediction of *future* stands is the accurate value for the *present* stand volume and type of timber. Verifying these computer projections using permanent sample plots may not be very efficient at present but it is progressing adequately. The main issue is to get these plots established and maintain the records of their remeasurement as competently as possible. Integration with ecological information is more often done by overlapping maps than by field work, and that is a weakness. Ecological description accuracy is often marginal but the difficulty of describing ecosystems is very large. A proper sample of permanent plots with all the comparative measurement data would be very desirable. The additional data could be collected as budgets permit, but requires a careful statistical base for the selection of these plots and field visitation by experts. Obtaining this comparative data was designed into the last inventory plan, but was not generally carried out.

Technology is being moderately used in BC for inventory purposes. Data is gathered on field computers, Geographic Information Systems (computer maps) are used, Geographic Positioning Systems for accurate location have helped and computer projection systems are well conceived but are always difficult to manage in a cost-effective manner. No matter how good the inventory design and intent might be, there will always be a need for field work and contracting that out is a weak procedure. Considering the very high value of the forest resource, the inventory process is not well funded.

In a Government that knows where almost every truck it owns can be found, there is too little knowledge about where their trees are.