

## **Inventory Program Review**

### **A Challenge Dialogue with Stakeholders**

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BC Ministry of Forests and Range

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*Prepared for —*

**Forest Analysis and Inventory Branch  
Ministry of Forests and Range**

*Prepared by —*

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**June 16, 2006**



**Workshop held on May 24-25, 2006  
Richmond, BC**

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## Original Agenda

**Inventory Program Review – Workshop**  
**Executive Inn, 7311 Westminster Highway**  
**Richmond BC**  
**May 24-25, 2006**

Note Sessions that are shaded were not used. Other deviations from the original agenda are noted in this Synopsis and in the Workshop Record. Both documents are available electronically at the IPR Website: [http://www.for.gov.bc.ca/hts/inventory\\_prog\\_rev.htm](http://www.for.gov.bc.ca/hts/inventory_prog_rev.htm).

<b>WEDNESDAY, MAY 24</b>	
8:15 am	<i>Assemble—Coffee, Tea and Refreshments</i>
9:00 am	Welcome and Introductions
9:10 am	<b>Session 1:</b> Setting the Stage for a Productive, Collaborative Workshop
9:40 am	<b>Session 2:</b> Getting on the same Page—Setting the Context: Chief Forester’s Vision and Stewardship Framework
10:30 am	<i>Refreshments On-the-Fly</i>
11:00 am	<b>Session 3:</b> Taking a more Strategic Approach to Vegetation Inventory in BC— Part I: Principles
12:30 pm	<i>Lunch</i>
1:00 pm	<b>Session 4:</b> Taking a more Strategic Approach to Vegetation Inventory in BC— Part II: A Strategic Framework to help set Direction and Build the Case Collectively
2:15 pm	<b>Session 5:</b> Affirming / Determining the Primary Purpose of the Inventory
3:00 pm	<i>Refreshments On-the-Fly</i>
3:15 pm	<b>Session 6:</b> Taking a More Strategic Approach to Vegetation Inventory in BC— Part III: The Vegetation Inventory System
4:15 pm	<i>Wrap up and Adjourn</i>
5:00 pm	<i>Hospitality Session: No Host Bar and Appetizers</i>

**THURSDAY, MAY 25**

- 8:00 am *Assemble—Coffee, Tea and Refreshments in Room xxx*
- 8:30 am **Session 7:** Checkpoint on Our Progress, Plan for the Day
- 8:45 am **Session 8:** Getting on the Same Page—Setting the Context for Day 2: Key Issues and Opportunities that Surfaced from the Dialogue Thus Far
- 9:45 am **Session 9:** Inventory Issues/Opportunities: Defining the Objective(s) and Identifying Action Options
- 10:00 am *Refreshments On-the-Fly*
- 10:00 am Concurrent Breakout Sessions Begin
- 12:00 noon *Working Lunch*
- 1:00 pm **Session 9:** Progress Checkpoint
- 2:30 pm **Session 10:** Reporting Out
- 3:30 pm **Session 11:** Action Plan, Next Steps and Workshop Closure
- 4:30 pm *Adjourn*

## Section 1: Purpose of This Report<sup>1</sup>

Over 60 individuals with a diversity of interests related to the vegetation (or forest) inventory, including forest licensees, academia, First Nations, resource inventory consultants and various government agencies (MOFR, MOAL/ILMB, MOE, OGC), attended a two-day workshop on the Inventory Program Review (IPR).

The purpose of this post-workshop report is:

- To provide the workshop participants with a synopsis of the Workshop outputs, findings and discussion highlights from the May 24-25, 2006 Workshop (Executive Airport Plaza Hotel, Richmond, BC).
- To document initial post-workshop feedback (Appendix 1).
- To serve as reference material that the IPR Project Action Team and follow-up IPR Issue Teams can draw upon in completing the tasks identified at the workshop.
- To continue to inform those interested about the IPR who did not attend the workshop about the status of the project. This includes providing an update to the co-champions of the project: Jim Snetsinger (Chief Forester) and Tim Sheldan (ADM, Operations Division), Ministry of Forests and Range.

So as not to repeat a lot of material already compiled, this Workshop Synopsis should be used in conjunction with the *Workshop Workbook* that was prepared to guide the Workshop. The workshop was structured to address key issues stemming from considerable feedback obtained from the IPR *Challenge Paper*. A *Progress Report* summarizes the Challenge Paper Feedback. The IPR *Challenge Paper*, *Progress Report*, *Workshop Workbook* and additional supporting reports and studies can be accessed at [www.for.gov.bc.ca/hts/inventory\\_prog\\_rev.htm](http://www.for.gov.bc.ca/hts/inventory_prog_rev.htm)

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<sup>1</sup> This Workbook follows in part an approach, structure and tools developed by the Innovation Expedition Inc. and its Challenge Dialogue System™ — a disciplined process that engages diverse groups on discovering collaborative and innovative solutions to complex challenges. [www.innovation.expedition.com](http://www.innovation.expedition.com)

## Section 2: Workshop Synopsis

The IPR workshop attendees made significant progress at the workshop and a number of participants have agreed to provide key post-workshop support by participating on various Issue Teams. A comprehensive set of IPR workshop notes was prepared by Michele Baker, OfficeLink, in support of the project which is contained in Appendix 2: Workshop Record (a separate document). This Workshop Synopsis highlights some of the key discussion points, issues and actions stemming from the workshop.

### ***Day One***

There was clear interest in Day One to ensure ample time was made available for workshop tables to discuss the purpose of the inventory (Session 5) and the Vegetation Inventory System (Session 6). As a consequence, there was no time to have table break-out sessions on Session 3 and 4 as originally intended.

### **Session 1: Setting the Stage for a Productive, Collaborative Workshop**

There was general support for the Expected Outcomes for the workshop as provided in the *Workbook*. Regarding the Key Challenge, it was suggested that a new bullet dealing with the need for a clear business case for the inventory program be added. In that regard, it was also suggested that the IPR look back to when the Vegetation Resource Inventory (VRI) was first created and assess why it was created—and whether it delivered. If it didn't deliver, then why not? Are issues the same now as they were then? It was also noted that clients come and go; issues come and go. Is the inventory not something that we should see as an infrastructure that we build and maintain? If so, it will be there to support a variety of clients and business needs.

**Action:** Assess earlier documents related to the development and implementation of the VRI as they relate to the IPR.

### **Session 2: Chief Forester's Vision and Stewardship Framework**

Jim Snetsinger noted that one of his important roles as Chief Forester is to provide leadership in public forest stewardship with the inventory being an integral component – and thus the importance of the IPR in supporting that stewardship role. He emphasized the importance of the inventory and IPR in supporting Sustainable Forest Management (SFM) in BC. He noted three important aspects of SRM: (1) policy & strategic planning; (2) operational planning & management; and (3) knowledge, monitoring & reporting. He described the key elements, current emphasis, and gaps/opportunities for each aspect.

Jim's anticipated outputs from the IPR include a Vegetation Inventory Strategy, a 5-year Program Plan for implementation of the strategy, a provincial investment governance model for Forest Investment Account (FIA) funding, and the formation of a Provincial Vegetation Information Advisory Body to monitor the program and provide advice to the Chief Forester.

At table break-out sessions, it was noted that inventory provides support for each of the three described aspects of SFM. Several tables observed that the inventory needs to be prepared in a manner that supports operational needs (e.g. FRPA and FSPs), and that if this can be accomplished, the inventory would also be suitable in support of strategic applications. The importance of clarifying the role of First Nations in the inventory was noted.

Questions were raised about inventorying private land. Jim noted his mandate was Crown lands and suggested that the workshop not unduly focus on the private land issue, while at the same time being open to innovative suggestions to address this gap.

Jim noted the importance of monitoring our progress towards SFM and the importance of the inventory and IPR in supporting that process so that we can report on this progress for Cabinet and the public. Jim relies on the IPR to identify the inventory implications of his SFM framework. He urged the IPR workshop participants to assist the development of options and recommendations needed to help ensure that the inventory supports SFM in BC.

**Action:** As per the intent of the IPR, to develop options and recommendations regarding an inventory strategy, implementation, plan, governance model including provincial inventory advisory body for the Chief Forester.

## **Session 5: Primary Purpose of the Inventory**

There was general support for the notion that the vegetation inventory needs to support delivery of SRM in BC at a variety of scales of application from provincial, strategic to operational. That said, there was concern on one hand that the inventory not be “all things to all people” (as it may then not satisfy key client needs satisfactorily), yet on the other hand the inventory does in fact provide decision support for diverse array of clients.

It was also suggested by some tables that a ‘straw dog’ list of key (core) attributes be identified that can be cost-effectively inventoried across the province be identified. The key attributes that support resource management decision may vary depending on the scale of application from strategic to operational. The list can then be shown to clients with the question: what else do you need to make your decisions? In that way, clients can react to a list of attributes developed by the inventory community based on anticipated user needs.

It was noted that funding for inventory has been cyclical, yet there is a need to secure a minimal amount of base funding for the program. To accomplish this, a strong business case will need to be developed. One example is to ensure funds are made available to keep the inventory reasonably current, by viewing this effort as an essential infrastructure project rather than as a response to current issues. It was noted that most businesses depend on a current inventory as a key requisite task in order to be successful.

The considerable work done by the Vegetation Inventory Working Group in the 1990’s should be assessed and refreshed based on current demands for inventory information; this effort can better inform several identified IPR issues.

Several suggestions to improve the eight assumptions described in the Workbook were also provided by the table break-out groups.

**Action:** Develop key (core) attributes that can be cost-effectively inventoried and updated across the province and share this with key clients to assess 'what else is needed to make resource decisions'.

## Session 6: The Vegetation Inventory System

The *Workshop Workbook* provided a diagram illustrating the Vegetation Inventory System with a more detailed supporting diagram provided on Growth & Yield. The Workbook also described each aspect of the "System". The table break-out groups were asked to review this material and provide suggestions for improvement. Each table provided important refinements which were described and handed to the IPR Action Team. For example, that the acquisition of air-photos needs to be shown as it is integral to the "System".

**Action:** Workshop participants agreed in Day Two (Session 7) that the "System" be refreshed based on the comments provided. It was noted that a 'system' map that was produced in the early 1990's should also be reviewed.

## Day Two

### Session 7: Checkpoint on our Progress

Keith Jones provided some key observations from the discussions during Day One:

- Yesterday's conversations were lively with good, positive energy. There is no shortage of passion and interest in this community.
- There are still opportunities for improvements to the approach, particularly with regard to the implementation of the VRI.
- There are issues around speed of delivery, challenges of currency, and the recognition that the use of spatially explicit planning models to support landscape-based questions is now standard practice.
- There is a gradual change towards the sustainable forest management paradigm
- The Chief Forester presented a vision that he is committed to and ready to implement. He laid out the elements, opportunities, and challenges around that vision. This gives us a foundation to which we can react and upon which we can build. He is categorically using the words "**sustainable** forest management".
- What are the inventory implications of the Chief Forester's SFM framework? Is the design we have sufficient to address these business drivers?
- Need to be careful not to introduce changes where they are not needed, or may even be detrimental. We are sometimes keen to latch onto something new – thinking that new is always better. However, if we understand the tools we have they may be quite sufficient.
- We need to ensure we have flexible, sound designs that can stay in place irrespective of new technologies and can address emerging issues and challenges.
- The Chief Forester has given us a mandate and a call to action.

- As the inventory goes through a number of phases, the design should be able to apply to whatever level we need to apply the inventory at. If design and sampling work together, you should be able to meet all needs.

During subsequent workshop discussions, Evert Kenk and Norm Shaw noted that the VRI Model has robustness and design flexibility; similar issues and problems were encountered in the early '90's; we should look at this earlier work to assist the IPR.

In response to a question raised by Keith, there was support for updating the Vegetation Inventory System diagram and descriptions (from Session 6). Keith noted that the inventory system can be viewed as a supply chain, with the sequencing aspect being critical.

Don Gosnell noted that there is a business mapping process underway on the VRI process; Berlin, Eaton & Assoc. (the consultants undertaking this mapping) commented that this is the most complex piece of business process they've ever seen. When staff were working through that exercise they recognized many opportunities for streamlining – efficiencies can be achieved

Regarding the use of the word operational – we've heard one view of what that is – it means how intensively we survey and describe what's in the inventory – another point of view is that it is more concerned with making sure that the information that is used operationally is the same information we consider when we do things strategically. If there are differences, management decisions made at different scales may not agree.

## **Session 8: Key Issues and Opportunities that Surfaced from the Dialogue Thus Far**

Plenary discussions followed a presentation on some of the key issues and opportunities stemming from the Challenge Dialogue (CD) feedback in conjunction with a review of the inventory implications from selected forestry initiatives and Timber Supply Review. Observations expressed at the plenary session included:

- That the VRI was designed to be flexible with the capability of accommodating an array of applications from strategic to operational.
- That the implementation of VRI has been the real issue given ensuing limited resources including inadequate core expertise and training to deliver VRI relative to how it was envisioned to be “rolled out”.
- That lack of effective delivery has unfairly tainted the VRI design or standard.
- That considerable effort was made to develop the complex set of tools in VRI, and that these efforts should not be lightly discarded given that VRI implementation (not design) appears to be the main concern.
- That VRI implementation therefore is the key issue that needs to be fixed.
- That fixing VRI implementation means developing and adhering to long-term objectives so that we are not always reacting solely to short-term issues. For example, that some level of stable base funding be directed at attaining the long-term objectives with additional funds, when available, directed at the hot topics of the day.

- That said, there needs to be opportunities in the inventory program to bring forward new and existing technologies – so that potential refinements to VRI can be considered – and that promising innovative approaches need to be responsibly pilot tested.
- Support was expressed for a minimum level of inventory information gathered across the entire provincial land base with additional information collected as needed (and funded) where development activities occur.
- There was concern that we don't have a seamless forest inventory and that we need to develop this, for example, in support of provincial and regional level analysis. There was also concern that we don't even have a plan in place to address this issue; that we need a strategy to reach this goal or we will never get there.

## **Session 9: Inventory Issues/Opportunities**

Six break-out sessions were envisioned during the design of the workshop as noted in the Workbook that reflected the key issues outlined in Session 8. These were (a) sub-strategic applications; (b) seamless inventory coverage; (c) growth and yield, site productivity and adjustment factors; (d) standards; (e) inventory currency – update and maintenance; and (f) expanded discussions of inventory purpose.

Workshop participants were asked on Day One to sign up for their preferred breakout session and there was considerable interest to attend session (f) on the purpose of the inventory.

As Day Two evolved, the workshop organizers revised the themes and formed three breakout sessions as follows:

- Inventory Updates (e);
- Growth and Yield (c);
- Standards session (d) and
- Vision and Implementation session with a large break-out group focused on purpose of inventory (f), where issues related to sub-strategic applications (a) and seamless coverage (b) could also be discussed.

The breakout groups were asked to prepare some options as outlined in the Workbook.

### **Inventory Updates:**

- The key reason for updates is to address disturbance and growth;
- The objective should be to annually update the inventory including spatial and attribute data;
- The responsibility should be with the MOFR VRI Update Group in association with tenure holders, MOFR protection and silviculture;
- The options outlined were: (a) use RESULTS and natural disturbance data and other information and do annual projections; (b) use remote sensing data; and (c) do periodic re-inventory just when there is a lack of confidence in the inventory;

- Implications of not updating include: data is out of date; certain analysis becomes difficult or impossible; decisions involve increased risk; re-inventory needed sooner; growth models will require changes;
- User acceptance of timely and accurate updates would do a lot towards solving a number of issues of concern raised by the CD feedback.

### **Growth and Yield:**

- Three themes need to be addressed: (a) general modeling; (b) general monitoring; and (c) long term data themes (with each relating to the other);
- The objective regarding the modeling theme is to produce a more compatible, unified system (i.e. the ideal option); e.g. different models are currently used for updating and projecting the inventory for managed stands (e.g. TSR); an intermediate (transitional) option needs to be described;
- The base case for the monitoring theme is the current ad hoc situation with some standards but no provincial monitoring strategy; the preferred option is development and implementation of a strategy that addresses and integrates user needs;
- The ultimate goal (option) related to the long-term data theme is a coordinated system that unifies current data programs (e.g. PSPs, monitoring, phase 2) potentially via one plot design;
- Issues under all three themes are interrelated, necessitating an overarching G&Y strategy;
- The goal 10 years from now is to be able to reconcile the inventory and G&Y predictions given what we predicted versus what we actually realized (e.g. monitoring). Reconciliation is further complicated when the inventory is updated one way, yet forecast (e.g. TSR) in another – thereby underscoring need for a more compatible system.

### **Standards:**

The main topics discussed were: (1) what is the minimum standard? and (2) need for flexibility and accountability in the change management process.

Related to minimum standards:

- Phase 1 needs to be undertaken using the most appropriate technology (i.e. that is cost effective and gets desired results);
- The highest cost in doing an inventory is photo interpretation; we need to explore improvements in technology to see if these costs can be reduced;
- Phase 1 attributes need to be identified at various scales from strategic to operational with capability of supporting multiple levels of reporting and decision-support;
- Need to review the mandatory list of attributes to be collected in Phase 2 to determine what should in fact be the minimum standard, while allowing flexibility in the collection of additional attributes as needed for a specific areas;

- Need to have flexibility on the number of Phase 2 plots collected with intensity of sampling varying depending on project needs; however this has to be mindful of what is required to address the statistical reliability of VRI;
- The biggest cost for Phase 2 is getting to the actual sample location – that fixed cost is hard to change; therefore extra attributes collected per sample plot generally does not add significantly to the incremental costs of VRI;
- Perhaps ground sampling can be supplemented by analysis using satellite imagery;
- The group was not in alignment about whether results-based standards should be developed; the group will explore this issue further post-workshop.

Related to change management:

- Changes should be peer reviewed using concepts such as general agreement and alignment in order to give validity;
- MOFR FAIB should be responsible for attaining alignment and be final arbitrator;
- Challenges to address change have been lack of funding and rigidity in the supporting data system (e.g. the Oracle database);
- Changes should be done at key milestones (rather than incrementally) so that there is stability in standards for a number of years;
- Changes should be based on a strong rationale (business case) backed by testing – and not just because it seems like a good idea without supporting documentation.

### **Vision and Implementation:**

A proposed vision is to have a fully implemented VRI for the province at a targeted level of precision. In addition to the vision and strategy, it was generally felt that there was a need for a Five Year Plan to implement the VRI. Part of that means that the inventory can address both provincial and local priorities.

The base case option is an inventory with non-dedicated, short-term (annual) FIA funding directed at competing priorities established at the management unit (MU) level (i.e. where inventory needs are weighed against other MU issues). Inventory work therefore requires a licensee champion to be funded. As a consequence, VRI is implemented in a piecemeal fashion without a strategic plan. Without a strategic plan, we will never have provincial coverage.

The “desired” option overcomes the weaknesses in the base case option where a strategic plan guides delivery of the inventory (which can include priority setting at the MU level as before) supported by more stable (base) dedicated multi-year funding. (Note: FIA model is changing to provided dedicated funding consistent with a strategic plan which helps move us toward the desired option).

For example, delivery of the desired option can involve implementation plans at the provincial level with local (MU) considerations nested within them – with costs/benefits described.

Implementation needs to encourage innovation including support for investing in research and testing new or existing alternative technologies.



## **Session 11: Next Steps and Workshop Wrap-up**

Post workshop feedback and ideas should be sent to Don Gosnell (see Appendix 1 for initial feedback)

Workshop participants are encouraged to stay engaged so that the options can be further developed and described as we move towards options and recommendations. We need get back to the Chief Forester regarding our feedback on how the inventory can support his framework.

Post-workshop “Issue Teams” will be formed by invitation to further address options and implications. A workshop synopsis (this document) will be prepared and distributed. You will be contacted about staying involved and continuing to be aware of the IPR process.

## Section 3: Post-Workshop Summary and Next Steps

Don Gosnell provided a post-workshop summary of key messages where there appeared to be alignment at the workshop:

1. the VRI design is fundamentally sound;
2. the implementation is where we have key challenges and opportunities;
3. there is general support for greater polygon-level reliability;
4. there is general support for some level of provincial coverage; and
5. there are opportunities to make better use of other information sources to enhance the VRI.

With respect to next steps, the IPR Action Team will be meeting on June 5th to set up the Issue Team process including scope of work, objectives, timelines, participants and any need for supporting projects. A project plan for each issue theme will be developed. The proposed issue themes include:

1. Funding, Governance & Program Oversight and General Implementation
2. Inventory Purpose/Vision
3. Technical Standards
4. Polygonal Reliability
5. Coverage (beyond TSAs and Crown land)
6. Currency (update and maintenance)
7. Growth and Yield, site productivity and operational adjustment factors
8. Other (suggestions?)

Issue teams will be formed by invitation; Don asked participants who want to be involved in an issue team to let their interest be known.

## Appendix 1: Some Immediate Post-Workshop Feedback

The following immediate post-workshop submissions have been included here in the spirit of keeping the IPR Dialogue moving forward. We welcome any further submissions and commit to ensuring that these inputs will be brought forward to the work of the Issue Teams and their task of identifying Option Recommendations.

### Submission #1 — Ray Addison:

At the workshop, it seemed that we were really struggling to come up with a set of visions and options that could drive the business plan. In the attached (see below) document, I have tried to build the gist of our discussions into more discrete packages. This helps to address my concerns about the logic model -- basically, there isn't any logic until we get down to the options. At that point, there needs to be a different logic model for each option.

### Visions of a Provincial Forest Inventory

**Vision 1:** A classification of forest lands that provides an accurate estimate of the area of the **province** covered by major forest types, stratified by regions, ownership, timber productive capacity and age classes; the inventory will be capable of detecting and describing changes over 10-year intervals. This product is mapped to the regional level, with tabular data summaries for each region.

More detailed inventories are conducted as needed for individual management units or tenures; not integrated with the provincial inventory.

**Vision 2:** A classification of forest lands that provides an accurate estimate of the area of each **inventory unit** covered by selected vegetation characteristics, including overstorey and understorey, and timber characteristics necessary for estimating timber volume and growth; the inventory will be kept current on an annual basis through a combination of estimates and measurements. This product is mapped to the inventory unit level, with tabular data summaries for each inventory unit.

More detailed inventories undertaken as required; data managed as part of the VRI.

**Vision 3:** As in Vision 2, except the accuracy target is achieved for **individual watersheds**, and polygon labels have improved reliability for use in resource management planning processes. Mapping is to the polygon level, including attributes for each polygon, and with tabular data summaries for each individual watershed.

More detailed inventories undertaken for operational planning will have a narrowly-defined geographic scope and may be of limited use for updating the VRI database.

### The Visions in More Detail

**Vision 1.** Province-wide inventory coverage is focused on data for broad regions (probably forest districts) that can be aggregated to a provincial total for State of the Forests reporting and other national or international mechanisms for tracking sustainability. Only selected sample points are classified and verified. Statistics are presented in tabular form for each region without spatial detail below the regional level. More detailed inventory processes and other data gathering for planning purposes and certification are the responsibility of tenure holders and do not fall within the purview of the provincial inventory. Timber harvesting rates could be set through area-based controls for management units with either single or multiple licensees. Alternatively, licensees could be required to acquire information that is needed to enable determining volume-based controls, similar to TFLs today.

**Vision 2.** Province-wide inventory coverage is similar in intensity and accuracy to today's VRI but includes all forest lands. The detail of inventory is reduced to reflect current practices, as is the scope of attributes, in keeping with current trends toward "VRI light". More detailed inventories are undertaken as required for planning and certification purposes and the results are used to verify or modify the polygon labels in the provincial inventory. Timber harvesting rates are determined on a volume basis through a spatial or semi-spatial analysis.

**Vision 3.** This inventory provides sufficient detail and precision to enable planning to a watershed scale, as well as being amenable to roll-up to meet needs for province-wide reporting. Inventory detail may vary geographically in keeping with the resources and socio-economic issues being addressed in planning processes, and the risks associated with strategic decisions such as allowable annual cut determinations. The main options regarding this vision, in addition to who pays for the enhanced level of precision, focus on the delivery model that ranges from centralized control of a standardized product, to dispersed delivery of a results-based product.

### **Options for Addressing Vision 1**

- **Option 1:** Maintain a low-intensity VRI with enhanced NFI in gaps
- Similar to status quo VRI except for fewer, larger strata and fewer field sample plots
- Only forest cover typed; shrub and forbs not meaningful for larger strata
- Polygon labels only useful for aggregation to regional and provincial levels; unreliable for planning purposes
- In VRI gap areas, sample additional NFI grid points to meet reliability targets

### **Option 2:** Maintain a low-intensity VRI on all forest lands

- Similar to the VRI portion of Option 2
- Requires VRI Phase 1 photo-classification of all forest lands including TSAs, TFLs, Federal lands, private lands and parks
- Requires core data from TFLs

- Ground sampling should occur in other ownership classes but if that is not possible, photo-classification adjustments may be done through interpolation from adjacent Crown land samples

## **Options for Addressing Vision 2**

### **Option 1:** Variable intensity, reduced reliability on non-productive forest lands

- Current VRI used to produce initial roll-ups for each inventory unit
- Gaps in inventory coverage supplemented with grid point samples based on the NFI grid; primarily photo interpretation
- Future inventory updates and re-inventories sample productive forest lands most intensively
- More detailed inventories are conducted as needed for individual management units or tenures; results of detailed inventories used to verify and improve the inventory classification

### **Option 2:** All forest lands sampled to the same intensity

- Enhanced Option 1; all forest lands given equal priority and supplemental plots verified more intensively through air calls, large scale photography, and ground samples where permitted
- Improved utility achieved by completing comprehensive ecosystem mapping
- Future inventory unit summaries stratified by ecosystem characteristics (mapped)
- Results of detailed inventories used to verify and improve the inventory classification

## **Options for Addressing Vision 3**

### **Option 1:** Centralized model

- Forest Analysis and Inventory Branch specifies standards and schedules for data collection
- Data collection carried out under contract or by the forest industry
- Data quality assurance and management overseen by Forest Analysis and Inventory Branch.

### **Option 2:** Mixed model

- Forest Analysis and Inventory Branch establishes standards

- Inventory unit funding levels established in consultation between Branch and user committees
- Priorities and schedules established by user committees for individual inventory units
- Data quality assurance and management overseen by Forest Analysis and Inventory Branch

**Option 3:** Dispersed model

- Standards are specified as results-based targets
- Inventory funding levels left to user committee discretion
- Data management is the responsibility of individual licensees or groups of licensees
- Forest Analysis and Inventory Branch undertakes audits for quality assurance
- Forest Analysis and Inventory Branch may undertake high level inventories to meet provincial needs

**Submission #2 — Ian Moss:**

I would be happy to assist in moving this initiative forward. As an indication of where my head is at, my list of issues is as follows:

1. The need for strong industry and government participation in managing and maintaining the inventory; there is also a need (at some point soon) to re-engage industry at the executive level for the purpose of obtaining a more constructive working relationship in the areas of managing, maintaining and updating inventories. This conversation broaches on tenure issues that makes it difficult to deal with, but it needs to be dealt with nevertheless.
2. The substantial need for extension and training in the areas of both design and application of the inventory for both operational and strategic applications, and to raise awareness of the current state of the inventory at local levels; serious consideration should be given to doing this under the banner of the Forest Management Institute of BC. The ABCFP should make continuing education in this area mandatory.
3. The need to be clear about what kinds of forest and stand management decisions the inventory is intended to support. Special attention needs to be paid to impacts on water resources and biodiversity, probably in the context of climate warming; these can not be dealt with as something separate from VRI.
4. The need to maintain a simple VRI adjustment process.

5. The need for a coordinating body, perhaps like the Forest Genetics Council to oversee implementation details.
6. The need for an up to date Province-wide inventory that in some cases may mean establishing plots without redoing the line and attribute work.
7. The need for routine inventory accounting and reporting (e.g. every 5 years) on a TSA basis and for the Province as a whole (similar to an annual report required by corporate institutions); this report should also include a forecast of the expected state of the inventory 5, 10 and perhaps 15 years from today. The report should primarily focus on Forest Asset Accounting - thereby addressing forest values as they relate to the inventory, rather than just volume. Each District/TSA should be responsible for undertaking this reporting to ensure that there is a high degree of awareness of the state of the Forest at a local level that is necessary if forests are to be managed effectively.\
8. The need to better connect growth and yield with the inventory so that the yield curves used in Timber Supply Analyses are compatible with those used in inventory update; this includes adding tree level details to the inventory (see point number 13)
9. The need for stable funding - the inventory is an operational component that is necessary to managing BC's Forests, not a nice to have.
10. By way of regulation, to restore the management and maintenance of the inventory as part of the Chief Forester's mandate.
11. Consideration be given to re-integrating TFLs into the Province wide inventory; this is a question of who pays ... but as I understand it, there is a stumpage allowance for managing inventories on TFLs. Consideration may be given to extending this allowance to quota holders
12. Consideration be given to including parks that are important to BC's Forest Management Strategy in terms of providing an appropriate array of goods and services to the Province.
13. Consideration be given to including Managed Forest Land as part of the inventory management process, using remote sensing (imagery) tools, with the intent of including this information in the state of the province reporting. It is impossible to develop appropriate Regional Forest Management strategies without including an accounting of these lands, their historical changes, and their anticipated changes over time; this is particularly so where there are high concentrations of these lands associated with railway grants throughout the Province.
14. There needs to be an ongoing research component to support development and integration of new technologies into the inventory management system ... by design rather than by default.
15. Ministry of Forests staffing levels in the area of inventory management need to be reviewed and if necessary extended, while acknowledging the important roles of consultants in linking government products and services to the Private sector in a flexible

sort of way. Inventories are no less important to the Province than tree planting, and when it comes to large scale natural events such as bark beetles and wildfire it may be more important.

... if I had more time to think about it, there would probably be some more issues. There is a need to consolidate the issues (if it has not already been done) and put them in some kind of order so that the work can proceed in a logical and timely sort of way. I know you are working on this stuff, and for what it is worth, I hope this helps.

### **Submission #3 — Dave Carson:**

Thank you very much for the opportunity to attend the workshop. I found it informative and I hope that I was able to contribute sufficiently. It was also great to catch-up with many inventory practitioners whom I had not seen in some time.

It is my personal opinion (think of this as my challenge dialogue submission) that there are the few following key issues:

1. Stability of funding  
Based on my experience, value for money is not the key driver for government programs. Political control of funding trumps value every time. We know this because of the spending flurry that happens every March. We know this because of the lack of stable program funding over extended periods of time. These two factors alone result in enormous wastes of money.
2. Operational vs. strategic  
Drop this distinction. The VRI was designed to serve all needs but was implemented in such a way that it did not ensure high polygon accuracy. However, the inventory is polygon based and if you want to improve it at the forest estate level, or at the watershed level, or at the stand level for that matter, you improve it at the polygon level. In this age of spatial analysis, even land use planning by virtue of the types of operational requirements being implemented requires high levels of accuracy at the polygon level. Drop Operational vs. Strategic and use Polygon Accuracy Requirement
3. Full provincial coverage  
The term seamless has come to mean this, although it causes some confusion because seamless has traditionally meant an inventory which did not use tiles for organization of data. This aside, good resource management (SFM, FREP, certification, EBM, etc.) **require** seamless inventory of VRI, ecosystems, etc. Bringing in Parks and TFLs is important, but make sure alpine areas are included in VRI projects too.
4. Stand structure  
Ensure that the VRI standards we take forward adequately allow the description of stand composition and structure. I am thinking about post-intervention: variable retention etc.
5. Continuous Update  
Currency never seems to get the emphasis it needs.

6. Stick to core items  
Leave ecology, operability, environmental protection to others. The inventories are easily integrated later. Beware the integrated projects or the super plots. It is attractive to say that half the cost of a plot is getting there. Access is expensive, but cheap access and poor data is not the answer either.
7. Degree of change  
The investment in VRI design was substantial, the basic design is good. Spend the bulk of the available resources doing inventory.
8. G&Y  
Growth and yield is important to inventory but acknowledge the links and leave G&Y out of this process.

**Submission #4 — Jim Thrower:**

Don [Gosnell] I too was pleased where this [IPR/Workshop] ended. Thank you for inviting me. i would be happy to be involved in subsequent steps/teams. My highest value to you is probably in areas 1, 2, and 3 of your list of items [[1) Funding Governance & Program Oversight & General Implementation; 2) Inventory Purpose/Vision; and 3) Technical Standards].

## **Appendix 2: Workshop Record**

Please see the separate document prepared by Michele Baker, OfficeLink on the IPR Website — [http://www.for.gov.bc.ca/hts/inventory\\_prog\\_rev.htm](http://www.for.gov.bc.ca/hts/inventory_prog_rev.htm).