

Growth and Yield Monitoring Task Force

**Inventory Working Group
Report to the
Growth and Yield Steering Committee**

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Background

The Growth and Yield Monitoring Task Force (GYMTF) was formed in May of 1996. Comprised of 17 provincial, federal, industry, consulting and university experts, it has held four meetings. Members have spent considerable time developing the Terms of Reference which include: mandate of the Task Force, definition of growth and yield monitoring, strategy and tasks, and work plan and time table. Discussions during the meetings have made it apparent that members had different definitions of growth and yield monitoring and different expectations of the Task Force. These differences have now been resolved.

The mandate of the Task Force is:

"Reporting to the GYSC, and working in cooperation with other stakeholders, the GYMTF will

1. identify provincial growth and yield needs related to monitoring; and
2. develop a framework for provincially coordinated programs to meet the identified growth and yield monitoring needs".

The approach to Phase 1 above is to review all provincial growth and yield needs, develop a structure and rationale for identifying those considered to be monitoring (and in the process define monitoring), and producing a list of these needs. In Phase 2, the monitoring needs are grouped so that one methodology can be used to meet all needs in that category. A Working Group is established to develop the appropriate methodology for each category.

The Task Force has completed Phase 1 and initiated Phase 2. This report describes accomplishments to date.

To assist in completing Phase 1, a consultant (E. McWilliams, RPF) was engaged to produce a discussion paper. It is available to the Steering Committee.

PHASE 1

General Conclusions

The Task Force has developed the following definition:

Growth and Yield Monitoring is the process of observing the growth and yield of a forest and comparing this with the predicted growth and yield of that forest to assess risk and uncertainty around predictions.

Implicit in this definition is that

- a prior expectation of growth and yield must exist before it can be monitored. Thus, the objective of growth and yield monitoring is to check existing predictions, not develop new ones. "Existing predictions" include everything from a ballpark estimate by a reasonably well-informed field practitioner, to a model based projection or permanent sample plot base output;
- it is the outcome of applying a method that is monitored, not the method itself;
- the forest is the smallest monitoring unit. The province is the largest one.

What is not implicit in the definition is that

- "predictions" include current estimates such as inventory estimates, as well as projections into the future;
- monitoring will include areas such as inventory, research, silviculture and forest health;
- linkages to existing data networks (such as the federal forest health network), and collaborative action (e.g. with the national Criteria and Indicators program) should be exploited;
- unless otherwise specified, monitoring includes the specification that there is (or isn't) a statistically significant difference between the original estimate and the result obtained from monitoring: pinpointing the cause of this difference is not part of monitoring.

Specific Recommendations

The Task Force recommends that the following growth and yield needs require monitoring:

1. Volume and taper equations that
 - reflect losses due to decay and waste
 - form changes due to varying treatments
2. Net volume adjustment
3. Estimates of site quality, including
 - SI estimates from BEC
 - SI estimates from growth intercepts
 - adjustment of old growth site indices
 - site/height curves
4. Stand growth resulting from
 - stand establishment scenarios
 - incremental silviculture treatments
 - harvesting options

including interactions between treatments, sites, species, timing of treatments and prior treatments.

1. Pest impacts on stand growth and yield, including interactions with stand establishment, tending, and harvesting treatments.
2. Characteristics of wood quality (low priority)
3. Detailed management level inventory, including
 - o long term inventory projection, with projections of successional change (low priority)
 - o biodiversity
 - o growth and condition of non-commercial vegetation
 - o quantity and distribution of coarse woody debris
 - o predictions of stand attributes related to non-timber resources
4. Update inventories between re-inventories.

PHASE 2

The Task Force has provisionally identified the following three categories of growth and yield monitoring needs:

1. Individual Tree
2. Silviculture
3. Inventory

Of the eight needs listed above, the first two belong to category A, no. 4 and 5 belong to category B, no. 7 and 8 belong to category C, and no. 3 belongs to both categories B and C. No. 6 does not fit into any category.

A Working Group (WG) has been established for each of the three categories. The Inventory Working Group has met and has completed the development of an inventory monitoring design based on the new Vegetation Resource Inventory (VRI). A report has been presented to - and accepted by - the Task Force.

The Future

Work on Phase 1 is essentially completed, and work on Phase 2 is well under way. Working Groups will continue to develop designs for specific needs. These designs need to be tested before implementation. **The Task Force recommends that field testing of these designs be undertaken during the 1997 field season.**

The Task Force will coordinate the activities of the Working Groups and will develop a program framework for implementation. However, implementation itself is beyond the mandate of the Task Force.