

DRAFT

Guidelines for implementation of the “Riverside system”

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This document provides guidance on policy issues pertaining to the implementation of the “Riverside system”. This document is not focussed on the particular way in which the system is being implemented in TFL 49. Rather, the focus in this document is on general principles for implementation in any management unit (whether TFL 49, the Fort St. John Code Pilot area, or any other area). By focussing on general principles, innovative future applications and refinements of the system are not constrained. The system, and our understanding of how it works in practice, are still rapidly evolving, so these policy statements should be taken as recommendations.

The Riverside system comprises 1) a sample design, 2) field procedures, 3) a yield prediction algorithm, 4) a database, and 5) a set of rules governing the application of the system.

1.0 Sample design

1.1 Statistically valid design

Sampling must be directed by a statistically valid design.

1.2 Restrictions on sample design

Two restrictions apply to the sample design: a) every cutblock in the population must be sampled and b) the intensity and location of plots within cutblocks must provide a high probability of identifying patches of low stocking (see **1.7 Stratification**).

1.3 Project plan

Before field sampling is undertaken, a project plan must be produced that describes the sample design, the field data collection procedures, and the proposed data compilation procedures.

1.4 Population clearly defined

The population must be clearly defined.

1.5 Sample frame

A process must be in-place to positively identify each cutblock that is in the population.

1.6 Sample size

Sample size must be adequate to produce precise estimates of target and expected future volume (also see **1.2 Restrictions on sample design**).

1.7 Stratification

The stratification scheme must include stratification by density class to separate out areas with very low stocking. Specifically, within each cutblock, patches with less than 700 well spaced, acceptable trees/ha (see **2.2 Criteria for acceptable**

trees) shall be identified when they exceed 2 hectares, whether they are a contiguous or a non-contiguous, dispersed type.

2.0 Field procedures

2.1 Written field procedures

Before sampling, field procedures must be documented.

2.2 Criteria for acceptable trees

Only trees deemed acceptable can stock a quadrant. A tree is acceptable if it a) is a preferred or acceptable species, b) meets local forest health (and advanced regeneration) criteria, c) is free from brush, and d) exceeds some specified minimum height.

2.3 Quality assurance

Before field sampling, procedures must be in-place to assure the quality of data collection. Field crews must be trained in the survey procedures and periodic checks of their work must be conducted.

3.0 Yield prediction algorithm

3.1 Cutblock age when surveyed

The survey year (years post-harvest), which could be also termed the cutblock age at survey, should be a) consistent with the assumptions/capabilities of the yield prediction algorithm, and b) within the early to late free growing window to ensure that at the time of the survey trees are well established, forest health agents and brush competition can be assessed, and that there is low risk of the need for future treatment and the potential for plantation failure.

3.2 Cutblock age when volume predicted

The predictions of future volume should be made for a cutblock age (years since harvest) that is a) consistent with the assumptions/capabilities of the yield prediction algorithm, and b) appropriate for the species and sites being managed, assumptions in the relevant forest planning analyses, and management expectations.

4.0 Database

The sample data must be stored in a secure, well-structured database.

5.0 Application rules

5.1 Target

The target shall be defined as 90% of the yield possible with aggressive silviculture. In the case of an assessment 10 calendar years post-harvest, this translates to 90% of the yield prediction given by an effective age of 12 years and an MSQ of 4.0.

5.2 Decision rule

Regeneration performance on the entire population is adequate when the sample mean (or total) expected future volume exceeds the target future volume.

5.3 Procedure when population fails

In the undesirable situation where the population fails, the following will be done:

- a) Entire blocks or portions of blocks will be identified where treatment - or where waiting a few years to allow trees to grow above brush - can be reasonably expected to increase stocked quadrant counts to the point that the entire population will pass. For each of these areas, a remediation plan must be prepared.
- b) A five year period will commence during which time the population must be brought into compliance.
- c) By the end of the five year compliance period, these blocks (or portions of blocks) must be re-surveyed.
- d) Where brushing was conducted, two years must elapse before the brushed area can be re-surveyed.
- e) For the re-survey, only stocked quadrant data needs to be collected. The previously determined site index, height, and effective age values will be combined with the re-surveyed stocked quadrant counts to re-calculate expected future volume.
- f) The re-survey results must show that when these areas, with their improved stocked quadrant counts, are merged back with the rest of the population, the entire population now passes.
- g) A report must be prepared that demonstrates that by the end of the five year compliance period, the sample-based estimate of mean (or total) expected future volume for the population exceeds the target future volume.
- h) If the population is not in compliance at the end of the five year period, the government may issue a remediation order or impose an administrative penalty.

5.4 Post-hoc adjustments to targets

Consistent with Section 108 of Bill 74, in computing target volume, it is permissible to propose a reduction to target volume to reflect damage to stands as long as the licensee did (i) not cause or contribute to the cause of the damage, (ii) exercise due diligence in relation to the cause of the damage, or (iii) contribute to the cause of the damage but only as a result of an officially induced error. In addition, target volume may be increased to reflect the amount of genetic gain reasonably expected by the crown (see **5.5 Post-hoc adjustments to expected yield**).

5.5 Post-hoc adjustments to expected yield

After sampling, expected yields may be adjusted to reflect the effects of excessive density, genetic worth of planted trees (see **5.4 Post-hoc adjustments to targets**), or other yield impacting factors that are not adequately addressed by the yield prediction algorithm.

6.0 Reports

6.1 Description of patches of low stocking

When a contiguous or non-contiguous patch of low stocking (see **1.7 Stratification**) exceeds 2 ha in a cutblock, the presence of the patch must be reported with a description of proposed treatment or, if it will not be treated, a description of why it will not be treated.

6.2 Report required

A report must be prepared that describes a) the data, methods, and results of the comparison of the sample mean (or total) expected future volume to the target future volume; b) the cutblocks to which the results apply; c) the areas of low stocking (see **6.1 Description of patches of low stocking**); and d) if the population has failed, the remediation plan to bring the population into compliance by the end of a five year period (see **5.3 Procedure when population fails**).