MANAGED FOREST COUNCIL

MEASURING TREE RETENTION BESIDE STREAMS

Field Practices Procedure: FPR-01

Purpose of Procedure:

This procedure outlines the process for the collection of tree retention data that will allow Council to determine if tree and understory retention requirements of the Council Regulation have been met. Specifically, this procedure establishes the following in respect of streamside retention:

- where to measure the retention,
- what parameters of retention to measure, and
- how to measure retention.

Where to Measure:

Field measurements adjacent to Class A, B, and C streams need to answer the following:

i. Does the number of trees retained meet the minimum requirements?;
ii. Is the proportion of coniferous to deciduous trees retained in the riparian zone the same as in the pre-harvest stand)?;
iii. Is the range of the size of trees retained in the riparian zone the same as in the pre-harvest stand?; and
iv. Are trees retained distributed as evenly as practicable along the stream?

Selecting the boundary along which to measure retention will depend on whether the cutblock boundary adjacent to a stream is greater or less than 100m long. The rationale for choosing a sample boundary section(s) should be recorded.

The number of sample sections that need to be assessed along a cutblock boundary will vary depending on site-specific conditions. For example, if the riparian retention area is substantially intact with minimal harvesting, additional counts may not be required. A single count should only occur for block boundaries where riparian tree retention exceeds the minimum by a significant margin.

Additional section counts will be required if less than the minimum number of trees have been retained. If the first 100m section counted contains an insufficient number of trees, additional 100m counts should be made on each side of the first section.

1. If the cutblock boundary is greater than 100m:

- Determine the area, or areas, where tree retention appears to be minimal, or relatively less than other areas along the boundary of the cutblock;
- Determine if the area(s) of relatively less retention can be included with adjacent up or downstream lengths of the stream boundary to delineate 100m sections that meet the tree retention requirements for each section, i.e., where possible, include the area of least tree retention with up and/or downstream lengths for best fit of compliance.

Note that this method biases the tree retention counts to those areas where fewer trees may have been retained while attempting to delineate these sections in favour of compliance. Focusing samples at sections that appear to have the fewest number of trees retained, is an efficient use of field time to assess any potential non-compliance.

2. If the cutblock boundary is less than 100m:

- Measure the length of the cutblock boundary adjacent to the stream.
- Count the number of trees for the entire section of the stream (for Class A and B) that is within 30m (or within 10m for a Class C stream) of the cutblock boundary.
- Determine if the number of trees retained complies with the Council Regulation by prorating the minimum tree retention requirement specified in Sections 27 to 29 according to the length of the boundary.

What to Measure:

The parameters that need to be measured vary slightly with stream class.

Table 1: Summary of Tree Retention Requirements

Stream Class	Number of Trees Retained	Size of Retained Trees DBH (cm)*	Same Proportion of Coniferous to Deciduous as the Pre-harvest Stand	Same Range of Sizes for both Coniferous and Deciduous as the Pre-harvest Stand	Retained Trees Distributed as Evenly as Practicable	Non-Commercial Trees and Understory Vegetation Retained****
A	30	30	Yes	Yes	Yes **	Yes for 30m
B	25	30	Yes	Yes	Yes **	Yes for30m
C	15	20	Yes	Yes ***	by policy	Yes for 10m
D	0	n/a	n/a	n/a	n/a	Yes for 10m
E	0	n/a	n/a	n/a	n/a	Yes for 10m

* Trees are retained within 10m of the stream if present prior to harvest. Review Council Regulation for a description of tree selection criteria.

** There is an allowance that exempts the Owner from retaining leave trees that are evenly distributed in certain circumstances.

*** Some variation is allowed for Class C streams with a channel gradient of more that 8%.

**** Retention of non-commercial trees and understory vegetation is not required, provided that there is no material adverse effect on fish habitat or water diverted by a licensed waterworks intake. Note other legislation such as the federal *Fisheries Act* is also applicable.

The parameters to be measured in the field are:

i. The number of trees retained;
ii. The diameter of trees retained;
iii. Tree type (i.e. conifer or deciduous);
iv. The number of stumps by size and type (i.e. conifer or deciduous);
v. The distribution and location of both trees retained and stumps along the 100m section and distance from the stream; and
vi. Retention of non-commercial trees and understory vegetation.

How to Measure:

- Record and measure trees cut (stumps) and retained by size (cm DBH) and type (coniferous or deciduous);
- Measure the diameter (DBH) of retained trees;
- Record type and measure the diameter of cut trees at the stump (use diameter tape or folding meter stick) since measuring DBH will not be possible. Trees will not need to be measured if it is obvious that they are either larger or smaller than the required size;

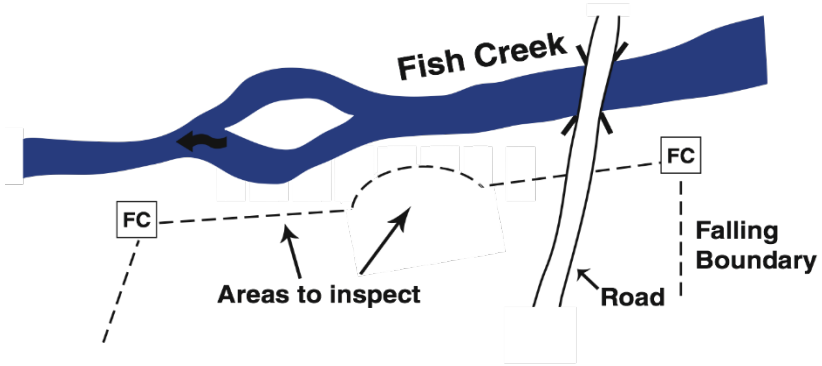
- Record the distribution of the trees retained along the sample section. This can be accomplished by recording the trees and stumps in 20m segments. Distribution can then be mapped since there will be tree retention data for each 20m segment of the 100m long sample site. ***Note:*** for a partial cut stand the boundary may have to be determined by the first tree cut that is 30m (Class A and B) or 10m (Class C) from the stream bank;
- Record in the field notes whether the trees retained are distributed as evenly as practicable. This requirement can be waived on Class A and B streams (Sections 27(4) and 28(4)) if the area on the opposite bank meets tree retention requirements and the stand species are not suitable for partial cutting. ***Note:*** there may be situations where the post - harvest distribution is clumpy, e.g. wet ground or windfall risk– as long as sufficient trees are on the opposite bank to compensate, this may be accepted.
- Determine if non-commercial trees (on the basis of species or diameter less than 17.5cm) and understory vegetation have been retained. If not, or if site disturbance has occurred, assess whether the exceptions apply (Section 30 (2)). These include felling and removal necessary to facilitate reforestation or for road construction or logging trails, or will not cause a material adverse effect on fish habitat, or for water diverted by a licensed waterworks intake. If all the non-commercial trees and/or understory vegetation has not been retained, record this in the field notes along with observations that may relate to a material adverse effect if present.
- Take representative photographs of the boundary sample site and record the locations. Also photograph all areas of significance, such as where there is a potential contravention.

Note: Some trees may have been felled because they were assessed to be “danger trees”. There also may be trees that were retained and have since blown down. These situations should be considered in the assessment. Be sure to discuss such circumstances with the Owner since windthrow trees may have to be salvaged.

Date: Jan 19, 2010

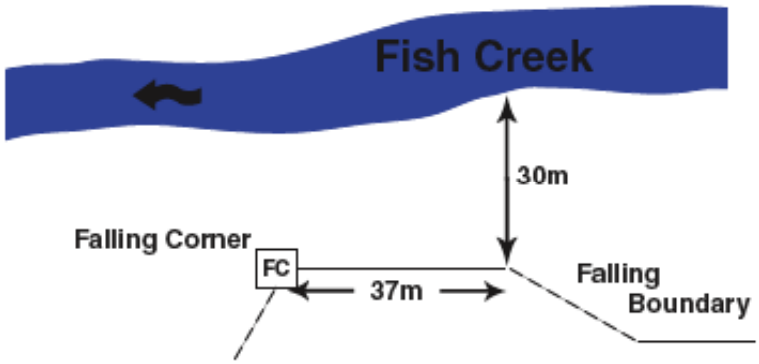
Approved: Original signed
Trevor Swan, Chair

Example 1: Count in a cutblock with an adjacent boundary >100m



In this example, the cutblock map shows that two adjacent areas located downstream of the road appear to be narrower and therefore have the potential to contain fewer retained trees. Once an initial field inspection confirms this, the next step is to make tree retention counts with up and/or downstream lengths for best fit of compliance.

Example 2: Count in a cutblock with an adjacent boundary <100 m



In this example, the cutblock map shows that the falling boundary is adjacent to the stream for a distance of less than 100m. Field measurement establishes that the length of falling boundary within 30m of the stream (top of bank) is 37 m. Once the POC is established (in this case a falling corner is used) a tree retention count is made along the 37 m of falling boundary. Since Fish Creek is a Class A stream, at least 30 trees must be retained for each 100m of adjacent boundary. For this example the minimum tree retention would be calculated as follows:

Divide the length adjacent to the stream by 100m *(37m ÷ 100m = 0.37)*
Then multiply this value by the # of trees required per 100m *(0.37 × 30 = 11)*

Hence at least 11 trees (of appropriate size, type and distribution) must be retained in accordance with the Council Regulation 2007 (Sections 27 – 29).