

File: 195-30/CRUI

September 1, 2005

**BY EMAIL**

To: Regional Managers

From: Bill Howard  
Director  
Revenue Branch

**Re: Amendment No. 3 to the *Cruising Manual***

I hereby approve Amendment No. 3 to the *Cruising Manual*, and attach a copy for your use. The following sections have been amended.

- Section 3.4.2: The Walkthrough Method section and diagrams have been updated to clarify the procedures.
- Section 3.5.6.3: An update to reflect the use of dead potential white pine algorithm in the Interior.
- Appendix 4.2.8: Housekeeping to note that broken tops are only recorded if the break is below 10 cm diameter inside the bark.



This amendment will come into force on September 1, 2005. Further amendments or revisions to this manual require my approval.

  
for Bill Howard  
Director  
Revenue Branch

Attachment

pc: Grant Parnell, Director, Operations, BC Timber Sales



# Amendments

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**Amendment No. 3 - Effective September 1, 2005**

For your convenience the current amendment updates appear in red text. All changed graphics are indicated with a red arrow ➡. Two arrows ➡➡ represents text removed.

| Section         | Description                                                                                              |
|-----------------|----------------------------------------------------------------------------------------------------------|
| Section 3.4.2   | The Walkthrough Method section and diagrams have been updated to clarify the procedures.                 |
| Section 3.5.6.3 | Section updated to reflect the use of Dead Potential White Pine Algorithm.                               |
| Appendix 4.2.8  | Houekeeping to note that broken tops are only recorded if the break is below 10 cm diameter inside bark. |

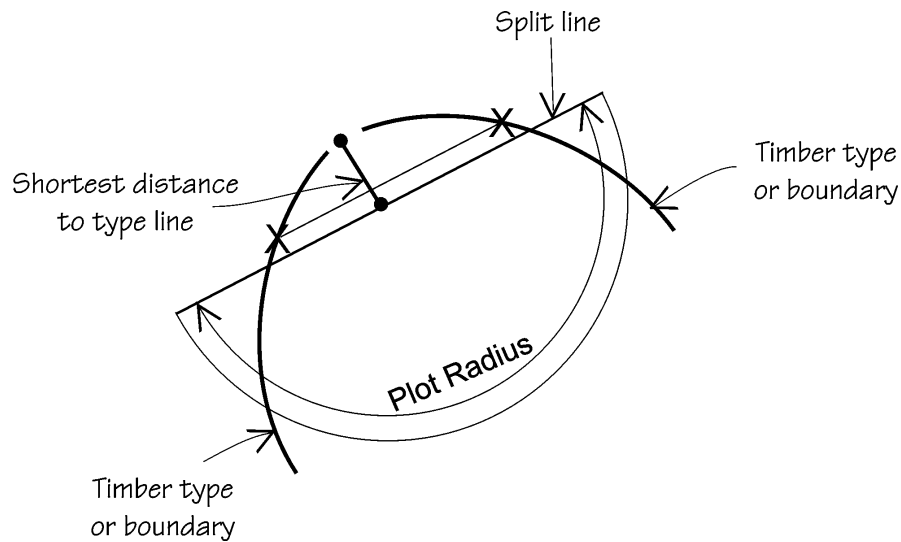


**Figure 3.7 An Example of a Border Plot that Must be Dropped Because 180 Degrees Isn't Available for Measurement.**

### 3.4.2 Walkthrough Method

#### Procedure

The following description of how to apply the walkthrough method is based on a description of the procedure from Dr. Iles book entitled "A Sampler Of Inventory Topics." and the procedure in the *Coast Forest Region, Regional Guidelines* in Chapter 9 of the *Cruising Manual*. The following general procedures must be followed in the establishment of a walkthrough plot:

- For the Interior only, select the border or walkthrough method for the cruise and record the choice on the cruise plan.
- Enter an "F" (full plot) on the cruise tally sheet.
- Do not tally trees that fall outside the cruise area.
- All "in" or "out" tree distance measurements are recorded on a horizontal basis and are measured at 1.3 metres dbh.

**Regular Boundary – see figure #3.8**

Measure the bearing and distance from the plot centre to the centre of the “in” tree and then measure an equal distance beyond the centre of the tree on the same bearing from plot centre. Record the tree details twice if the point is outside the cruise area. Record separate tree numbers for each tree. Record the tree details once if the point is inside the cruise area.

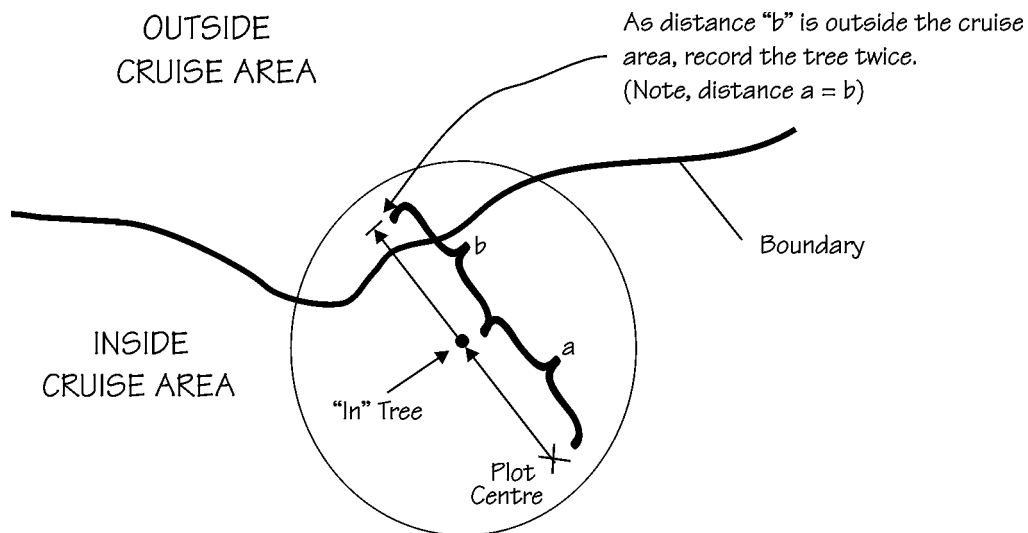


**Figure 3.8 Walkthrough Method - Regular Boundary.**

**Irregular Boundary** – see figure #3.9

If the point bearing and distance places the point back inside the cruise area then record the tree once.

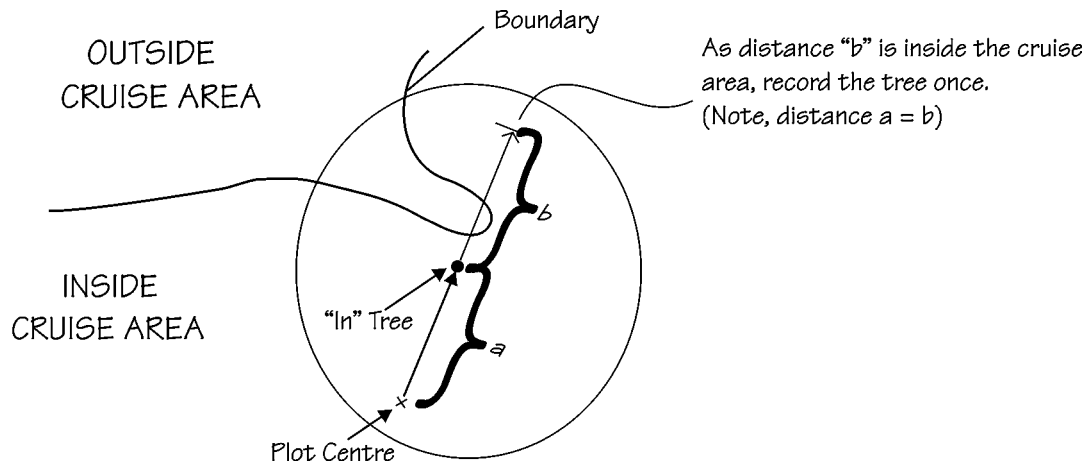


**Figure 3.9 Walkthrough Method - Irregular Boundary.**

### Dropping A Walkthrough Plot – see figure #3.10 and 3.11

Drop the plot if the boundary is very irregular and you are unable to project one half of the tree circle from plot centre for the largest tree in the plot (see figure 3.10). Use full measure plots on all timber type boundaries. Count plots can be walkthrough plots.

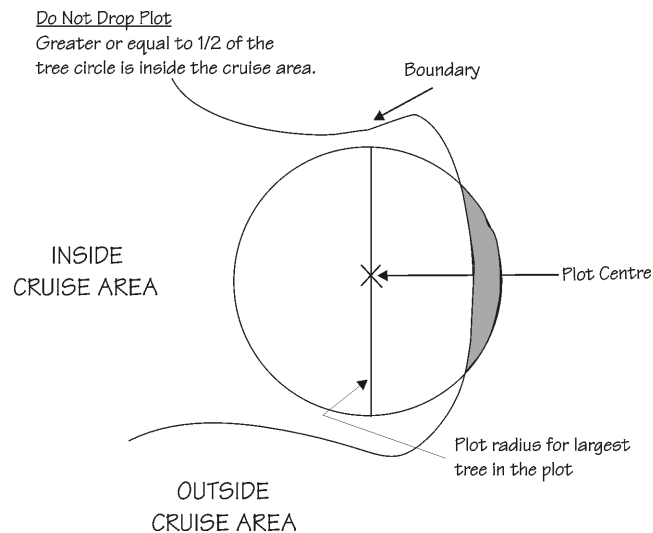


**Figure 3.10 Walkthrough Method - Irregular Boundary.**

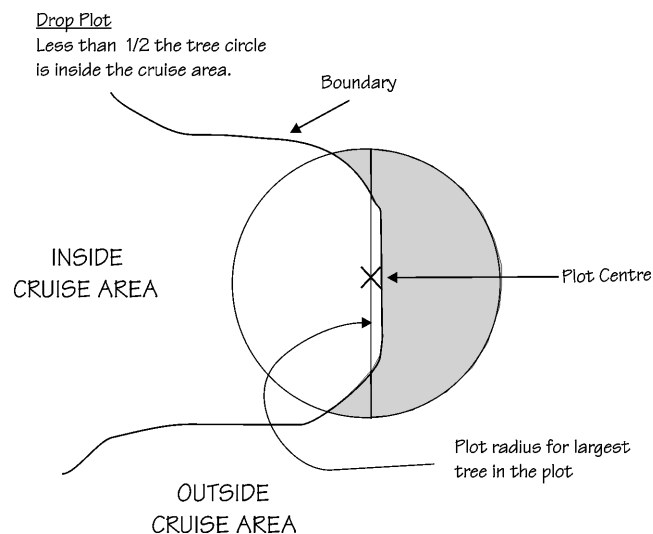


**Figure 3.11 Walkthrough Method - Dropping a Plot.**

of the tree in each 10 m log. By estimating percent firmwood in each 10 m log, the firmwood percent of the tree can be determined.

1. Dead Standing

Decay percent is difficult to assess on standing trees, "Sounding" with an axe or equivalent implement can be helpful. Before sounding, look for overhead hazards that may be dislodged.

2. Dead Down

Good judgement must be exercised in applying tree classes to down material. Since some species are more resistant to decay than others, decisions will therefore be influenced by the tree species involved as well as by local climatic conditions. C, Cy, F, S, P and L are the most decay resistant species and are less likely to exhibit extensively sloughing bark and conks. Other species exhibiting these characteristics are more likely to be "Dead Useless". However, it should be remembered that in drier areas, dead and down Pl and Py may be entirely bark-free yet still be relatively sound.

Pathology is required on all dead potential trees on the coast and dead potential hemlock and white pine in the interior for use in the log grade algorithms.

The only exception to the green and/or red needle rule is for *abies lasiocarpa* in the Interior, where the following guidelines will apply:

**Indications – One or More Must be Present**

1. Sap-rot and/or,
2. Deep checking and/or,
3. Loose or shedding bark.

**Contraindications – None can be Present for Tree Classes 3, 7 and 9 Trees**

1. Live Cambium.
2. Green needles.
3. Pitching that is on the end of a log or on exposed wood and not under the bark.
4. Live bark beetles are present.

If there is any doubt after applying the indicators and contraindicators, then the tree will be classified as green.

#### 3.5.6.4 Tree Class 4 (Dead Useless)

Dead standing trees that have less than 50 percent of their original gross volume in firmwood content or otherwise fails to meet the criteria of a dead potential tree as described in Section 3.5.6.3 will be classified as "dead useless" trees. Only dead useless standing trees will be tallied (dead useless down trees are *not* tallied). Dead useless trees are considered standing if they are leaning into another tree. Dead useless standing trees will not be compiled for volume, but along with Live Useless trees, provide a record of snag density in the stand for appraisal purposes. Only trees equal or greater than 3 m high and equal or greater than the minimum timber merchantability specifications must be tallied. Estimate their actual observed height and the original DBH, not an estimate of the stems original height.

#### 3.5.6.5 Tree Class 5 (Mature)

A mature conifer tree is defined as any tree over 120 years old. A mature deciduous tree is defined as any tree over 40 years old. The exceptions are:

- a. Aspen and Cottonwood in FIZ K and L where tree classes 5 or 7 will be used for trees 141 years and older,
- b. Coastal cruises where there are trees between 121 and 140 years old, then tree classes 5 and 7 will be used for trees 141 years and older.

A reasonable number of mature ages should be sampled along with the age drilling of the main stand component.

#### 3.5.6.6 Tree Class 6 (Live Useless)

Live Useless trees are trees that have only one or two live limbs. They are combined with TC 4 for the compilation of percent snags. This tree class must not be confused with a Tree Class 2 tree, which has a high proportion of rot due to konk.

**Cedar and Cypress** The tree must be almost completely rotten or hollow with just a thin shell of sound wood remaining. The low proportion of sound wood must be obvious (i.e., rotten or hollow knots, and large open scar).

**Hemlock, Balsam, Fir, Pine & Spruce** The tree must be broken off in the lower or middle thirds (i.e., at least the top third must be missing) with only a few live branches and almost completely rotten or hollow.

#### 3.5.6.7 Tree Class 7 (Mature Dead Potential)

This class is a combination of Veteran and Dead Potential so that the correct loss factor tables are applied in the compilation. The guidelines for TC 3 and TC 5 apply.

base of the live crown. This indicator is typically found on overmature trees (see Figure A.19).

Large rotten branches should not be confused with the normal decay of dead branches. It should be associated with large branches that have broken off, exposing a large heartwood surface to decay producing fungi, thereby potentially infecting the adjacent trunk.

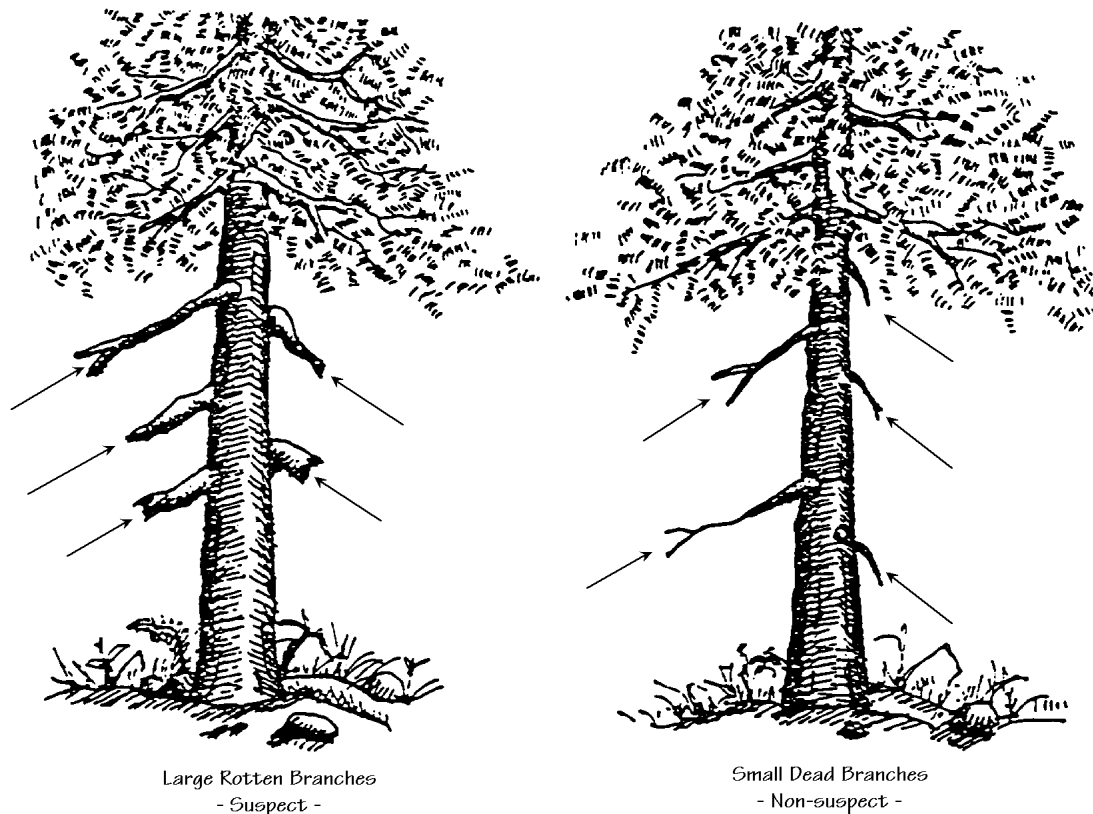


*Figure A.19 Rotten Branches.*

#### A.4.2.8 Dead or Broken Top

Definition:

- where the tree top or complete stem has died due to various physiological causes.

#### Causes of dead tops

Dead tops may be caused by several factors such as:

- insect attack,
- drought conditions,
- sun scald, and
- physiological death.

The calling of dead tops:

- a dead top must be obviously weathered, indicating that death occurred at least five (5) years ago and below the 10 cm top before it will be called as a pathological indicator, and

### **Causes of broken tops**

- wind breakage,
- snow damage, and
- damage from falling trees, etc.

Broken tops must be obviously weathered (see scar criteria) and broken below 10 cm diameter inside bark before being called as a pathological indicator.

Standing trees that are broken in the bottom third will have a windthrow damage code assigned. In this instance, do not record a dead or broken top in the first third unless the broken top occurred at least 5 years previously.

If a fork is present at a broken top position, record the fork if a merchantable log (3 m long and 10 cm top) can be recovered from the fork. If the fork is not of merchantable size, record the d or b top. Do not call both indicators (see Figure A.14).

If a candelabra is present at a broken top position, record d or b top.

### **Flat topped trees**

When trees attain their potential height for a specific site, the tendency for the top of the crown to flatten out is prevalent especially in certain species such as Douglas fir. This flattening of the crown is not indicative of damage to the tree and will not be called as a pathological indicator.

### **A.4.3 Abnormalities which are not Recorded**

The following abnormalities are not indicative of decay and are, therefore, not recorded.