

Ref: 280883

January 24, 2025

BY EMAIL

To: Regional Executive Directors

From: Allan Bennett, Director, Timber Pricing Branch

Re: Amendment No. 3 to the *Cruising Manual* and Amendment No. 1 to the *CGNF Standards and Procedures Manual*

I hereby approve Amendment No. 3 to the *Cruising Manual* and Amendment No. 1 to the *Call Grade Net Factor Standards and Procedures Manual*.

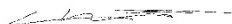
The manuals can be found here:

[Timber Cruising Manual](#)
[CGNF Standards and Procedures Manual](#)

The purpose of this amendment is to update the *Cruising Manual* and *CGNF Standards and Procedures Manual*, which provide:

- Addition of comparative cruise information for use in the Coast Area.
- Update the Check Cruise Submission Form Requirements.
- Separation of H grade and I grade sorts for CGNF.
- Updates and improved clarity of various roles, standards, and procedures.

Amendment No. 3 of the *Cruising Manual* and Amendment No. 1 of the *Call Grade Net Factor Standards and Procedures Manual* come into effect on February 1, 2025.



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TIMBER PRICING BRANCH

CGNF Standards and Procedures for the Coast Forest Area

Effective: July 1, 2021

Includes Amendments

Amendment No. 1

Effective Date

February 1, 2025



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Highlights

Section	Description
Throughout manual	Added new sorts 'High Grade Sawlog' and 'Mid Grade Sawlog' and removed sort 'Sawlog'.
1.4	Added clarity on assessing the 8m U grade log filter. Fixed typo.
Table 11	Added wording for butt rot grade consideration guidelines not to include shingle and pulp sorts.
2.3.14	Added clarity on assessing 8m U grade log filter.
3.2.1	Added verbiage regarding hierarchy of log sorts for log grading.
3.2.3.7	Updated verbiage regarding shingle grading process and Table 20.
3.2.3.10	Updated general grading guidance for grading the last log of mature tree tops.

1.3. Call Grading and Net Factoring

Call grading and net factoring are processes used to assess timber quality and net tree volume. The processes do not attempt to predict grade based on anticipated falling breakage or the manufacturing process, or to predict volume loss without direct evidence. The loss factor breakage percentages are used in the cruise compilation.

1.3.1. Call Grading

Call Grading is a procedure that assigns a descriptor grade each log on a tree. Call grading and net factor standards will determine the length of the log.

The process is hierarchical. The cruiser selects the highest "sort" that the tree will support. The standard sorts are lumber, peeler, **high grade sawlog, mid grade sawlog, shingle**, gang, utility, pulp and non-recoverable.

The cruiser then selects the first grade within the sort which will provide the longest standard log length. Standard log lengths are 13, 11 and 8 metres. For example, the lumber sort has three grades for some species (D, F, B). If the tree will support a 13 metre "F", but only an 8 metre "D" then the log will be a 13 metre "F".

The log lengths can be either "standard" or "variable". For the determination of standard lengths the cruiser attempts to assign the longest allowable standard length for a grade in the highest sort. Logs will normally not be longer or shorter than the standard lengths. Variable lengths are allowed for the occurrence of poor tree form and/or severe defect and/or unique grade considerations. See [Table 1](#).

1.3.2. Net Factoring

Net Factoring is a procedure whereby the cruiser assigns a net factor (% sound) to the log that is being graded. The principle for the net factoring procedures is to measure any rot or missing wood directly and reduce the log volume percent sound-wood remaining. If the rot or missing wood cannot be directly measured, then a set of standard procedures for each defect is applied. No other deductions are made for local knowledge.

Deductions normally measured directly are:

- Butt rot (when visible),
- Missing wood (scars, burns, etc.), and
- Sap rot.

Deductions normally determined by applying a procedure are:

- Conk,
- Blind conk,

- Rotten branches,
- Root rot,
- Rot in forks,
- Crooks,
- Broken tops,
- Frost cracks, and
- Soundings

The net factors that are used to assign the net merchantable volume will be further adjusted by a series of net volume adjustment factors (NVAF) in the compilation program.

Table 1 Summary of Sorts, Grades, Standard Log Lengths and Application Notes

The following end use sorts, grades and standard lengths will be used:

SORT TYPE	GRADE	STANDARD LENGTHS (m)	NOTES
Lumber	D,F,B,G	13,11,8	Min length 5 m
Peeler	C	13,11,8	Min length 5 m
High Grade Sawlog	H	13,11,8	Min length 5 m
Mid Grade Sawlog	I	13,11,8	Min Length 5 m
Shingle	K,L,M	13,11,8	Min length 4 m, 1 m multiple up to 13 m / attempt to use standard lengths.
Gang	J	13,11,8	Min length 5 m
Utility	U,X	13,11,8	Min length 5 m
Pulp	Y	13,11,8	Min length 3 m, 1 m multiples up to 13 m / attempt to use standard lengths.

Log lengths of 4 and 6 m are allowed for all sorts for helicopter logging only. (See [Table 2](#))

1.4. Conventions/Procedures for Call Grade Net Factoring

- a. A dead tree (or dead piece of a tree) is tallied if it contains a log 8 metres or more in length and has a grade of U or better. **Assess the first intact 8m log that starts after pencil bucking of root balls, breaks, shatter, missing wood or chainsaw cuts. If the above condition is met, then the whole tree must be tallied and call grade net factored.**
- b. The primary objective is to have logs in the correct end use sort. Grades within the sort are a secondary objective.
- c. The grades and the grading rules are modifications of the statutory log grading rules and are not intended to match statutory grading rules and logic.
- d. The standard lengths are 13, 11 and 8 metres (See Table 1).
- e. Specified helicopter operations have the additional options of 6 metres and 4 metres (See Table 2).
- f. Shingle lengths are a minimum of 4 metres increasing in 1 metre increments up to 13 metres (See Table 1).
- g. Pulp (Y grade) lengths are in increments of 1 metre. Attempt to use standard log lengths where possible (See Table 1).
- h. Grade Z is used for non-recoverable and shatter and grade "N" is used for nothing there (missing wood) (See Table 1).
- i. The last log in a tree is described by "99" to indicate that the sort runs to the top of the tree.
- j. Ring shake is recognized for all species except Cedar and Cypress. See Section 3.2.3.12 for situations where ring shake can be considered:
- k. Butt logs with ring shake cannot be in peeler or lumber sorts. In general, ring shake should be isolated by using an 8 metre butt log.
- l. Windfall trees (with their roots attached) up to 100 cm DBH will have a 1 meter "Z" grade in the butt log.
- m. Windfall trees (with their roots attached) over 100 cm DBH will have a 2 metre "Z" grade in the butt log.
- n. Standard procedure-based deductions will be used to determine the extent of the defect and the net factor calculation (% sound wood).
- o. Pencil bucking is used to section the tree into maximum standard log lengths by sort. Pencil bucking is used for tree shape (e.g. forks, pistol butt) as well as extreme decay or missing wood. A grade is assigned and the log is net factored.
- p. Net factoring is only used for sound wood loss that is caused by decay or missing wood.

1. Find the ratio (diameter of decay/DBH)
2. Use Butt Rot table for ratio of butt rot.
3. Determine the nearest ratio and apply the length deduction.
4. Net down the log length and express the net factor as a percent of the original length.

Butt rot is generally included with the log for its maximum sort length.

The Butt Rot Guide (Table 11) gives the conical butt rot ratios by log length. Note that the grade consideration in the table and surface characteristics of the log will determine the sort. Deductions and grade considerations are based on diameter of rot at stump height/DBH ratio. Calculate the ratio to the nearest ¼ diameter, determine the length deduction from the table below, and calculate the net factor. The rot diameter is measured at the stump height.

Table 11 Butt Rot Guide for Length Deductions

Ratio	Net Factor Length Deduction (volume loss)	Grade Consideration* (length not available for manufacture)
¼ diameter	0.2 m	0.6 m
½ diameter	0.4 m	1.8 m
¾ diameter	1.2 m	3.6 m
4/4 diameter	2.4 m	4.2 m
Sounding	0.8 m	2.4 m
P. schweinitzii	0.6 m	2.0 m
<p>For lumber, sawlog and utility sorts, grade consideration denotes the loss of lumber in the log and describes the portion not available to produce 2 by 4's at least 8 feet long. For pulp and shingle sorts, butt rot grade consideration is equal to the net factor length deduction.</p>		

2.3.14. Dead Standing and Dead Fallen Trees

- a. Dead Trees – dead trees do not have any live cambium at DBH.
- b. A dead tree is tallied if it contains a log 8 metres or more long and has a grade of U or better. **Assess the first intact 8m log that starts after pencil bucking of root balls, breaks, shatter, missing wood or chainsaw cuts.** If there is at least an 8 metre U grade log, record all of the logs in the tree.
- c. Dead fallen trees must have at least 8 metres of U grade after the 1 m or 2 m Z-grade segment.
- d. Dead fallen and dead standing trees that have a shattered (Z grade), broken or cut butt will commence with **the assessment of the first intact 8 metre long section** after the break, shatter or cut end.
- e. If down trees have been mechanically or hand felled, the 1 m or 2 m Z-grade bucking allowance does not apply (see Section 2.3.12).

3.2. Definitions

Call grading is the procedure used to assign one of the modified coastal log grades to standing and fallen timber based on the hierarchical log sorts. Grading is a hierarchical process based on the scaling conventions using top diameter inside bark, knot size (location and distribution) as well as the percentage of recoverable or sound wood available for cutting.

3.2.1. Procedures

1. The cruiser will be able to grade the log into the appropriate log sort. The **heiracrchy of log sorts in descending order** are lumber, peeler, **high grade sawlog**, **mid grade sawlog**, **shingle gang**, utility and pulp.
2. Logs are assigned to sorts, the maximum standard log length is selected and then graded based on size, quality, sound wood recoverability and merchantability.
3. Grades are assigned using the hierarchy of grades within a sort. Start with the longest standard log length for the highest grade in the sort. If the standard log length for any of the sort grades cannot be accommodated, then use the next lower sort.
4. A log cannot be “one sort or another”. It is not a choice of market preference, current harvesting practices, accessibility, or other factors. A log is the highest grade it qualifies for within the hierarchy.
5. ALL trees (live or dead, standing or fallen) will be call graded and net factored.
6. All sawlog grades must be at least 5 metres long and Y-grade must be at least 3 metres long.
7. Record whether the tree is alive (L) or dead (D).
8. Record whether the tree is mature (M) or second growth (S).
9. Grade consideration is applied by the cruiser to determine the percentage of soundwood available for manufacturing. It includes deductions for rot, missing wood and surface characteristics as well as wood unavailable due to defect shape or characteristics. The grade consideration due to butt rot is shown in Table 18 below. For example, a **high grade** sawlog (H-grade) fir log that is 8 m long and has a 45 cm top and severe butt rot (3/4 ratio):
 - a. Net factor = $(8.0 \text{ m} - 1.2\text{m})/8.0 \text{ m} = 85\%$
 - b. Grade consideration = 3.6 m (Table 18) = $(8.0 \text{ m} - 3.6 \text{ m})/8.0 \text{ m} = 55\%$
 - c. Therefore it is an I-grade since it does not meet the minimum lumber percentage criteria for an H-grade.

Measure all log lengths from the high-side ground level.

Determine the longest standard length and highest sort that the butt log can be based on the grading rules and standard log lengths.

The last grade on the tree will have a "99" recorded to the top regardless, of the utilization limits. Try not to create short logs at the top of the tree.

On short, small diameter logs record J 99 if an 8 m log with a 15 cm top can be achieved or if not then record U 99.

Cut Stems - If the tree has missing portions then the missing portion is graded as "N" and net factor "00".

3.2.2. Grading Conventions and Guidelines

Conventions

1. All dead trees or pieces, standing or fallen, must have at least one U-grade or better log that is at least 8 metres long **to be tallied. Record all logs in the tree if the first intact 8m log that starts after pencil bucking of root balls, breaks, shatter, missing wood or chainsaw cuts is a U-grade or better.**
2. The primary objective is to have logs in the appropriate end use sort. Grades within the sort are a secondary objective.
3. The grades and the grading rules are simplifications of the statutory grading rules and are not intended to match statutory grading rules and logic.
4. The standard lengths are 13, 11 and 8 metres.
5. Specified helicopter operations have additional options of 6 metres and 4 metres.
6. Shingle lengths are a minimum of 4 metres increasing in 1 metre increments up to 13 metres.
7. Pulp (Y-grade) lengths are in increments of 1 metre. Attempt to use standard lengths.
8. Grade "Z" is used for non-recoverable and shatter, and grade "N" is used for nothing there (missing wood).
9. The last log in a tree is described "99" to indicate the top of the tree.
10. Ring shake is recognized for all species except Cedar and Cypress.
 - a. Large trees that have been sheltered throughout most of their growth but have a major broken top (40 cm) as a result of wind damage, or
 - b. Large trees without broken tops which have clearly been exposed to wind over an extended period of time (i.e., vets in immature stands).
11. Butt logs with ring shake will not grade peeler or lumber.
12. Windfall trees (with roots attached) and up to 100 cm DBH will have a 1 metre "Z" grade in the butt log.
13. Windfall trees (with roots attached) and over 100 cm DBH will have a 2 metre "Z" grade in

EXAMPLE
<p>Calculations</p> <p>Estimated top DIB: 60 cm for log section</p> <p>Severe twist 8 cm (along 30 cm section)</p> $\% \text{ twist} = (8 \text{ cm twist}) / (60 \text{ cm top}) * 100\% = 13\%$ <p>This log is graded as U, since this is the first grade met in the hierarchy (other defects may lower the grade further).</p>

Figure 3-2 Examples of Grade Calculation for Twist

3.2.3.7. Cedar Shingle Criteria

Cedar will not be graded as a shingle if it can make a **mid grade** sawlog grade. If a log, due to heart rot, butt rot, or is not suitable for **mid grade** sawlog due to fluting, breakage, excessive butt rot, etc. but meets slab thickness requirement for that grade, the log becomes shingle grade. Lengths in 1 m increments are acceptable starting at 4 metres.

Table 20 Falldown of Lumber and Sawlog Grades to Shingles due to Defect

Initial Grade	Changes To
D grade	K grade
F grade	L grade
H/I grade	M grade

3.2.3.8. Lumber Grades

Log grade merchantability criteria will typically be written as “90% surface clear”. In application this indicates 10% of the log may have knots or knot indicators on any surface from the top of the log with the remaining 90% of the log being clear of knots. There is not a limit to the size of the knots or indicators. The lumber grades do not allow any conk or visible conk stain. Butt rot is allowed as long as the minimum lumber and merchantable requirements are met. If knot indicators are not visible, assume that knot indicators will extend 2 branch whorls below the last visible stubs or branches.

3.2.3.9. Tree Form

Sweep, major forks, pistol butt and any odd shapes which will normally be left behind during logging may be pencil bucked out and graded appropriately.

3.2.3.10. Last Log

- Mature block - last log generally a “Y” to the top, sometimes a “U” to the top. CGNF to a 15 cm top.
- Second growth block or maturity unknown - last log generally a "U" grade. CGNF to a 10 cm top.

3.2.3.11. Dead/Dry Tops

Dead and dry tree tops are often severely weather checked. If there is evidence of sap rot and the depth will reduce the core diameter to less than 10 cm, then record the log as Y-grade (pulp).

3.2.3.12. Ring Shake

Ring shake or water shake is the separation of the annual rings. If any of the following conditions are met (except cedar and cypress), then the butt log grade will not be considered suitable for the lumber or peeler sorts and a standard log length of 8 metres will be assigned:

- Large trees that have been sheltered throughout most of their growth but have a major broken top (40 cm) as a result of wind damage, or
- Large trees without broken tops which have clearly been exposed to wind over an extended period of time (i.e., vets in an immature stand).