Stump Cruise Compilations 6

6.1 Stump Compilation - Overview

An "S" in column 80 of card type B identifies a stump cruise. Card type 2 Stump Diameters Inside Bark are converted to Diameter at 1.3 m (DBH) Outside Bark, and the resulting input file is compiled using the same merchantability requirements as normal compilations.

Stump cruises only use fixed area plots. Usually, the entire area is cruised, which eliminates the need for the statistical reports described in Chapter 8.

Stump cruise plots are recorded using the Stump Cruise Tally Sheet (Figure 6.1 and 6.2).

The species, stump height, stump diameter, tree class, and pathological remarks are entered for each stump in the plot.

No quality remarks or damage codes will be added.

The stump conversion is based on a measurement at stump height and can be recorded either in centimeters or rads, as specified in column 78 of card type B. If the measurement is made in rads, then double the measurement to obtain the stump diameter in centimeters (i.e., 1 rad = 2 cm).

For Coast compilations (F.I.Z A, B, or C), the age in 10s and tree class determine whether mature or immature conversion constants are used for Fir, Cedar, Hemlock, and Spruce:

Immature:	Tree class 8 and 9 are always immature.
	Tree classes 1, 2 and 3, are immature if Age in 10s < 13.
Mature:	Tree class 5 and 7 are always mature.
	Tree classes 1, 2, and 3 are mature if age in 10s > 12.

Tree class 4 and 6 are only included if the tree class combination from card type B is 1. In this case, set maturity using the above rules for tree classes 1, 2, and 3.

The stump diameter measurement is taken inside bark, and is recorded in centimeters to the nearest tenth. The conversion equation estimates the diameter at breast height outside bark.

$$DBH_o = DSH_i + b_0\, DSH_i\, (2.3 - SH) + b_1 DSH_i\, ln[(SH + 1) / 2.3]$$

Where:

DBH_o	=	Diameter at 1.3 m outside bark, in centimeters to the nearest tenth.
DSH_i	=	Diameter at stump height inside bark, in centimeters to the nearest tenth.
SH	=	Stump height in centimeters.
b_0, b_1	=	Diameter conversion constants, to 6 decimal places. Refer to *Cruising Manual* for the list of constants by Species, Forest Inventory Zone, and Maturity.
ln	=	Natural logarithm function.

Example 6.1

Unit of

Measurement:	Centimeters
F.I.Z.:	J
Stump height:	25 cm
Species:	Spruce
Diameter:	53 cm

DBH = 53.0 + 0.065728 * 53.0 * (2.3 - 0.25) + 0.575037 * 53.0 * *ln* [1.25/2.3]

= 53.0 + 7.14 – 18.58

= 41.6 cm

Once the DBHs have been assigned to the stumps, tree heights must be calculated using a height-diameter equation. Please see Chapter 7 for an explanation of the derivation and application of height-diameter equations.

6.2 Stump Cruise Tally Sheet Image

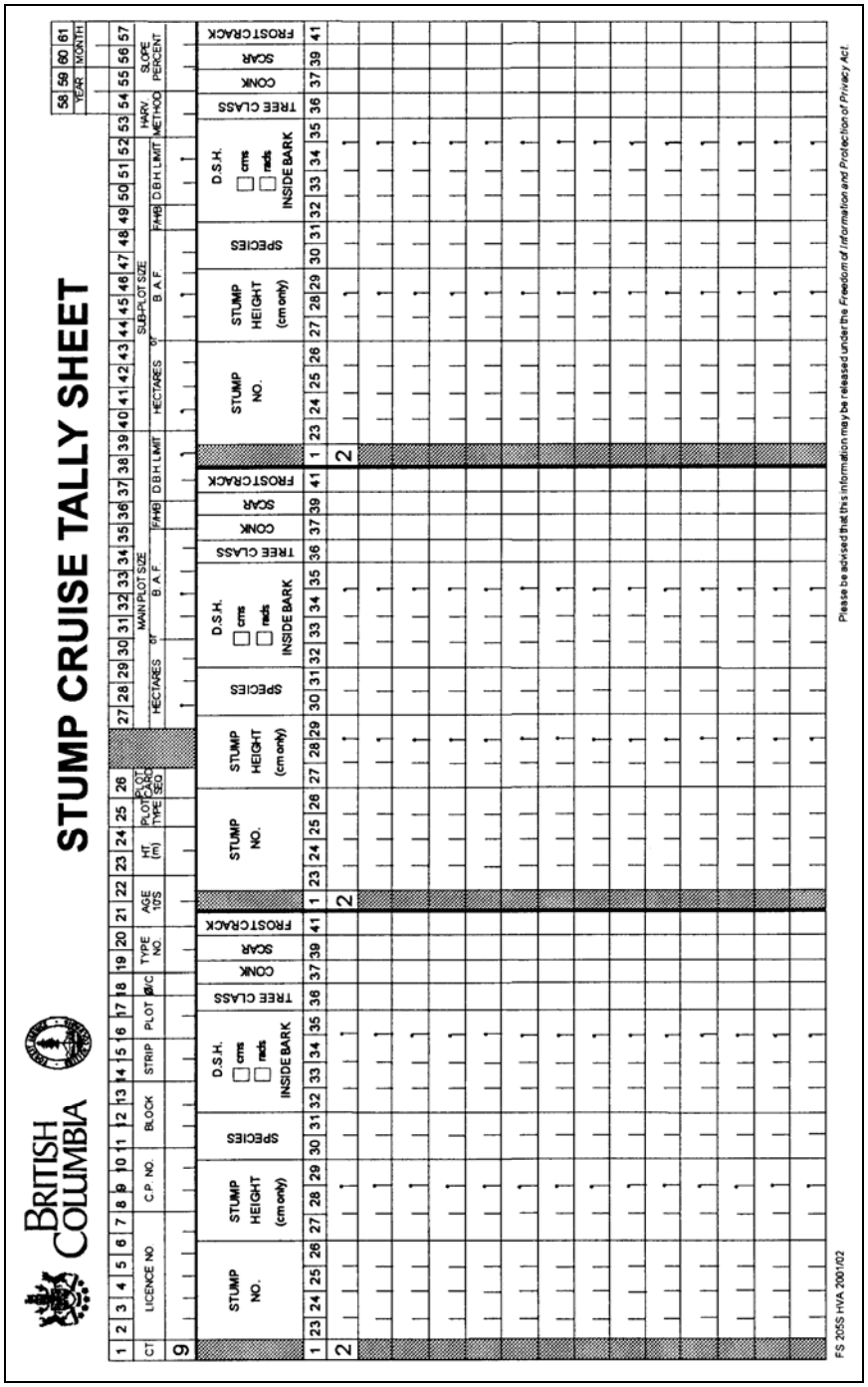

Figure 6.1 Stump Cruise Tally Sheet - Front Side.

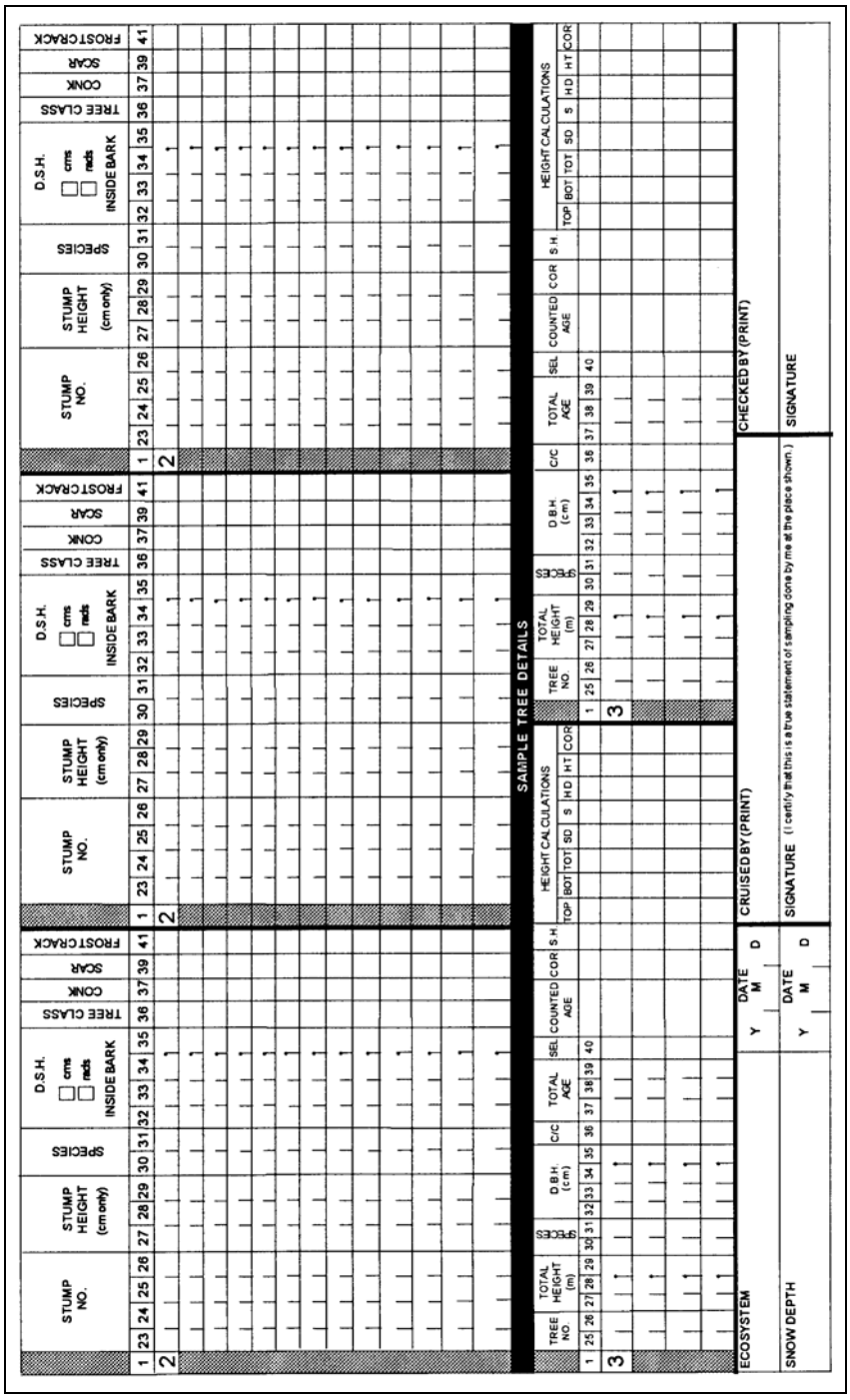

Figure 6.2 Stump Cruise Tally Sheet - Reverse Side.

6.3 Stump Cruise Tally Sheet Edits

6.3.1 Card Type 9 - Plot Identity Information

Same as Section 2.11.1

6.3.2 Card Type 2 - Stump Details

Column Position	Column Name	Accepted Values	Error Type
27-29	Stump height (cm)	9 (3, 1)	F
30-31	Species	Refer to *Cruising Manual*, Section 6.3.2	F
32-35	Diameter at stump height (cm)	9 (4, 1)	F
36	Tree Class	Same as Section 2.12.1	F
37	Conk	Same as Section 2.12.1	N/A
39	Scar	Same as Section 2.12.1	N/A
41	Frost Crack	Same as Section 2.12.1	N/A

6.3.3 Card Type 3 - Sample Tree Details

Column Position	Column Name	Accepted Values	Error Type
25-29	Tree Number	0 - 99	F
27-29	Total Height	999	F
30-31	Species	Refer to Appendix 2	F
32-35	DBH	9 (4, 1)	F
36	Crown Class	1 - 4	I
37-39	Total Age	999	F
40	Selective Cut	Blank	N/A

6.3.3.1 Messages

1. The tree height is not in range for species in Forest Inventory Zone - refer to Appendix 4.

2. The total age is not in range for species in Forest Inventory Zone - refer to Appendix 5.

3. Tree numbers should be unique or the preceding tree with the duplicate number will be ignored for the card type 3 cross-reference edit.

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