
Ground Sampling Issues Log – 2023

The following document is intended to highlight issues that Contractors should be aware of prior to submitting bids for the current year, in the interest of making continual improvements to field data collection.

The issues listed below cover all sample types, but do not represent an exhaustive list of every issue discovered through field and office QA. Rather, these are issues that have mostly been observed across several contracts, are of a significant enough nature to warrant improvement, and may be a result of improper data collection and/or ambiguity in the sampling procedures.

Contractors should review this list prior to bidding (and again prior to field sampling) to ensure that submitted bids are accurate, and that data collected in the field is to the best possible standard. For a more complete reference, newly updated ground sampling procedures and standards documents will be available from the Forest Analysis and Inventory Branch (FAIB) website before the 2023 field season:

- For Inventory Assessment related manuals (VRI, Basic):
<https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/forest-inventory/ground-sample-inventories/vri-audits/standards>
- For Provincial Monitoring related manuals (CMI, YSM, Early YSM, Light, PSP):
<https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/forest-inventory/ground-sample-inventories/provincial-monitoring/standards>
- For National Forest Inventory related manuals (NFI) (not newly updated):
https://nfi.nfis.org/en/ground_plot

Noted issues from the 2022 field season:

Header Information

1. The Helper field must include both a first and last name, otherwise the sample will not upload to the database.

Diameters for Remeasurement Samples

2. Diameters for remeasured trees should generally align with the following protocols:
 - previously Dead -> currently Dead: use previous DBH
 - previously Live -> currently Live: use current DBH
 - previously Dead -> currently Live: use current DBH
 - previously Live -> currently Dead: use current DBH if larger; else use previous

Estimates & Safety

3. All taggable trees within a sample must have all data recorded. Trees that are determined to be unsafe or inaccessible to measure must still be reviewed, as ignoring them would inherently change the compiled data for the sample. If a tree cannot be measured safely, then it must be estimated, and a comment should be included to explain the situation.
4. A tree being dead and/or fallen does not mean that the length can simply be estimated. If a length can be measured, then it must be measured. Valid reasons for estimating a tree length would include a visually buried top, a heavy lean that includes a significant bend, etc. Note that a leaning but straight tree could be measured using Pythagoras' Theorem.
5. If winds are strong enough that you must estimate most or all tree lengths due to excessive sway, then perhaps it isn't safe to be in the stand. Regardless, it would be best to return on another day when most lengths can be measured rather than estimated.

Broken Tops & Related Damage

6. Trees with broken tops and lateral branches taking over as a new top need a decision made on how to classify the damage: it is either a BTP or a FRK, but never both (at the same location). Choose the option that will provide the most accurate current volume for the tree based on the recorded DBH and length. As the tree continues to grow after the breakage event, it will over time naturally progress from a BTP to a FRK.
7. Trees with broken tops now only require the "Brkn Top" flag to be set to "Y". The BTP loss indicator and UBT damage agent are no longer required to be recorded.

Mode Codes

8. Mode codes need to be applied accurately as they have direct implications for how the data is compiled and analyzed. Each code has a specific definition, and they are not interchangeable. Of specific issue are the codes D, M, and N:
 - D (Dropped): Previously measured in error (it's outside the plot or tagging limits)
 - M (Missed): Obviously missed at previous measure (a bigger tree – not ingrowth, an overlooked stump, etc.)
 - N (Not Found): Re-measurable that cannot be located or measured (burned, DF and buried, etc.)
9. Neither D nor N modes are to be used to avoid measuring small dead standing or fallen trees. The ISMC software is set up to populate the sample files with only those trees that require remeasurement. Trees that have been measured as dead fallen once will not appear in the next remeasurement file. Likewise, for PSPs, trees that have been measured once as dead standing and < 10 cm DBH will not appear again. Therefore, all trees in the remeasurement file are required to be remeasured if possible. If they cannot be found or are unmeasurable, then the correct mode in that situation would be N.

Stem Mapping

10. Stem map data should be entered for a tree only after tagging sector and diameter are entered in order to prevent potential software crashes. This situation is due to the way background validation checks are triggered within the software, which is not easily resolvable at this time.
11. Stem mapping must be carried out correcting for slope. Failing to do this accurately will result in incorrect in/out calculations for trees near plot boundaries.
12. All recorded trees require stem mapping, including live standing, live fallen, and dead standing trees. Dead fallen trees only require stem mapping in variable radius samples.

Sample Tree Determination & Data

13. The leading species calculator (LSC) must be run after all tagged trees are recorded in order to correctly determine the sample trees. Not doing this will likely result in missed required sample trees and/or unnecessary extra sample trees (that could only be X-trees).
14. Extra sample trees (other than those suggested by the LSC) must be coded as X-type, even if they're the same species as the L or S or O species.
15. Sample trees with a PRE age measure code need to have a sample tree type code, the PRE measure code, and the three suitability calls recorded. None of the other fields should be filled in.

Equipment & Supplies

16. Contractors must ensure they have appropriate field equipment for the areas of the province they are working in. If large trees can be expected, then large increment borers must be brought in order to reduce the unnecessary use of the CRC measurement code. A 16" increment borer should be considered the minimum standard length carried, but an 18" or 20" borer should be carried for more productive areas.
17. Standard/common nails can not be used anywhere on any sample. All nails used must be aluminum nails, which are provided by the Ministry.

Noted issues from the 2021 field season (Refresher):

It may also be beneficial to review the Ground Sampling Issues Log for 2022 to ensure you are again aware of those issues. If desired, the full document can be obtained by contacting FAIB, but the summary is as follows:

Changing Tree Numbers

1. Do not renumber trees. If the original tag is missing or unusable, apply a new tag of the same number, or scribe that number on a buttersoft tag.
2. Do not reuse tree numbers. Each sample must maintain a unique set of tree numbers across time, even when a previously used tag number is no longer in use (it can not be assigned to a new tree within that sample). Pay attention to the approved ingrowth tag series for use in each remeasurement sample.

Fork & Crook Significance & Severity

3. Reduce the calls of insignificant forks and crooks. Ignore those that have $\sim < 10\%$ diameter loss or offset.
4. Any callable FRK or CRO that occurs in the portion of the main stem that is < 10 cm diameter is automatically an N (minor) severity.

Sample Tree Determination & Data

5. To determine and record sample trees, you must first run the leading species calculator and then apply the one or more suggested type codes for each suggested sample tree.
6. PRE sample trees do not need to be cored, but you must go to the sample tree screen for each one and tick the appropriate sample tree type check boxes.
7. Ensure that all required fields in the sample tree screen are filled in for all sample trees.

Sample Tree Cores

8. Regarding the labeling and packaging of cores:
 - Use the pre-printed labels from the provided template
 - *Don't* use tape to attach the label or to close off the end of the straw – use a staple at both ends of the straw
 - *Don't* staple over the LIMS# box – we need to be able to write in this space
 - *Don't* use tape to bundle straws – use flagging tape or elastics only
9. The core log must be generated using the BASE Core Log Report. Manually created core logs will no longer be accepted.