

Canada's National Forest Inventory National Standard for Ground Plots

Data Dictionary

April, 2009
Version 5.0

Table of Contents

| | |
|--|-----|
| Acknowledgements | 3 |
| Introduction | 4 |
| Objectives | 5 |
| Data Model | 6 |
| Table Relationships | 6 |
| Table Structures..... | 9 |
| Data Dictionary | 26 |
| 1. GROUND PLOT SITE INFORMATION (site_info) | 26 |
| 2. PLOT DISTURBANCE (disturbance)..... | 35 |
| 3. PLOT ORIGIN (origin)..... | 37 |
| 4. PLOT TREATMENT (treatment) | 39 |
| 5. LARGE TREE PLOT, HEADER AND SUMMARY INFORMATION (ltp_header) | 40 |
| 5a. LARGE TREE SPECIES COMPOSITION PERCENT..... | 44 |
| 5b. LARGE TREE LIST (ltp_tree) | 45 |
| 5c. LARGE TREE PLOT, DAMAGE AGENTS (ltp_tree_damage)..... | 51 |
| 5d. LARGE TREE PLOT, REMOVED TREES (ltp_tree_removed) | 53 |
| 5e. LARGE TREE PLOT, SITE TREE AND AGE INFORMATION (ltp_tree_age)..... | 54 |
| 5f. LARGE TREE PLOT, ANNUAL GROWTH INFORMATION | 57 |
| 5g. LARGE TREE PLOT, FIVE-YEAR INCREMENT INFORMATION..... | 58 |
| 6. SMALL TREE PLOT, HEADER AND SUMMARY INFORMATION (stp_header)..... | 59 |
| 6a. SMALL TREE PLOT, SPECIES LIST (stp_tree)..... | 61 |
| 6b. SMALL TREE PLOT, SPECIES COMPOSITION | 65 |
| 7. SHRUB PLOT, HEADER AND SUMMARY INFORMATION (shrub_header)..... | 66 |
| 7a. SHRUB PLOT, SPECIES LIST (shrub_list)..... | 67 |
| 8. STUMP PLOT, HEADER AND SUMMARY INFORMATION (stump_header)..... | 69 |
| 8a. STUMP LIST (stump_list) | 70 |
| 9. MICRO PLOT (microplot)..... | 72 |
| 10. ECOLOGICAL PLOT SUMMARY INFORMATION (ecp_header)..... | 74 |
| 10a. ECOLOGICAL SPECIES LIST (ecp_species) | 75 |
| 10b. ECOLOGICAL BIODIVERSITY (biodiversity_ec)..... | 77 |
| 11. WOODY DEBRIS HEADER INFORMATION (woody_debris_header)..... | 78 |
| 11a. SMALL WOODY DEBRIS (>1.0 cm diameter ≤ 7.5 cm) (woody_debris_small)..... | 79 |
| 11b. COARSE WOODY DEBRIS (> 7.5 cm diameter) – ROUND PIECES (woody_debris_round) | 81 |
| 11c. COARSE WOODY DEBRIS – ODD SHAPED PIECES AND ACCUMULATIONS. | 83 |
| (woody_debris_odd)..... | 83 |
| 11d. WOODY DEBRIS – SUMMARY | 85 |
| 12. SURFACE SUBSTRATE HEADER (surface_substrate_header) | 86 |
| 12a. SURFACE SUBSTRATE (surface_substrate) | 89 |
| 13. SOIL SITE INFORMATION (soil_site_info)..... | 91 |
| 13a. SOIL PIT DEPTH (soil_pit_depth) | 94 |
| 13b. SOIL PIT FEATURES (soil_pit_features)..... | 95 |
| 13c. SOIL PIT HORIZON DESCRIPTION (soil_horizon_desc) | 96 |
| 13d. FOREST FLOOR ORGANIC SAMPLE INFORMATION (for_flr_org_sample)..... | 99 |
| 13e. MINERAL SOIL SAMPLE INFORMATION (soil_mineral_sample)..... | 105 |
| 13f. ORGANIC SOIL SAMPLE INFORMATION (soil_org_sample) | 113 |
| 14. RELATIVE ABUNDANCE FOR LARGE TREE SPECIES | 119 |
| 15. RELATIVE ABUNDANCE FOR SMALLTREE SPECIES | 120 |
| 16. RELATIVE ABUNDANCE FOR ECOLOGICAL SPECIES | 121 |
| 17. UNIQUE SPECIES LIST | 122 |
| 18. CLIMATE INFORMATION | 123 |
| References | 133 |

Acknowledgements

Substantial input into the development of these guidelines were made by such a large number of people that it would be impossible to mention all of their names. Major contributions of thoughts, ideas and concepts came from: M. Gillis, G. Russo, T. Brierley, J.A. Trofymow, A. Harris, V. Sundstrom, M. Jones, L. Bowdidge, A. Inselberg, T. Varem-Sanders, K. Keys, all of the members of the CFIC and all of the technical inventory staff from across Canada. The various individuals who reviewed various draft materials and shared insight and knowledge based on field experience, at all stages of this document's preparation are also acknowledged.

Introduction

The tables listed in this data standard describe three types of attributes collected by the National Forest Inventory's ground plot sampling program: field, compiled, and lab. These attributes have been categorized into tables by field-sampling component. "Field" designated attributes will be collected in the field by each of the provinces and territories and submitted to the Canadian Forest Service (CFS) for summary and data warehousing. "Compiled" designated attributes, e.g. biomass and volume, will be estimated and compiled by the CFS, based on the field-collected measurements. "Lab" attributes will require lab processing and/or measurement of field samples in order to obtain the necessary data.

It is expected that the "Field" designated attributes represent a reproducible result and each Province or Territory's inventory program, prior to data submission, will conduct their own quality assurance procedures.

Objectives

The objectives of the National Standard for Ground Plots are:

1. To provide a list of required NFI ground plot attributes.
2. To facilitate a standard format for national compilation of the NFI ground plot attributes.
3. To provide definitions, measurement criteria, and reporting instructions.

Data Model

Table Relationships

NFI GROUND PLOT

→SITE INFORMATION

→PLOT DISTURBANCE (multiple disturbances possible per ground plot)

→PLOT ORIGIN (multiple origins possible per ground plot)

→PLOT TREATMENT (multiple treatments per ground plot)

→LARGE TREE PLOT, HEADER AND SUMMARY INFORMATION
(one record per ground plot)

→SPECIES COMPOSITION PERCENT
(multiple species possible per ground plot)

→LARGE TREE LIST
(multiple large tree records possible per large tree plot)

→DAMAGE AGENTS
(multiple damage agents possible per large tree)

→LARGE TREE PLOT, REMOVED TREES
(multiple removed trees possible per large tree plot)

→LARGE TREE PLOT, SITE TREE AND AGE INFORMATION
(multiple records possible per large tree plot)

→ANNUAL GROWTH INFORMATION
(multiple records possible per large tree)

→FIVE-YEAR INCREMENT INFORMATION

→SMALL TREE PLOT, HEADER AND SUMMARY INFORMATION
(one small tree plot per ground plot)

→SMALL TREE PLOT, SPECIES LIST
(multiple small tree records possible per small tree plot)

→SMALL TREE PLOT, SPECIES COMPOSITION
(multiple species possible per ground plot)

→SHRUB PLOT, HEADER AND SUMMARY INFORMATION
(one stump plot per ground plot)

→SHRUB PLOT, SPECIES LIST

- (multiple stump records possible per stump plot)
- STUMP PLOT, HEADER AND SUMMARY INFORMATION
(one record per ground plot)
 - STUMP LIST
(multiple stump records possible per stump plot)
- MICROPLOT (multiple microplots possible per ground plot)
- ECOLOGICAL PLOT SUMMARY INFORMATION
 - ECOLOGICAL SPECIES LIST
(multiple species records possible per ecological plot)
 - ECOLOGICAL BIODIVERSITY (one record per ground plot)
- WOODY DEBRIS, HEADER INFORMATION (one record per transect measured)
 - SMALL WOODY DEBRIS
(multiple woody debris records possible per transect)
 - COARSE WOODY DEBRIS - ROUND PIECES
(multiple woody debris records possible per transect)
 - COARSE WOODY DEBRIS - ODD SHAPED PIECES AND ACCUMULATIONS
(multiple woody debris records possible per transect)
 - WOODY DEBRIS - SUMMARY TABLE
(multiple records possible per ground plot)
- SURFACE SUBSTRATE MEASUREMENTS
(multiple surface substrate records per transect)
- SOIL SITE INFORMATION (one record per ground plot)
 - SOIL PIT DEPTH (one record per soil pit type)
 - SOIL PIT FEATURES (multiple features possible per soil pit)
 - SOIL PIT HORIZON DESCRIPTION
(multiple records possible per pit)
 - FOREST FLOOR ORGANIC SAMPLE INFORMATION
(multiple forest floor organic sample records possible per ground plot)
 - MINERAL SOIL SAMPLE INFORMATION
(multiple mineral soil sample records possible per ground plot)
 - ORGANIC SOIL SAMPLE INFORMATION

(multiple organic soil sample records possible per ground plot)

→RELATIVE ABUNDANCE FOR LARGE TREE SPECIES
(multiple records possible per ground plot)

→RELATIVE ABUNDANCE FOR SMALL TREE SPECIES
(multiple records possible per ground plot)

→RELATIVE ABUNDANCE FOR ECOLOGICAL SPECIES
(multiple records possible per ground plot)

→UNIQUE SPECIES LIST
(multiple records possible per ground plot)

→CLIMATE INFORMATION (multiple records possible per ground plot)

NOTE: All assessed plots must be included in the header tables, even if there is no additional information to report. To omit a plot from a header table indicates that it was not assessed for any of the attributes in the related tables. For example, if a plot was assessed for stumps, but there were no stumps located within the plot boundary, information for that plot still must be entered in the stump header table to indicate that stump measurements were not skipped over.

Table Structures

1. NFI GROUND PLOT, SITE INFORMATION (site_info)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---|-------------------|----------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | plot completion | PLOT_COMPLETION | Char 1 | N |
| 5 | F | Reason the ground plot was not completed (if applicable) | INCOMP_REASON | Char 2 | N |
| 6 | F | province | PROVINCE | Char 2 | N |
| 7 | F | terrestrial ecozone | ECOZONE | Num 2 | N |
| 8 | F | provincial ecosystem type | PROV_ECO_TYPE | Char 200 | N |
| 9 | F | provincial ecosystem type reference | PROV_ECO_REF | Num 4 | N |
| 10 | F | UTM northing | UTM_N | Num 7 | N |
| 11 | F | UTM easting | UTM_E | Num 6 | N |
| 12 | F | UTM zone | UTM_ZONE | Num 2 | N |
| 13 | F | slope (%) | SLOPE | Num 3 | N |
| 14 | F | aspect (°) | ASPECT | Num 3 | N |
| 15 | F | elevation (m) | ELEVATION | Num 4 | N |
| 16 | F | land base | LAND_BASE | Char 1 | N |
| 17 | F | land cover | LAND_COVER | Char 1 | N |
| 18 | F | landscape position | LAND_POS | Char 1 | N |
| 19 | F | vegetation type | VEG_TYPE | Char 2 | N |
| 20 | F | density class | DENSITY_CL | Char 2 | N |
| 21 | F | stand structure | STAND_STRU | Char 4 | N |
| 22 | F | succession stage | SUCC_STAGE | Char 2 | N |
| 23 | F | wetland class | WETLAND_CLASS | Char 1 | N |
| 24 | F | user information | USER_INFO | Char 255 | N |
| 25 | C | ecoregion | EC_REGION | Num 3 | N |
| 26 | C | ecodistrict | EC_DISTRICT | Num 4 | N |
| 27 | C | plot-level, total large tree volume, standing live (m ³ /ha) | PLOTVOL_STANDLIVE | Dec 6.2 | N |
| 28 | C | plot-level, total large tree volume, standing dead (m ³ /ha) | PLOTVOL_STANDDEAD | Dec 6.2 | N |
| 29 | C | plot-level, total large tree volume, fallen live (m ³ /ha) | PLOTVOL_FALLLIVE | Dec 6.2 | N |
| 30 | C | plot-level, total small tree volume, live (m ³ /ha) | PLOTVOL_SMTR_LIVE | Dec 6.2 | N |
| 31 | C | plot-level, total small tree volume, dead (m ³ /ha) | PLOTVOL_SMTR_DEAD | Dec 6.2 | N |
| 32 | C | plot-level, gross annual volume increment (m ³ /ha/yr) | GROSSVOL_INCR | Dec 4.2 | N |
| 33 | C | gross mean annual volume increment (m ³ /ha/yr) | GROSSVOL_MAI | Dec 4.2 | N |
| 34 | C | plot-level, stump volume | PLOTVOL_STUMP | Dec 6.2 | N |
| 35 | C | plot-level, stump biomass (Mg/ha) | PLOTBIO_STUMP | Dec 7.2 | N |
| 36 | C | plot-level, live large tree biomass (Mg/ha) | PLOTBIO_LGTR_LIVE | Dec 7.2 | N |
| 37 | C | plot-level, dead large tree mass (Mg/ha) | PLOTBIO_LGTR_DEAD | Dec 7.2 | N |
| 38 | C | plot-level, live small tree biomass (Mg/ha) | PLOTBIO_SMTR_LIVE | Dec 7.2 | N |
| 39 | C | plot-level, dead small tree mass (Mg/ha) | PLOTBIO_SMTR_DEAD | Dec 7.2 | N |
| 40 | C | plot-level, shrub/herb biomass (Mg/ha) | PLOTBIO_SHRUHERB | Dec 7.2 | N |
| 41 | C | plot-level, bryophytes biomass (Mg/ha) | PLOTBIO_BRYO | Dec 7.2 | N |
| 42 | C | plot-level, fine woody debris biomass (Mg/ha) | PLOTBIO_FWD | Dec 7.2 | N |
| 43 | C | plot-level, small woody debris volume (m ³ /ha) | PLOTVOL_SWD | Dec 6.2 | N |

| | | | | | |
|----|---|--|-----------------|---------|---|
| 44 | C | plot-level, small woody debris biomass (Mg/ha) | PLOTBIO_SWD | Dec 7.2 | N |
| 45 | C | plot-level, coarse woody debris volume (m ³ /ha) | PLOTVOL_WD | Dec 6.2 | N |
| 46 | C | plot-level, coarse woody debris biomass (Mg/ha) | PLOTBIO_WD | Dec 7.2 | N |
| 47 | C | plot-level, woody debris volume (m ³ /ha) – round pieces | PLOTVOL_ROUNDWD | Dec 6.2 | N |
| 48 | C | plot-level, woody debris biomass (Mg/ha) – round pieces | PLOTBIO_ROUNDWD | Dec 7.2 | N |
| 49 | C | plot-level, woody debris volume (m ³ /ha) – odd-shaped pieces | PLOTVOL_ODDWD | Dec 6.2 | N |
| 50 | C | plot-level, woody debris biomass (Mg/ha) – odd-shaped pieces | PLOTBIO_ODDWD | Dec 7.2 | N |

2. PLOT DISTURBANCE (disturbance)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|------------|----------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | natural disturbance agent(s) | DIST_AGENT | Char 12 | Y |
| 5 | F | disturbance year (yyyy) | DIST_YR | Num 4 | Y |
| 6 | F | extent of disturbance (%) | DIST_PCT | Num 3 | N |
| 7 | F | extent of tree mortality (%) | MORT_PCT | Num 3 | N |
| 8 | F | mortality basis | MORT_BASIS | Char 2 | N |
| 9 | F | specific disturbance agent | AGENT_TYPE | Char 100 | N |

3. PLOT ORIGIN (origin)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | vegetation cover origin(s) | VEG_ORIG | Char 4 | N |
| 5 | F | regeneration type | REGEN_TYPE | Char 3 | Y |
| 6 | F | regeneration year (yyyy) | REGEN_YR | Num 4 | Y |

4. PLOT TREATMENT (treatment)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | treatment type(s) | TREAT_TYPE | Char 2 | Y |
| 5 | F | treatment year (yyyy) | TREAT_YR | Num 4 | Y |
| 6 | F | treatment extent (%) | TREAT_PCT | Num 3 | N |

5. LARGE TREE PLOT, HEADER AND SUMMARY INFORMATION (ltp_header)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|----------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | plot type | PLOT_TYPE | Char 3 | N |
| 5 | F | nominal plot size (ha) | NOM_PLOT_SIZE | Dec 5.4 | N |
| 6 | F | measured plot size (ha) | MEAS_PLOT_SIZE | Dec 5.4 | N |

| | | | | | |
|----|---|--|------------------------|---------|---|
| 7 | C | site index (m) | SITE_INDEX | Dec 3.1 | N |
| 8 | C | site index genus | SITE_INDEX_GENUS | Char 4 | N |
| 9 | C | site index species | SITE_INDEX_SPECIES | Char 3 | N |
| 10 | C | site height | SITE_HEIGHT | Dec 3.1 | N |
| 11 | C | average (Lorey) height (m) | LOREY_HEIGHT | Dec 3.1 | N |
| 12 | C | site age (years) | SITE_AGE | Num 3 | N |
| 13 | C | lab counted | NUM_LAB | Num 2 | N |
| 14 | C | field counted | NUM_FIELD | Num 2 | N |
| 15 | C | basal area, standing live (m ² /ha) | BASAL_AREA_STANDLIVE | Dec 4.2 | N |
| 16 | C | basal area, standing dead (m ² /ha) | BASAL_AREA_STANDDEAD | Dec 5.2 | N |
| 17 | C | basal area, fallen live (m ² /ha) | BASAL_AREA_FALLLIVE | Dec 5.2 | N |
| 18 | C | stem density, standing live (stems/ha) | STEM_DENSITY_STANDLIVE | Num 5 | N |
| 19 | C | stem density, standing dead (stems/ha) | STEM_DENSITY_STANDDEAD | Num 5 | N |
| 20 | C | stem density, fallen live (stems/ha) | STEM_DENSITY_FALLLIVE | Num 5 | N |
| 21 | C | total unique large tree species | SPECIES_LTNUM | Num 3 | N |
| 22 | C | Shannon-Weaver index for large trees | BINDEX_LTSHANNON | Dec 5.2 | N |
| 23 | C | Evenness index for large trees | BINDEX_LTEVEN | Dec 5.2 | N |
| 24 | C | Margalef (species richness) index for large trees | BINDEX_LTMARGALEF | Dec 5.2 | N |
| 25 | C | total stem wood biomass of live trees (Mg/ha) | PLOTBIO_STEMWOOD_LIVE | Dec 7.2 | N |
| 26 | C | total stem bark biomass of live trees (Mg/ha) | PLOTBIO_STEMBARK_LIVE | Dec 7.2 | N |
| 27 | C | total branches biomass of live trees (Mg/ha) | PLOTBIO_BRANCHES_LIVE | Dec 7.2 | N |
| 28 | C | total foliage biomass of live trees (Mg/ha) | PLOTBIO_FOLIAGE_LIVE | Dec 7.2 | N |
| 29 | C | total stem wood biomass of dead standing trees (Mg/ha) | PLOTBIO_STEMWOOD_DEAD | Dec 7.2 | N |
| 30 | C | total stem bark biomass of dead standing trees (Mg/ha) | PLOTBIO_STEMBARK_DEAD | Dec 7.2 | N |
| 31 | C | total branch biomass of dead standing trees (Mg/ha) | PLOTBIO_BRANCHES_DEAD | Dec 7.2 | N |

5a. LARGE TREE SPECIES COMPOSITION PERCENT

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---------------------|-------------|--------|-------|
| 1 | C | network label | NFI_PLOT | Num 7 | Y |
| 2 | C | measurement number | MEAS_NUM | Num 3 | Y |
| 3 | C | species number | SPECIES_NUM | Num 2 | Y |
| 4 | C | genus | GENUS | Char 4 | N |
| 5 | C | species | SPECIES | Char 3 | N |
| 6 | C | variety | VARIETY | Char 3 | N |
| 7 | C | percent | PERCENT | Num 3 | N |

5b. LARGE TREE LIST (ltp_tree)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|----------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | plot sector | SECTOR | Num 1 | N |
| 5 | F | tree number | TREE_NUM | Num 4 | Y |
| 6 | F | tree genus | LGTREE_GENUS | Char 4 | N |
| 7 | F | tree species | LGTREE_SPECIES | Char 3 | N |
| 8 | F | tree variety | LGTREE_VARIETY | Char 3 | N |
| 9 | F | tree status | LGTREE_STATUS | Char 2 | N |
| 10 | F | diameter at breast height (cm) | DBH | Dec 4.1 | N |
| 11 | F | measured or estimated diameter | MEAS_EST_DBH | Char 1 | N |

| | | | | | |
|----|---|---|------------------|---------|---|
| 12 | F | tree height (m) | HEIGHT | Dec 3.1 | N |
| 13 | F | measured or estimated height | MEAS_EST_HEIGHT | Char 1 | N |
| 14 | F | crown class | CROWN_CLASS | Char 1 | N |
| 15 | F | height to base of live crown (m) | CROWN_BASE | Dec 3.1 | N |
| 16 | F | height to top of live crown (m) | CROWN_TOP | Dec 3.1 | N |
| 17 | F | stem condition | STEM_COND | Char 1 | N |
| 18 | F | crown condition | CROWN_COND | Num 1 | N |
| 19 | F | bark retention | BARK_RET | Num 1 | N |
| 20 | F | wood condition | WOOD_COND | Num 1 | N |
| 21 | F | azimuth to tree (°) | AZIMUTH | Num 3 | N |
| 22 | F | distance to tree face (m) | DISTANCE | Dec 4.2 | N |
| 23 | C | crown length (m) | CROWN_LENGTH | Dec 3.1 | N |
| 24 | C | total tree volume (m ³) | VOL_TOTAL | Dec 7.4 | N |
| 25 | C | volume to projected tree height (m ³) | VOL_PROJ | Dec 7.4 | N |
| 26 | C | total tree biomass (kg) | BIOMASS_TOTAL | Dec 7.2 | N |
| 27 | C | total stem wood biomass of live standing trees (kg of oven dry material) | BIOMASS_STEMWOOD | Dec 7.2 | N |
| 28 | C | total stem bark biomass of live standing trees (kg of oven dry material) | BIOMASS_STEMBARK | Dec 7.2 | N |
| 29 | C | total branch biomass of live standing trees (kg of oven dry material) | BIOMASS_BRANCHES | Dec 7.2 | N |
| 30 | C | total foliage biomass of live standing trees in (kg of oven dry material) | BIOMASS_FOLIAGE | Dec 7.2 | N |
| 31 | C | biomass equation ID for computing stem wood biomass | BMEQ_WOOD | Num 5 | N |
| 32 | C | biomass equation ID for computing stem bark biomass | BMEQ_BARK | Num 5 | N |
| 33 | C | biomass equation ID form computing branch biomass | BMEQ_BRANCHES | Num 5 | N |
| 34 | C | biomass equation ID for computing foliage biomass | BMEQ_FOLIAGE | Num 5 | N |

5c. LARGE TREE PLOT, DAMAGE AGENTS (ltp_tree_damage)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|-----------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | tree number | TREE_NUM | Num 4 | Y |
| 5 | F | damage agents | DAMAGE_AGENT | Char 2 | Y |
| 6 | F | damage location | DAMAGE_LOCATION | Num 2 | Y |
| 7 | F | severity | SEVERITY | Char 1 | N |

5d. LARGE TREE PLOT, REMOVED TREES (ltp_tree_removed)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | tree number | TREE_NUM | Num 4 | Y |
| 5 | F | Reason | REASON | Char 1 | N |

5e. LARGE TREE PLOT, SITE TREE AND AGE INFORMATION (ltp_tree_age)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |

| | | | | | |
|----|---|---------------------------------|-----------------|---------|---|
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | quadrant | QUADRANT | Char 2 | N |
| 5 | F | tree number | TREE_NUM | Num 4 | Y |
| 6 | F | site tree type | SITE_TYPE | Char 1 | N |
| 7 | F | boring (OB) diameter (cm) | BORE_DOB | Dec 4.1 | N |
| 8 | F | suitable height | SUIT_HT | Char 1 | N |
| 9 | F | bored height (m) | BORE_HT | Dec 2.1 | N |
| 10 | F | field age (years) | FIELD_AGE | Num 4 | N |
| 11 | F | suitable age | SUIT_AGE | Char 1 | N |
| 12 | F | prorate code | PRO_CODE | Char 3 | N |
| 13 | F | prorate data core length (cm) | PRO_CORE_LENGTH | Dec 4.1 | N |
| 14 | L | prorate data ring count (years) | PRO_RING_COUNT | Num 4 | N |
| 15 | L | cored age (years) | CORE_AGE | Num 4 | N |
| 16 | L | age correction (years) | AGE_CORR_YEARS | Num 2 | N |
| 17 | L | age correction method | AGE_CORR_METH | Char 1 | N |
| 18 | L | total age (years) | AGE_TOTAL | Num 4 | N |

5f. LARGE TREE PLOT, ANNUAL GROWTH INFORMATION (ltp_tree_growth)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | tree number | TREE_NUM | Num 4 | Y |
| 5 | L | year (yyyy) | YEAR | Num 4 | Y |
| 6 | L | growth (mm) | GROWTH | Dec 4.2 | N |

5g. LARGE TREE PLOT, FIVE-YEAR INCREMENT INFORMATION

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | tree number | TREE_NUM | Num 4 | Y |
| 5 | L | five-year increment | INCR_5YR | Dec 5.2 | N |

6. SMALL TREE PLOT, HEADER AND SUMMARY INFORMATION (stp_header)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--|---------------------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | plot type | PLOT_TYPE | Char 3 | N |
| 5 | F | nominal plot size (ha) | NOM_PLOT_SIZE | Dec 5.4 | N |
| 6 | F | measured plot size (ha) | MEAS_PLOT_SIZE | Dec 5.4 | N |
| 7 | C | total unique small tree species | SPECIES_SMTNUM | Num 3 | N |
| 8 | C | Shannon-Weaver index for small trees | BINDEX_STSHANNON | Dec 5.2 | N |
| 9 | C | Evenness index for small trees | BINDEX_STEVEN | Dec 5.2 | N |
| 10 | C | Margalef (species richness) index for small trees | BINDEX_STMARGALEF | Dec 5.2 | N |
| 11 | C | total stem wood biomass of live standing stp trees (Mg/ha) | PLOTBIO_SMT_STEMWOOD_LIVE | Dec 7.2 | N |
| 12 | C | total stem bark biomass of live | PLOTBIO_SMT_STEMBARK_LIVE | Dec 7.2 | N |

| | | | | | |
|----|---|---|---------------------------|---------|---|
| | | standing stp trees (Mg/ha) | | | |
| 13 | C | total branch biomass of live standing stp trees (Mg/ha) | PLOTBIO_SMT_BRANCHES_LIVE | Dec 7.2 | N |
| 14 | C | total foliage biomass of live standing stp trees in (Mg/ha) | PLOTBIO_SMT_FOLIAGE_LIVE | Dec 7.2 | N |
| 15 | C | total stem wood biomass of dead standing stp trees (Mg/ha) | PLOTBIO_SMT_STEMWOOD_DEAD | Dec 7.2 | N |
| 16 | C | total stem bark biomass of dead standing stp trees (Mg/ha) | PLOTBIO_SMT_STEMBARK_DEAD | Dec 7.2 | N |
| 17 | C | total branch biomass of dead standing stp trees (Mg/ha) | PLOTBIO_SMT_BRANCHES_DEAD | Dec 7.2 | N |

6a. SMALL TREE PLOT, SPECIES LIST (stp_tree)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---|-------------------|----------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | small tree number | SMTREE_NUM | Num 4 | Y |
| 5 | F | small tree genus | SMTREE_GENUS | Char 4 | N |
| 6 | F | small tree species | SMTREE_SPECIES | Char 3 | N |
| 7 | F | small tree variety | SMTREE_VARIETY | Char 3 | N |
| 8 | F | small tree status | SMTREE_STATUS | Char 2 | N |
| 9 | F | small tree DBH | SMTREE_DBH | Dec 2.1 | N |
| 10 | F | small tree height | SMTREE_HT | Dec 3.1 | N |
| 11 | F | measured or estimated small tree height | SMTREE_MEASEST_HT | Char 1 | N |
| 12 | F | stem condition | STEM_COND | Char 1 | N |
| 13 | C | total small tree volume (m3) | SMTREE_VOLUME | Dec 11.8 | N |
| 14 | C | total small tree biomass (kg) | SMTREE_BIOMASS | Dec 6.2 | N |
| 15 | C | total stem wood biomass of live standing stp trees (kg of oven dry material) | BIOMASS_STEMWOOD | Dec 7.2 | N |
| 16 | C | total stem bark biomass of live standing stp trees (kg of oven dry material) | BIOMASS_STEMBARK | Dec 7.2 | N |
| 17 | C | total branch biomass of live standing stp trees (kg of oven dry material) | BIOMASS_BRANCHES | Dec 7.2 | N |
| 18 | C | total foliage biomass of live standing stp trees in (kg of oven dry material) | BIOMASS_FOLIAGE | Dec 7.2 | N |
| 19 | C | biomass equation ID for computing stem wood biomass | BMEQ_WOOD | Num 5 | N |
| 20 | C | biomass equation ID for computing stem bark biomass | BMEQ_BARK | Num 5 | N |
| 21 | C | biomass equation ID form computing branch biomass | BMEQ_BRANCHES | Num 5 | N |
| 22 | C | biomass equation ID for computing foliage biomass | BMEQ_FOLIAGE | Num 5 | N |
| 23 | C | Ratio of the volume of broken top tree to the volume of the tree at it's projected height | SMTREE_VOL_RATIO | Dec 6.5 | N |

6b. SMALL TREE PLOT, SPECIES COMPOSITION

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--|--------------------|--------|-------|
| 1 | C | network label | NFI_PLOT | Num 7 | Y |
| 2 | C | measurement number | MEAS_NUM | Num 3 | Y |
| 3 | C | Species number | SMTREE_SPECIES_NUM | Num 2 | Y |
| 4 | C | genus | SMTREE_GENUS | Char 4 | N |
| 5 | C | species | SMTREE_SPECIES | Char 3 | N |
| 6 | C | variety | SMTREE_VARIETY | Char 3 | N |
| 7 | C | percent composition based on proportion of total basal area occupied by that species | SMTREE_PERCENT | Num 3 | N |

7. SHRUB PLOT, HEADER AND SUMMARY INFORMATION (shrub_header)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|----------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | plot type | PLOT_TYPE | Char 3 | N |
| 5 | F | nominal plot size (ha) | NOM_PLOT_SIZE | Dec 5.4 | N |
| 6 | F | measured plot size (ha) | MEAS_PLOT_SIZE | Dec 5.4 | N |

7a. SHRUB PLOT, SPECIES LIST (shrub_list)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---|--------------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | shrub number | SHRUB_NUM | Num 4 | Y |
| 5 | F | shrub genus | SHRUB_GENUS | Char 4 | N |
| 6 | F | shrub species | SHRUB_SPECIES | Char 3 | N |
| 7 | F | shrub variety | SHRUB_VARIETY | Char 3 | N |
| 8 | F | shrub status | SHRUB_STATUS | Char 2 | N |
| 9 | F | basal diameter class | BD_CLASS | Char 1 | N |
| 10 | F | height class | HT_CLASS | Char 1 | N |
| 11 | F | frequency | FREQUENCY | Char 3 | N |
| 12 | C | total shrub biomass (kg) | SHRUB_BIOMASS | Dec 6.2 | N |
| 13 | C | total woody biomass of live standing shrubs (kg of oven dry material) | SH_BIOMASS_WOODY | Dec 7.2 | N |
| 14 | C | total foliage biomass of live shrubs (kg of oven dry material) | SH_BIOMASS_FOLIAGE | Dec 7.2 | N |
| 15 | C | biomass equation ID for computing total biomass | SH_BMEQ_WOOD | Num 5 | N |
| 16 | C | biomass equation ID for computing woody biomass | SH_BMEQ_BARK | Num 5 | N |
| 17 | C | biomass equation ID for computing foliage biomass | SH_BMEQ_FOLIAGE | Num 5 | N |

8. STUMP PLOT, HEADER AND SUMMARY INFORMATION (stump_header)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|----------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | plot type | PLOT_TYPE | Char 3 | N |
| 5 | F | nominal plot size (ha) | NOM_PLOT_SIZE | Dec 5.4 | N |
| 6 | F | measured plot size (ha) | MEAS_PLOT_SIZE | Dec 5.4 | N |

8a. STUMP LIST (stump_list)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---|----------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | stump number | STUMP_NUM | Num 4 | Y |
| 5 | F | stump genus | STUMP_GENUS | Char 4 | N |
| 6 | F | stump species | STUMP_SPECIES | Char 3 | N |
| 7 | F | stump variety | STUMP_VARIETY | Char 3 | N |
| 8 | F | top diameter inside bark (cm) | STUMP_DIB | Dec 4.1 | N |
| 9 | F | top diameter including bark, if present (cm) ⁴ | STUMP_DIAMETER | Dec 4.1 | N |
| 10 | F | stump decay class | STUMP_DECAY | Num 2 | N |
| 11 | F | stump length | STUMP_LENGTH | Dec 3.2 | N |
| 12 | C | total stump volume (m ³) | STUMP_VOLUME | Dec 8.5 | N |
| 13 | C | total stump biomass (kg) | STUMP_BIOMASS | Dec 6.2 | N |

9. MICRO PLOT (microplot)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|----------------------------------|---------------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | micro plot number | MICRO_PLOT_NUM | Num 1 | Y |
| 5 | F | micro plot layer id | MICRO_LAYER_ID | Num 1 | Y |
| 6 | F | plot type | PLOT_TYPE | Char 3 | N |
| 7 | F | nominal plot size (ha) | NOM_PLOT_SIZE | Dec 7.6 | N |
| 8 | F | measured plot size (ha) | MEAS_PLOT_SIZE | Dec 7.6 | N |
| 9 | L | micro plot biomass by layer (kg) | MICRO_LAYER_BIOMASS | Dec 6.4 | N |

10. ECOLOGICAL PLOT HEADER INFORMATION (ecp_header)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|----------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | plot type | PLOT_TYPE | Char 3 | Y |
| 5 | F | nominal plot size (ha) | NOM_PLOT_SIZE | Dec 5.4 | N |
| 6 | F | measured plot size (ha) | MEAS_PLOT_SIZE | Dec 5.4 | N |

10a. ECOLOGICAL SPECIES LIST (ecp_species)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|-------------------------------------|----------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | plot type | PLOT_TYPE | Char 3 | Y |
| 5 | F | ecological genus | EC_GENUS | Char 4 | Y |
| 6 | F | ecological species | EC_SPECIES | Char 3 | Y |
| 7 | F | ecological variety | EC_VARIETY | Char 3 | Y |
| 8 | F | ecological layer ID | EC_LAYERID | Char 3 | Y |
| 9 | F | ecological species area percent (%) | EC_SPECIES_PCT | Dec 6.3 | N |

10b. ECOLOGICAL BIODIVERSITY (biodiversity_ec)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---|------------------|---------|-------|
| 1 | C | network label | NFI_PLOT | Num 7 | Y |
| 2 | C | measurement number | MEAS_NUM | Num 3 | Y |
| 3 | C | ecological layer ID | EC_LAYERID | Char 3 | Y |
| 4 | C | total unique ecological species | SPECIES_ECNUM | Num 3 | N |
| 5 | C | Shannon-Weaver index for ecological species | BINDEX_ECShannon | Dec 5.2 | N |
| 6 | C | Evenness index for ecological species | BINDEX_ECEVEN | Dec 5.2 | N |

11. WOODY DEBRIS, HEADER INFORMATION (woody_debris_header)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---|---------------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | transect number | TRANSECT_NUM | Num 1 | Y |
| 5 | F | nominal transect length (m) | NOM_TRANSECT_LENGTH | Dec 4.1 | N |
| 6 | F | transect azimuth (°) | TRANSECT_AZIMUTH | Num 3 | N |
| 7 | F | measured length of transect for SWD | SWD_MEASLEN | Dec 4.1 | N |
| 8 | F | total distance along the transect assessed for round shaped pieces of medium coarse woody debris (MCWD) | MCWD_MEASLEN | Dec 4.1 | N |
| 9 | F | total distance along the transect assessed for round shaped pieces of large coarse woody debris (LCWD) | LCWD_MEASLEN | Dec 4.1 | N |

11a. SMALL WOODY DEBRIS (>1.0 cm diameter ≤ 7.5 cm) (woody_debris_small)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---------------------------------------|----------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | transect number | TRANSECT_NUM | Num 1 | Y |
| 5 | F | small woody debris diameter class | SWD_DIAM_CLASS | Num 1 | Y |
| 6 | F | small woody debris tally of pieces by | SWD_TALLY | Num 7 | N |

| | | | | | |
|---|---|--------------------------------|-----------------|-------|---|
| | | diameter class | | | |
| 7 | F | small woody debris decay class | SWD_DECAY_CLASS | Num 1 | N |

11b. COARSE WOODY DEBRIS (> 7.5 cm diameter) - ROUND PIECES (woody_debris_round)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|----------------------------------|--------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | transect number | TRANSECT_NUM | Num 1 | Y |
| 5 | F | piece number | WD_PIECE_NUM | Num 3 | Y |
| 6 | F | woody debris genus | WD_GENUS | Char 4 | N |
| 7 | F | woody debris species | WD_SPECIES | Char 3 | N |
| 8 | F | woody debris piece diameter (cm) | WD_DIAMETER | Dec 4.1 | N |
| 9 | F | woody debris decay class | DECAY_CLASS | Num 1 | N |
| 10 | F | tilt angle (°) | TILT_ANGLE | Num 2 | N |
| 11 | C | density (g/cm ³) | DENSITY | Dec 6.5 | N |

11c. COARSE WOODY DEBRIS – ODD SHAPED PIECES AND ACCUMULATIONS (woody_debris_odd)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---|--------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | transect number | TRANSECT_NUM | Num 1 | Y |
| 5 | F | piece number | WD_PIECE_NUM | Num 3 | Y |
| 6 | F | accumulation or odd-shaped | ACCUM_ODD | Char 1 | N |
| 7 | F | woody debris genus | WD_GENUS | Char 4 | N |
| 8 | F | woody debris species | WD_SPECIES | Char 3 | N |
| 9 | F | horizontal piece/accumulation length (cm) | HOR_LENGTH | Dec 5.1 | N |
| 10 | F | vertical piece/accumulation depth (cm) | VER_DEPTH | Dec 4.1 | N |
| 11 | F | decay class | DECAY_CLASS | Num 1 | N |
| 12 | C | wood density (g/cm ³) | DENSITY | Dec 6.5 | N |

11d. WOODY DEBRIS – SUMMARY

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---|-----------------|---------|-------|
| 1 | C | network label | NFI_PLOT | Num 7 | Y |
| 2 | C | measurement number | MEAS_NUM | Num 3 | Y |
| 3 | C | woody debris decay class | DECAY_CLASS | Num 1 | Y |
| 4 | C | volume of small woody debris (m ³ /ha) | PLOTVOL_SWD | Dec 6.2 | N |
| 5 | C | biomass of small woody debris (Mg/ha) | PLOTBIO_SWD | Dec 7.2 | N |
| 6 | C | total volume of woody debris (m ³ /ha) | PLOTVOL_WD | Dec 6.2 | N |
| 7 | C | total biomass of woody debris (Mg/ha) | PLOTBIO_WD | Dec 7.2 | N |
| 8 | C | volume of round woody debris (m ³ /ha) | PLOTVOL_ROUNDWD | Dec 6.2 | N |
| 9 | C | biomass of round woody debris (Mg/ha) | PLOTBIO_ROUNDWD | Dec 7.2 | N |
| 10 | C | volume of odd shaped woody debris | PLOTVOL_ODDWD | Dec 6.2 | N |

| | | | | | |
|----|---|--|---------------|---------|---|
| | | (m ³ /ha) | | | |
| 11 | C | biomass of odd shaped woody debris (Mg/ha) | PLOTBIO_ODDWD | Dec 7.2 | N |

12. SURFACE SUBSTRATE HEADER (surface_substrate_header)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---|------------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | transect number | TRANSECT_NUM | Num 1 | Y |
| 5 | F | transect azimuth (°) | TRANSECT_AZIMUTH | Num 3 | N |
| 6 | F | measured length (m) | SS_MEASLEN | Dec 3.1 | N |
| 7 | F | total measurements | TOTAL_MEAS | Num 3 | N |
| 8 | C | surface substrate tally, organic matter | TALLY_SS_ORG | Num 3 | N |
| 9 | C | average thickness organic matter (cm) | AVG_ORG_THICK | Dec 4.1 | N |
| 10 | C | surface substrate tally, buried wood | TALLY_SS_BURIED | Num 3 | N |
| 11 | C | average thickness buried wood (cm) | AVG_BURIED_THICK | Dec 4.1 | N |
| 12 | C | surface substrate tally, decaying wood | TALLY_SS_DECAY | Num 3 | N |
| 13 | C | surface substrate tally, bedrock | TALLY_SS_BED | Num 3 | N |
| 14 | C | surface substrate tally, rock | TALLY_SS_ROCK | Num 3 | N |
| 15 | C | surface substrate tally, mineral soil | TALLY_SS_MIN | Num 3 | N |
| 16 | C | surface substrate tally, water | TALLY_SS_WATER | Num 3 | N |

12a. SURFACE SUBSTRATE TALLY (surface_substrate_tally)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|----------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | transect number | TRANSECT_NUM | Num 1 | Y |
| 5 | F | Station number (Field) | STATION_NUM | Num 2 | N |
| 6 | F | Substrate type (Field) | SUBSTRATE_TYPE | Char 2 | N |
| 7 | F | Depth (Field) | DEPTH | Num 3 | N |
| 8 | F | Depth limit (Field) | DEPTH_LIMIT | Num 1 | N |

13. SOIL SITE INFORMATION (soil_site_info)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---|---------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | CSSC soil classification | SOIL_CLASS | Char 9 | N |
| 5 | F | profile depth (cm) | PROFILE_DEPTH | Dec 4.1 | N |
| 6 | F | soil drainage class | DRAINAGE | Num 1 | N |
| 7 | F | moisture class | MOISTURE | Num 1 | N |
| 8 | F | soil parent material mode of deposition | DEPOSITION | Char 2 | N |
| 9 | F | humus form | HUMUS_FORM | Char 2 | N |
| 10 | C | carbon content of organic and mineral profile, plot level (Mg/ha) | CC_TOTAL | Dec 5.1 | N |
| 11 | C | carbon content below mineral surface, plot level (Mg/ha) | CC_MIN | Dec 5.1 | N |
| 12 | C | carbon content organics above | CC_ORG | Dec 5.1 | N |

| | | | | | |
|----|---|---|----------------------|---------|---|
| | | mineral surface, plot level (Mg/ha) | | | |
| 13 | C | average carbon content of organic soil and forest floor samples (g kg ⁻¹) | AVG_ORG_CARB | Dec 5.2 | N |
| 14 | C | average bulk density of organic soil and forest floor samples (g/cm ³) | AVG_BULK_DENSITY_ORG | Dec 5.2 | N |

13a. SOIL PIT DEPTH (soil_pit_depth)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---|------------|---------|-------|
| 1 | C | network label | NFI_PLOT | Num 7 | Y |
| 2 | C | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | C | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | C | soil pit code | PIT_NUM | Char 3 | Y |
| 5 | C | total depth of mineral soils for which samples were collected | DEPTH_MIN | Dec 4.1 | N |
| 6 | C | total depth of organic soils for which samples were collected | DEPTH_ORG | Dec 4.1 | N |

13b. SOIL PIT FEATURES (soil_pit_features)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|---------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | soil pit code | PIT_NUM | Char 3 | Y |
| 5 | F | soil feature | SOIL_FEATURE | Char 1 | Y |
| 6 | F | depth to soil feature (cm) | DEPTH_FEATURE | Num 3 | Y |

13c. SOIL PIT HORIZON DESCRIPTION (soil_horizon_desc)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---------------------------------|---------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | soil pit code | PIT_NUM | Char 3 | Y |
| 5 | F | horizon number | HORIZON_NUM | Num 2 | Y |
| 6 | F | horizon designation | HORIZON | Char 6 | N |
| 7 | F | depth to upper horizon boundary | HORIZON_UPPER | Dec 4.1 | N |
| 8 | F | hoizon thickness | THICKNESS | Dec 4.1 | N |
| 9 | F | soil colour | COLOR | Char 1 | N |
| 10 | F | soil texture | TEXTURE | Char 5 | N |
| 11 | F | percent gravel (%) | CF_GRAV | Num 3 | N |
| 12 | F | percent cobbles (%) | CF_COBB | Num 3 | N |
| 13 | F | percent stones (%) | CF_STONE | Num 3 | N |

13d. FOREST FLOOR ORGANIC SAMPLE INFORMATION (for_flr_org_sample)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--------------------------------|------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |

| | | | | | |
|----|---|--|------------------|---------|---|
| 4 | F | soil pit code | PIT_NUM | Char 3 | Y |
| 5 | F | sample number | SAMPLE_NUM | Num 1 | Y |
| 6 | F | horizon designation | HORIZON | Char 20 | N |
| 7 | F | horizon measurement | HORIZON_MEAS | Char 1 | N |
| 8 | F | upper depth of sample (cm) | SAMPLE_UPPER | Dec 4.1 | N |
| 9 | F | bottom depth of sample (cm) | SAMPLE_BOTTOM | Dec 4.1 | N |
| 10 | F | volume of forest floor organic sample (cm ³) | VOLUME | Num 5 | N |
| 11 | F | sample collection method | SAMPLE_METHOD | Char 1 | N |
| 12 | F | sample width (cm) | SAMPLE_LENGTH | Num 2 | N |
| 13 | F | sample length (cm) | SAMPLE_WIDTH | Num 2 | N |
| 14 | L | bulk density ≤ 8mm forest floor (g cm ⁻³) | BULK_DENSITY_8MM | Dec 4.3 | N |
| 15 | L | bulk density measurement criteria | BD_MEAS | Char 1 | N |
| 16 | L | organic carbon content (g kg ⁻¹) | ORG_CARB | Dec 5.2 | N |
| 17 | L | measured organic carbon value or not | ORG_CARB_REAL | Char 1 | N |
| 18 | L | total carbon (g kg ⁻¹) | TOT_CARB | Dec 5.2 | N |
| 19 | L | total nitrogen (g kg ⁻¹) | N | Dec 4.2 | N |
| 20 | L | available phosphorus (mg kg ⁻¹) | P | Num 4 | N |
| 21 | L | total phosphorus (mg kg ⁻¹) | TOTAL_P | Num 4 | N |
| 22 | L | exchangeable K (cmol kg ⁻¹) | K | Dec 5.3 | N |
| 23 | L | exchangeable Ca (cmol kg ⁻¹) | CA | Dec 5.2 | N |
| 24 | L | exchangeable Mg (cmol kg ⁻¹) | MG | Dec 5.2 | N |
| 25 | L | exchangeable Na (cmol kg ⁻¹) | NA | Dec 5.3 | N |
| 26 | L | cation exchange capacity (cmol kg ⁻¹) | CEC | Dec 5.2 | N |
| 27 | L | pH | PH | Dec 4.2 | N |
| 28 | L | carbonates (g kg ⁻¹) | CO3 | Num 5.2 | N |
| 29 | L | mass of total forest floor sample, oven dried 70°C(g) | MASS_TOTAL | DEC 6.2 | N |
| 30 | L | mass of forest floor sample > 8mm (excluding live roots) (g) | MASS_GT8MM | DEC 6.2 | N |
| 31 | L | mass of forest floor sample live roots (g) | MASS_LIVE_ROOT | DEC 6.2 | N |
| 32 | L | mass of forest floor sample gravel (g) | MASS_GRAVEL | DEC 6.2 | N |
| 33 | L | mass of forest floor sample ≤8 mm (g) | MASS_8MM | DEC 6.2 | N |
| 34 | L | internal designation of lab number | LAB_NUM | Char 25 | N |
| 35 | C | sample layer carbon content (kg m ⁻²) | LAYER_CC | Dec 5.2 | N |

13e. MINERAL SOIL SAMPLE INFORMATION (soil_mineral_sample)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---|------------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | soil pit number | PIT_NUM | Char 3 | Y |
| 5 | F | soil sample number | SAMPLE_NUM | Num 1 | Y |
| 6 | F | horizon designation | HORIZON | Char 20 | N |
| 7 | F | horizon measurement | HORIZON_MEAS | Char 1 | N |
| 8 | F | upper depth of sample (cm) | SAMPLE_UPPER | Dec 4.1 | N |
| 9 | F | bottom depth of sample (cm) | SAMPLE_BOTTOM | Dec 4.1 | N |
| 10 | F | volume of mineral soil sample (cm ³) | VOLUME | Dec 6.1 | N |
| 11 | F | sample collection method | SAMPLE_METHOD | Char 1 | N |
| 12 | L | bulk density of ≤2mm mineral soil (g cm ⁻³) | BULK_DENSITY_2MM | Dec4.3 | N |
| 13 | L | bulk density measurement criteria | BD_MEAS | Char 1 | N |
| 14 | L | organic carbon content (g kg ⁻¹) | ORG_CARB | Dec 5.2 | N |

| | | | | | |
|----|---|--|--------------------|---------|---|
| 15 | L | measured organic carbon value or not | ORG_CARB_REAL | Char 1 | N |
| 16 | L | total carbon (g kg ⁻¹) | TOT_CARB | Dec 5.2 | N |
| 17 | L | total nitrogen (g kg ⁻¹) | N | Dec 4.2 | N |
| 18 | L | available phosphorus (mg kg ⁻¹) | P | Num 4 | N |
| 19 | L | exchangeable K (cmol kg ⁻¹) | K | Dec 5.3 | N |
| 20 | L | exchangeable Ca (cmol kg ⁻¹) | CA | Dec 5.2 | N |
| 21 | L | exchangeable Mg (cmol kg ⁻¹) | MG | Dec 5.2 | N |
| 22 | L | exchangeable Na (cmol kg ⁻¹) | NA | Dec 5.3 | N |
| 23 | L | cation exchange capacity (cmol kg ⁻¹) | CEC | Dec 5.2 | N |
| 24 | L | pH | PH | Dec 4.2 | N |
| 25 | L | carbonates (g kg ⁻¹) | CO3 | Dec 5.2 | N |
| 26 | L | pyrophosphate Al and Fe (mg kg ⁻¹) | AL_FE | Num 5 | N |
| 27 | L | silt content, mineral soil (%) | SILT | Dec 5.2 | N |
| 28 | L | clay content, mineral soil (%) | CLAY | Dec 5.2 | N |
| 29 | L | bulk density of total mineral sample (g cm ⁻³) | BULK_DENSITY_TOTAL | Dec 4.3 | N |
| 30 | L | mass of total mineral sample, air dried (g) | MASS_TOTAL | Dec 6.2 | N |
| 31 | L | mass of mineral soil sample organic matter, roots (g) | MASS_ROOT | Dec 6.2 | N |
| 32 | L | mass of mineral soil sample cobbles >75mm – 250mm (g) | MASS_COBBLE | Dec 6.2 | N |
| 33 | L | mass of mineral soil sample gravel >2mm - 75mm(g) | MASS_GRAVEL | Dec 6.2 | N |
| 34 | L | mass of mineral soil sample ≤2 mm (g) | MASS_2MM_SOIL | Dec 6.2 | N |
| 35 | L | water content of air dry ≤2mm soil (kg kg ⁻¹) | SOIL_MOISTURE | Dec 5.4 | N |
| 36 | L | water content of air dry roots (kg kg ⁻¹) | ROOT_MOISTURE | Dec 5.4 | N |
| 37 | L | soil textural class | SOIL_TEXTURE | Char 4 | N |
| 38 | L | Internal designation of lab number | LAB_NUM | Char 25 | N |
| 39 | C | coarse fragment content, percent gravel (%) | CF_GRAV | Num 3 | N |
| 40 | C | coarse fragment content, percent cobbles (%) | CF_COBB | Num 3 | N |
| 41 | C | coarse fragment content , percent stones (%) | CF_STONE | Num 3 | N |
| 42 | C | sample layer carbon content (kg m ⁻²) | LAYER_CC | Dec 5.2 | N |

13f. ORGANIC SOIL SAMPLE INFORMATION (soil_org_sample)

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|--|------------------|---------|-------|
| 1 | F | network label | NFI_PLOT | Num 7 | Y |
| 2 | F | measurement date (yyyy-mon-dd) | MEAS_DATE | Date 11 | N |
| 3 | F | measurement number | MEAS_NUM | Num 3 | Y |
| 4 | F | soil pit number | PIT_NUM | Char 3 | Y |
| 5 | F | sample number | SAMPLE_NUM | Num 1 | Y |
| 6 | F | horizon designation | HORIZON | Char 20 | N |
| 7 | F | horizon measurement | HORIZON_MEAS | Char 1 | N |
| 8 | F | upper depth of sample (cm) | SAMPLE_UPPER | Dec 4.1 | N |
| 9 | F | bottom depth of sample (cm) | SAMPLE_BOTTOM | Dec 4.1 | N |
| 10 | F | volume of organic soil sample (cm ³) | VOLUME | Num 5 | N |
| 11 | F | sample collection method | SAMPLE_METHOD | Char 1 | N |
| 12 | L | bulk density ≤8mm organic soil (g cm ⁻³) | BULK_DENSITY_8MM | Dec 4.3 | N |
| 13 | L | bulk density measurement criteria | BD_MEAS | Char 1 | N |
| 14 | L | organic carbon content (g kg ⁻¹) | ORG_CARB | Dec 5.2 | N |

| | | | | | |
|----|---|---|----------------|---------|---|
| 15 | L | measured organic carbon value or not | ORG_CARB_REAL | Char 1 | N |
| 16 | L | total carbon (g kg ⁻¹) | TOT_CARB | Dec 5.2 | N |
| 17 | L | total nitrogen (g kg ⁻¹) | N | Dec 4.2 | N |
| 18 | L | available phosphorus (mg kg ⁻¹) | P | Num 4 | N |
| 19 | L | total phosphorus (mg kg ⁻¹) | TOTAL_P | Num 4 | N |
| 20 | L | exchangeable K (cmol kg ⁻¹) | K | Dec 5.3 | N |
| 21 | L | exchangeable Ca (cmol kg ⁻¹) | CA | Dec 5.2 | N |
| 22 | L | exchangeable Mg (cmol kg ⁻¹) | MG | Dec 5.2 | N |
| 23 | L | exchangeable Na (cmol kg ⁻¹) | NA | Dec 5.3 | N |
| 24 | L | cation exchange capacity (cmol kg ⁻¹) | CEC | Dec 5.2 | N |
| 25 | L | pH | PH | Dec 4.2 | N |
| 26 | L | carbonates (g kg ⁻¹) | CO3 | Dec 5.2 | N |
| 27 | L | mass of the total organic soil sample, oven dried 70°C (g) | MASS_TOTAL | Dec 6.2 | N |
| 28 | L | mass of organic soil sample >8mm, (g) | MASS_GT8MM | Dec 6.2 | N |
| 29 | L | mass of organic soil sample live roots (g) | MASS_LIVE_ROOT | Dec 6.2 | N |
| 30 | L | mass of organic soil sample gravel (cobbles and stones) (g) | MASS_GRAVEL | Dec 6.2 | N |
| 31 | L | mass of organic soil sample ≤8mm (g) | MASS_8MM | Dec 6.2 | N |
| 32 | L | internal designation of lab number | LAB_NUM | Char 25 | N |
| 33 | C | sample layer carbon content (kg m ⁻²) | LAYER_CC | Dec 5.2 | N |

14. RELATIVE ABUNDANCE FOR LARGE TREE SPECIES

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---------------------------------|---------------|---------|-------|
| 1 | C | network label | NFI_PLOT | Num 7 | Y |
| 2 | C | measurement number | MEAS_NUM | Num 3 | Y |
| 3 | C | specie number | SPECIES_NUM | Num 2 | Y |
| 4 | C | genus | GENUS | Char 4 | Y |
| 5 | C | species | SPECIES | Char 3 | Y |
| 6 | C | variety | VARIETY | Char 3 | N |
| 7 | C | relative abundance, large trees | SPECIES_LTREL | Dec 4.3 | N |

15. RELATIVE ABUNDANCE FOR SMALL TREE SPECIES

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---------------------------------|---------------|---------|-------|
| 1 | C | network label | NFI_PLOT | Num 7 | Y |
| 2 | C | measurement number | MEAS_NUM | Num 3 | Y |
| 3 | C | specie number | SPECIES_NUM | Num 2 | Y |
| 4 | C | genus | GENUS | Char 4 | Y |
| 5 | C | species | SPECIES | Char 3 | Y |
| 6 | C | variety | VARIETY | Char 3 | N |
| 7 | C | relative abundance, small trees | SPECIES_STREL | Dec 4.3 | N |

16. RELATIVE ABUNDANCE FOR ECOLOGICAL SPECIES

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---------------------|------------|--------|-------|
| 1 | C | network label | NFI_PLOT | Num 7 | Y |
| 2 | C | measurement number | MEAS_NUM | Num 3 | Y |
| 3 | C | ecological layer ID | EC_LAYERID | Char 3 | Y |

| | | | | | |
|---|---|--|---------------|---------|---|
| 4 | C | species number | SPECIES_NUM | Num 2 | Y |
| 5 | C | genus | GENUS | Char 4 | Y |
| 6 | C | species | SPECIES | Char 3 | Y |
| 7 | C | variety | VARIETY | Char 3 | N |
| 8 | C | relative abundance, ecological species | SPECIES_ECREL | Dec 4.3 | N |

17. UNIQUE SPECIES LIST

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---------------------|------------|--------|-------|
| 1 | C | network label | NFI_PLOT | Num 7 | Y |
| 2 | C | measurement number | MEAS_NUM | Num 3 | Y |
| 3 | C | genus | GENUS | Char 4 | N |
| 4 | C | species | SPECIES | Char 3 | N |
| 5 | C | variety | VARIETY | Char 3 | N |

18. CLIMATE INFORMATION

| Data Field | Field, Lab, Compiled | Description (Units) | Field Name | Format | Index |
|------------|----------------------|---|----------------------|---------|-------|
| 1 | C | network label | NFI_PLOT | Num 7 | Y |
| 2 | C | year | YEAR | Num 4 | Y |
| 3 | C | longitude | LONGITUDE | Dec 7.4 | N |
| 4 | C | latitude | LATITUDE | Dec 6.4 | N |
| 5 | C | elevation | ELEVATION | Num 4 | N |
| 6 | C | mean diurnal range | MEAN_DIURNAL_RANGE | Dec 3.1 | N |
| 7 | C | isothermality | ISOTHERMALITY | Dec 3.2 | N |
| 8 | C | temperature seasonality (C of V) | TEMP_SEASONALITY | Dec 3.2 | N |
| 9 | C | max temperature of warmest period | MAXTEMP_WARMEST | Dec 3.1 | N |
| 10 | C | min temperature of coldest period | MINTEMP_COLDEST | Dec 3.1 | N |
| 11 | C | temperature annual range | TEMP_ANNUAL_RANGE | Dec 3.1 | N |
| 12 | C | mean temperature of wettest quarter | MEANTEMP_WETTEST_QTR | Dec 3.1 | N |
| 13 | C | mean temperature of driest quarter | MEANTEMP_DRIEST_QTR | Dec 3.1 | N |
| 14 | C | mean temperature of warmest quarter | MEANTEMP_WARMEST_QTR | Dec 3.1 | N |
| 15 | C | mean temperature of coldest quarter | MEANTEMP_COLDEST_QTR | Dec 3.1 | N |
| 16 | C | annual precipitation | ANNUAL_PRECIP | Num 4 | N |
| 17 | C | precipitation of wettest period | PRECIP_WETTEST_PRD | Num 3 | N |
| 18 | C | precipitation of driest period | PRECIP_DRIEST_PRD | Num 3 | N |
| 19 | C | precipitation seasonality (C of V) | PRECIP_SEASONALITY | Num 3 | N |
| 20 | C | precipitation of wettest quarter | PRECIP_WETTEST_QTR | Num 4 | N |
| 21 | C | precipitation of driest quarter | PRECIP_DRIEST_QTR | Num 4 | N |
| 22 | C | precipitation of warmest quarter | PRECIP_WARMEST_QTR | Num 4 | N |
| 23 | C | precipitation of coldest quarter | PRECIP_COLDEST_QTR | Num 4 | N |
| 24 | C | Julian day number of start of growing season | GROW_SEASON_START | Num 4 | N |
| 25 | C | Julian day number of end of growing season | GROW_SEASON_END | Num 4 | N |
| 26 | C | number of days of growing season | GROW_SEASON_LENGTH | Num 4 | N |
| 27 | C | total precipitation for period 1 | TOT_PRECIP_PRD1 | Dec 5.1 | N |
| 28 | C | total precipitation for period 3 | TOT_PRECIP_PRD3 | Dec 5.1 | N |
| 29 | C | growing degree-days above base temperature for period 3 | GDD_PRD3 | Num 4 | N |
| 30 | C | annual mean temperature | ANNUAL_MEANTEMP | Dec 6.2 | N |
| 31 | C | annual minimum temperature | ANNUAL_MINTEMP | Dec 6.2 | N |
| 32 | C | annual maximum temperature | ANNUAL_MAXTEMP | Dec 6.2 | N |
| 33 | C | mean temperature for period 3 | MEANTEMP_PRD3 | Dec 6.2 | N |
| 34 | C | temperature range for period 3 | TEMP_RANGE_PRD3 | Dec 6.2 | N |

Canada's National Forest Inventory
National Standard for Ground Plots: Data Dictionary 5.0

| | | | | | |
|----|---|---------------------------------------|------------------|---------|---|
| 35 | C | January mean monthly minimum temp. | MEAN_MINTEMP_JAN | Dec 4.2 | N |
| 36 | C | February mean monthly minimum temp. | MEAN_MINTEMP_FEB | Dec 4.2 | N |
| 37 | C | March mean monthly minimum temp. | MEAN_MINTEMP_MAR | Dec 4.2 | N |
| 38 | C | April mean monthly minimum temp. | MEAN_MINTEMP_APR | Dec 4.2 | N |
| 39 | C | May mean monthly minimum temp. | MEAN_MINTEMP_MAY | Dec 4.2 | N |
| 40 | C | June mean monthly minimum temp. | MEAN_MINTEMP_JUN | Dec 4.2 | N |
| 41 | C | July mean monthly minimum temp. | MEAN_MINTEMP_JUL | Dec 4.2 | N |
| 42 | C | August mean monthly minimum temp. | MEAN_MINTEMP_AUG | Dec 4.2 | N |
| 43 | C | September mean monthly minimum temp. | MEAN_MINTEMP_SEP | Dec 4.2 | N |
| 44 | C | October mean monthly minimum temp. | MEAN_MINTEMP_OCT | Dec 4.2 | N |
| 45 | C | November mean monthly minimum temp. | MEAN_MINTEMP_NOV | Dec 4.2 | N |
| 46 | C | December mean monthly minimum temp. | MEAN_MINTEMP_DEC | Dec 4.2 | N |
| 47 | C | January mean monthly maximum temp. | MEAN_MAXTEMP_JAN | Dec 4.2 | N |
| 48 | C | February mean monthly maximum temp. | MEAN_MAXTEMP_FEB | Dec 4.2 | N |
| 49 | C | March mean monthly maximum temp. | MEAN_MAXTEMP_MAR | Dec 4.2 | N |
| 50 | C | April mean monthly maximum temp. | MEAN_MAXTEMP_APR | Dec 4.2 | N |
| 51 | C | May mean monthly maximum temp. | MEAN_MAXTEMP_MAY | Dec 4.2 | N |
| 52 | C | June mean monthly maximum temp. | MEAN_MAXTEMP_JUN | Dec 4.2 | N |
| 53 | C | July mean monthly maximum temp. | MEAN_MAXTEMP_JUL | Dec 4.2 | N |
| 54 | C | August mean monthly maximum temp. | MEAN_MAXTEMP_AUG | Dec 4.2 | N |
| 55 | C | September mean monthly maximum temp. | MEAN_MAXTEMP_SEP | Dec 4.2 | N |
| 56 | C | October mean monthly maximum temp. | MEAN_MAXTEMP_OCT | Dec 4.2 | N |
| 57 | C | November mean monthly maximum temp. | MEAN_MAXTEMP_NOV | Dec 4.2 | N |
| 58 | C | December mean monthly maximum temp. | MEAN_MAXTEMP_DEC | Dec 4.2 | N |
| 59 | C | January total monthly precipitation | TOTAL_PRECIP_JAN | Dec 6.2 | N |
| 60 | C | February total monthly precipitation | TOTAL_PRECIP_FEB | Dec 6.2 | N |
| 61 | C | March total monthly precipitation | TOTAL_PRECIP_MAR | Dec 6.2 | N |
| 62 | C | April total monthly precipitation | TOTAL_PRECIP_APR | Dec 6.2 | N |
| 63 | C | May total monthly precipitation | TOTAL_PRECIP_MAY | Dec 6.2 | N |
| 64 | C | June total monthly precipitation | TOTAL_PRECIP_JUN | Dec 6.2 | N |
| 65 | C | July total monthly precipitation | TOTAL_PRECIP_JUL | Dec 6.2 | N |
| 66 | C | August total monthly precipitation | TOTAL_PRECIP_AUG | Dec 6.2 | N |
| 67 | C | September total monthly precipitation | TOTAL_PRECIP_SEP | Dec 6.2 | N |
| 68 | C | October total monthly precipitation | TOTAL_PRECIP_OCT | Dec 6.2 | N |
| 69 | C | November total monthly precipitation | TOTAL_PRECIP_NOV | Dec 6.2 | N |
| 70 | C | December total monthly precipitation | TOTAL_PRECIP_DEC | Dec 6.2 | N |

Data Dictionary

The data tables for NFI ground plot data are listed below. Indexed attribute definitions have only been listed once at their first occurrence.

1. GROUND PLOT SITE INFORMATION (site_info)

Indexed attributes: NFI_PLOT, MEAS_NUM.

**Note: Completion of this table is mandatory for the processing of ground plots.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|---|
| Attribute | Plot completion (Field) |
| Variable name | PLOT_COMPLETION |
| Description | Indicates whether the ground plot was measured in full (F), in part (P), or not at all (U). |
| Permitted values/range | F: Full plot measured P: Partial plot measured U: Plot not measured |
| Format | Char 1 |
| Rule(s) | Must have value. |

| | |
|---------------|--|
| Attribute | Reason the ground plot was not completed in full (Field) |
| Variable name | INCOMP_REASON |
| Description | Indicates why the ground plot could not be measured in full. |

| | |
|------------------------|---|
| Permitted values/range | AD: Access denied HZ: Hazardous NF: Plot straddles forested and non-forested polygons SP: Plot was split in a previous measurement OT: Other NA: Non applicable (i.e. plot was measured in full) |
| Format | Char 2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Province (Field) |
| Variable name | PROVINCE |
| Description | A two-letter code describing the province or territory that the data corresponds to. |
| Permitted values/range | BC: British Columbia AB: Alberta SK: Saskatchewan MB: Manitoba ON: Ontario QC: Quebec NS: Nova Scotia NB: New Brunswick PE: Prince Edward Island NL: Newfoundland and Labrador NU: Nunavut NT: Northwest Territories YT: Yukon Territory |
| Format | Char 2 |
| Rule(s) | Must have value Province codes cross-referenced with network labels. |

| | |
|------------------------|--|
| Attribute | Terrestrial ecozone |
| Variable name | ECOZONE |
| Description | Ecological land classification code describing a uniquely classified, ecologically distinctive area in Canada. Each area is viewed as a discrete system which has resulted from interplay of geographic, land form, soil, vegetation, climatic wildlife, water and human factors which may be present (Environment Canada, 2002). |
| Permitted values/range | 1: Arctic Cordillera 2: Northern Arctic 3: Southern Arctic 4: Taiga Plains 5: Taiga Shield 6: Boreal Shield 7: Atlantic Maritime 8: Mixedwood Plains 9: Boreal Plains 10: Prairies 11: Taiga Cordillera 12: Boreal Cordillera 13: Pacific Maritime 14: Montane Cordillera 15: Hudson Plains |
| Format | Num 2 |
| Rule(s) | Must have value Refer to terrestrial ecozone map (Environment Canada, 2002). |

| | |
|------------------------|---|
| Attribute | Provincial ecosystem type (Field) |
| Variable name | PROV_ECO_TYPE |
| Description | Ecosystem type identifier classified to the site association/site series level using the applicable ecosystem classification for the province the site is in. |
| Permitted values/range | All levels of ecosystem type should be used in the assignment of provincial ecosystem type. An example |

SITE INFORMATION

| | |
|---------|---|
| | in B.C. would be: Coastal Western Hemlock zone, moist maritime subzone, montane variant, 01 HwBa site series. |
| Format | Char 200 |
| Rule(s) | May be blank |

| | |
|------------------------|--|
| Attribute | Ecosystem type reference (Field) |
| Variable name | PROV_ECO_REF |
| Description | Refers to reference or publication used for ecosystem provincial ecosystem type classification scheme. Number assignment refers to a list of provincial classification manuals. Enter -1 for unreported. |
| Permitted values/range | 1 to 9999, -1 |
| Format | Num 4 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | UTM Northing Coordinate |
| Abbreviation | UTM_N |
| Description | The UTM northing coordinate that describes the centre point location of a photo plot upon the national grid. The coordinate is measured and report to the nearest meter, |
| Measurement criteria | UTM easting coordinate in meters. The photo plots are permanent. |
| Standard | Correct location on map or aerial photo within ± 40 m of the provided location. |
| Permitted values/range | 4614000 to 9297000 |
| Format | Num 7 |
| Rules | Must have value. |

| | |
|------------------------|--|
| Attribute | UTM Easting Coordinate |
| Abbreviation | UTM_E |
| Description | The UTM easting that describes the centre point location of a photo plot upon the national grid. The coordinate is measured and report to the nearest meter, |
| Measurement criteria | UTM easting coordinate in meters. The photo plots are permanent. |
| Standard | Correct location on map or aerial photo within ± 40 m of the provided location. |
| Permitted values/range | 250000 to 750000 |
| Format | Num 6 |
| Rules | Must have value. |

| | |
|------------------------|--|
| Attribute | UTM Zone |
| Abbreviation | UTM_ZONE |
| Description | The UTM zone that the centre point location of a photo plot upon the national grid falls into. |
| Permitted values/range | 7 to 22 |
| Format | Num 2 |
| Rules | Must have value. |

| | |
|------------------------|--|
| Attribute | Slope (Field) |
| Variable name | SLOPE |
| Description | A measurement of the slope gradient. Slope is measured, in the field, using a clinometer or similar instrument and is reported in percent . Slope that is measured in degrees is converted using the formula: % slope = 100 * tan(deg. slope) For flat terrain, enter a value of 0%. -1: Missing. |
| Permitted values/range | 0 to 150, -1 |
| Format | Num 3 |
| Rule(s) | Must have value. Warning will be raised when SLOPE > 100%. |

| | |
|------------------------|---|
| Attribute | Aspect (Field) |
| Variable name | ASPECT |
| Description | The orientation of the slope. Aspect is measured, in the field, using a compass and is reported in degrees. Due north = 0°. For flat terrain (slope $\leq 2\%$), aspect should be coded as 999. Enter -1 for missing data. |
| Permitted values/range | 0 to 359; 999, -1 |
| Format | Num 3 |

| | |
|---------|--|
| Rule(s) | Must have value. If slope ≤ 2% then aspect = 999. If slope > 2% then aspect must be between or equal to 0 and 359. |
|---------|--|

| | |
|------------------------|---|
| Attribute | Elevation (Field) |
| Variable name | ELEVATION |
| Description | Elevation at plot centre. Record in meters (m). -1: Missing. |
| Permitted values/range | 0 to 5951, -1 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Land base (Field) |
| Variable name | LAND_BASE |
| Description | A unique identification letter for the first level of the <i>NFI Land Cover Classification System</i> . Signifies the presence or absence of vegetation within the ground plot. Based on the majority condition in the plot. |
| Permitted values/range | V : vegetated (establishment plots) N : non-vegetated (re-measurement plots only) |
| Format | Char 1 |
| Rule(s) | Must have value If the total cover of the vegetation (visual ground estimate) in the plot ≥ 5% of the surface area, then land base = 'V'. Refer to <i>NFI Land Cover Classification</i> document for specific definitions. |

| | |
|------------------------|--|
| Attribute | Land cover (Field) |
| Variable name | LAND_COVER |
| Description | A unique identification letter for the second level of the <i>NFI Land Cover Classification System</i> . Signifies the presence or absence of trees for vegetated ground plots. |
| Permitted values/range | For vegetated plots: T : treed N : non-treed For non-vegetated plots (re-measurement plots only): L : land W : water |
| Format | Char 1 |
| Rule(s) | Must have value. IF LAND_BASE = 'V' THEN LAND_COVER = 'T' OR 'N'. IF LAND_BASE = 'N' THEN LAND_COVER = 'L' OR 'W'. IF LAND_COVER = 'L' THEN MEAS_NUM > 0 AND LAND_BASE = 'N'. IF LAND_BASE = 'V' AND crown closure (visual estimate) ≥ 10% THEN LAND_COVER = 'T'. IF LAND_BASE = 'V' and crown closure (visual estimate) < 10% THEN LAND_COVER = 'N'. Refer to <i>NFI Land Cover Classification</i> document for specific definitions. |

| | |
|------------------------|--|
| Attribute | Landscape position (Field) |
| Variable name | LAND_POS |
| Description | A unique identification letter for the third level of the <i>NFI Land Cover Classification System</i> . Signifies the location of the plot relative to drainage. |
| Permitted values/range | W : wetland U : upland A : alpine |
| Format | Char 1 |
| Rule(s) | Must have value. Refer to <i>NFI Land Cover Classification</i> document for specific definitions. |

| | |
|---------------|--|
| Attribute | Vegetation type (Field) |
| Variable name | VEG_TYPE |
| Description | A unique identification letter for the fourth Level of the <i>NFI Land Cover Classification System</i> . Signifies the distinct type of vegetation within the plot from a broad perspective. |

| | |
|------------------------|---|
| Permitted values/range | <p>For vegetated, treed plots: TC: coniferous TB: broadleaf TM: mixed</p> <p>For vegetated, non-treed plots (re-measurement plots only): ST: shrub tall SL: shrub low HE: herb HF: herb forb HG: herb graminoid BY: bryoid BM: bryoid moss BL: bryoid lichen</p> <p>For non-vegetated plots: SI: snow/ice RO: rock rubble EL: exposed land</p> <p>Plots containing lakes or ocean: WA: water</p> |
| Format | Char 2 |
| Rule(s) | <p>Must have value.</p> <p>For vegetated, treed plots: IF LAND_COVER = 'T' THEN VEG_TYPE = 'TC', 'TB' or 'TM'. TC: basal area of coniferous species \geq 75% total tree basal area in plot. TB: basal area of deciduous species \geq 75% total tree basal area in plot. TM: neither coniferous nor broadleaf tree species account for \geq 75% of the total tree basal area in plot.</p> <p>For vegetated, non-treed plots: IF LAND_BASE = 'V' AND LAND_COVER = 'N' then veg_type = ST, SL, HE, HF, HG, BY, BM or BL. ST: LAND_BASE = 'V' AND LAND_COVER = 'N'. Ground cover of shrubs in plot \geq 20% OR ground cover of shrubs > 33% total vegetation cover in plot. Average height of shrubs in the plot \geq 2 m. SL: LAND_BASE = 'V' AND LAND_COVER = 'N'. Ground cover of shrubs in plot \geq 20% OR ground cover of shrubs > 33% total vegetation cover in plot. Average height of shrubs in the plot < 2 m. HE, HF, HG, BY, BM, BL: Refer to <i>NFI Land Cover Classification</i> document for specific definitions. IF LAND_COVER = 'L' THEN VEG_TYPE = 'SI', 'RO', or 'EL'. IF LAND_COVER = 'W' THEN VEG_TYPE = 'WA'.</p> |
| Attribute | Density class (Field) |
| Variable name | DENSITY_CL |
| Description | A unique identification letter for the fifth level of the <i>NFI Land Classification System</i> . This signifies the vegetation densities for vegetated plots. Note: "open" has two definitions for open vegetated plots depending on the cover type. Shrub, or herb cover is considered open between 26% and 60% crown closure whereas bryoid cover is considered open when crown closure is less than or equal to 50% of the plot. |

| | |
|------------------------|---|
| Permitted values/range | <p>For vegetated plots: DE: dense OP: open SP: sparse CL: closed</p> <p>For non-vegetated plots (re-measurement plots only): SI (snow/ice) from level 4 is further classified: GL: glacier SC: snow cover</p> <p>RO (rock/rubble) from level 4 is further classified: BR: bedrock RT: rubble, talus, blockfield MS: rubbly mine spoils LB: lava bed</p> <p>EL (exposed land) from level 4 is further classified: RS: river sediments ES: exposed soil LS: pond or lake sediments RM: reservoir or margin BE: beach LL: landing BU: burned area RP: road surface MU: mudflat sediment CB: cutbank MO: moraine GP: gravel pit TS: tailings RR: railway surface BP: buildings and parking AP: airport PM: open pit mine SW: shallow water OT: other</p> |
| Format | Char 2 |
| Rule(s) | <p>Must have value IF LAND_BASE = 'V' THEN DENSITY_CL = 'DE', 'OP' or 'SP'. IF VEG_TYPE = 'SI' THEN DENSITY_CL = 'GL' or 'SC'. IF VEG_TYPE = 'RO' THEN DENSITY_CL = 'BR', 'RT', 'MS', or 'LB'. IF VEG_TYPE = 'EL' THEN DENSITY_CL = 'RS', 'ES', 'LS', 'RM', 'BE', 'LL', 'BU', 'RP', 'MU', 'CB', 'MO', 'GP', 'TS', 'RR', 'BP', 'AP', 'PM', or 'OT'. IF MEAS_NUM = 0 (establishment) THEN DENSITY_CL in ('DE', 'OP', 'SP'). Refer to <i>NFI Land Cover Classification</i> document for specific definitions.</p> |

| | |
|------------------------|---|
| Attribute | Stand structure (Field) |
| Variable name | STAND_STRU |
| Description | The structure of the prevailing forest cover in the plot (if treed). Evaluated based on the vertical structure of the stand. |
| Permitted values/range | SNGL: single storied MULT: two or more distinct canopy layers COMP : complex, non-distinct layers NA: non-applicable |
| Format | Char 4 |
| Rule(s) | <p>Must have value. IF LAND_COVER = 'T' STAND_STRU must be in ('SNGL', 'MULT', 'COMP'). STAND_STRU = 'NA' IF LAND_COVER ≠ 'T'.</p> |

| | |
|------------------------|---|
| Attribute | Successional stage (Field) |
| Variable name | SUCC_STAGE |
| Description | Two-letter code describing successional status. |
| Permitted values/range | ES: early seral stage |

| | |
|---------|--|
| | MS: mid-seral stage LS: late seral stage TS: mature seral stage OG: old growth seral stage UR: unreported |
| Format | Char 2 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Wetland classification (Field) |
| Variable name | WETLAND_CLASS |
| Description | Wetland classification of site based on the Canadian wetland Classification System (National Wetlands Working Group 1997). |
| Permitted values/range | B: Bog F: Fen S: Swamp M: Marsh W: Shallow Water N: Non-wetland, terrestrial system (upland) U: Unreported |
| Format | Char 1 |

| | |
|------------------|--|
| Attribute | User information |
| Variable name | USER_INFO |
| Description | User information/comments on the measurements in the plot. |
| Permitted values | Must have value IF NFI_PLOT \geq 2000000. May be blank if NFI_PLOT < 2000000. |
| Format | Char 255 |

| | |
|------------------------|--|
| Attribute | Ecoregion (Compiled) |
| Variable name | EC_REGION |
| Description | A subdivision of an ecoprovince characterized by distinctive regional ecological factors, including climate, physiography, vegetation, soil, water, and fauna. For example, the Maritime Barrens ecoregion (no. 114) is one of nine ecoregions within the Newfoundland ecoprovince (http://sis.agr.gc.ca/cansis/nsdb/ecostrat/intro.html#ecological%20land%20classification) |
| Permitted values/range | 1 to 217, -1 |
| Format | Num 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Ecodistrict (Compiled) |
| Variable name | EC_DISTRICT |
| Description | A subdivision of an ecoregion (different from ecoclimatic region) characterized by a distinctive assemblages of relief, landforms, geology, soil, vegetation, water bodies and fauna (http://sis.agr.gc.ca/cansis/nsdb/ecostrat/intro.html). They are consecutively numbered from 1 to 1031. In the final review, the following were removed from the map and database: 172, 240, 330, 673, 719, 721, 722, 725, 842, 845. The ecodistrict is the smallest unit of national ecosystem mapping. |
| Permitted values/range | 1 to 1031 (excluding 172, 240, 330, 673, 719, 721, 722, 725, 842, 845), -1, -9. |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Plot-level, total large tree volume, standing live (Compiled) |
| Variable name | PLOTVOL_STANDLIVE |
| Description | Total volume (m ³ /ha) for all standing live trees \geq 1.3 m in height, having roots attached to the bole or an identifiable root collar and DBH \geq 9.0 cm. Includes volume inside bark of the main stem, stump and top. |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

| | |
|---------------|---|
| Attribute | Plot-level, total large tree volume, standing dead (Compiled) |
| Variable name | PLOTVOL_STANDDEAD |
| Description | Total volume (m ³ /ha) for all standing dead trees \geq 1.3 m in height, having roots attached to the bole or |

SITE INFORMATION

| | |
|------------------------|---|
| | an identifiable root collar and DBH ≥ 9.0 cm. Includes volume inside bark of the main stem, including stump and top. |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

| | |
|------------------------|---|
| Attribute | Plot-level, total large tree volume, fallen live (Compiled) |
| Variable name | PLOTVOL_FALLLIVE |
| Description | Total volume (m^3/ha) for all fallen live trees ≥ 1.3 m in height, having roots attached to the bole or an identifiable root collar and DBH ≥ 9.0 cm. Includes volume inside bark of the main stem, including stump and top. Volume calculation excludes fallen dead (measured as woody debris). |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |
| Default | Must have value |
| Rule(s) | Check range of values. |

| | |
|------------------------|---|
| Attribute | Plot-level, total live small tree volume (Compiled) |
| Variable name | PLOTVOL_SMTR_LIVE |
| Description | Total volume (m^3/ha) for all live small trees with a measurable DBH < 9.0 cm. For the purposes of this inventory attribute, a tree is defined as a woody plant, usually with a single stem and a definite crown that is capable of reaching a mature height of 5.0 m in situ. |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

| | |
|------------------------|---|
| Attribute | Plot-level, total dead small tree volume (Compiled) |
| Variable name | PLOTVOL_SMTR_DEAD |
| Description | Total volume (m^3/ha) for all dead small trees with a measurable DBH < 9.0 cm. For the purposes of this inventory attribute, a tree is defined as a woody plant, usually with a single stem and a definite crown that is capable of reaching a mature height of 5.0 m in situ. |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

| | |
|------------------------|--|
| Attribute | Plot-level, gross annual volume increment (Compiled) |
| Variable name | GROSSVOL_INCR |
| Description | Annual gross volume increment ($m^3/ha/yr$) for the entire plot. Calculated from growth and yield, tree measurement information. Volume calculation includes accretion + ingrowth + mortality. |
| Permitted values/range | 0 to 99.99 |
| Format | Dec 4.2 |

| | |
|------------------------|--|
| Attribute | Plot-level, gross mean annual volume increment (Compiled) |
| Variable name | GROSSVOL_MAI |
| Description | Mean annual gross volume increment ($m^3/ha/yr$) for the entire plot. Calculated from volume and age data summaries. Volume calculation includes accretion + ingrowth + mortality. |
| Permitted values/range | 0 to 99.99 |
| Format | Dec 4.2 |

| | |
|------------------------|---|
| Attribute | Plot-level, stump volume (Compiled) |
| Variable name | PLOTVOL_STUMP |
| Description | Total volume (m^3/ha) for all stumps. |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

| | |
|------------------------|--|
| Attribute | Stump biomass (Compiled) |
| Variable name | PLOTBIO_STUMP |
| Description | Total above ground biomass (Mg/ha) for all stumps. |
| Permitted values/range | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|---------------|--|
| Attribute | Plot-level, live large tree biomass (Compiled) |
| Variable name | PLOTBIO_LGTR_LIVE |
| Description | Total above ground biomass of all live trees ≥ 1.3 m in height and ≥ 9.0 cm diameter at breast height. |

| | |
|------------------------|---|
| | Expressed in Mg/ha of oven-dry material. |
| Permitted values/range | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Plot-level, dead large tree mass (Compiled) |
| Variable name | PLOTBIO_LGTR_DEAD |
| Description | Total above ground mass of all standing dead trees ≥ 1.3 m in height and ≥ 9.0 cm diameter at breast height. Expressed in Mg/ha of oven-dry material. |
| Permitted values/range | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Plot-level, live small tree biomass (Compiled) |
| Variable name | PLOTBIO_SMTR_LIVE |
| Description | Total above ground biomass of live small trees. For the purposes of this inventory attribute, a small tree is defined as a woody plant, usually with a single trunk and definite crown, that is greater than 10 cm in height and < 9.0 cm DBH. Expressed in Mg/ha of oven-dry material. |
| Permitted values/range | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Plot-level, dead small tree mass (Compiled) |
| Variable name | PLOTBIO_SMTR_DEAD |
| Description | Total above ground mass of standing dead small trees. For the purposes of this inventory attribute, a small tree is defined as a woody plant, usually with a single trunk and definite crown, that is greater than 10 cm in height and < 9.0 cm DBH. Expressed in Mg/ha of oven-dry material. |
| Permitted values/range | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Plot-level, shrub/herb biomass (Compiled) |
| Variable name | PLOTBIO_SHRUHERB |
| Description | Total above ground biomass of shrubs and herbs (Mg/ha of oven-dry material). |
| Permitted values/range | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Plot-level, bryophytes biomass (Compiled) |
| Variable name | PLOTBIO_BRYO |
| Description | Total above ground biomass of bryophytes (Mg/ha of oven-dry material). |
| Permitted values/range | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------|---|
| Attribute | Plot-level, fine woody debris biomass (Compiled) |
| Variable name | PLOTBIO_FWD |
| Description | Total above ground biomass of fine woody debris (Mg/ha of oven-dry material). Fine woody debris measurements obtained from shrub and herb clip/mico plots. Defined as material 0.5 cm to < 1.0 cm in diameter. Includes bark where present. |
| Permitted values | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|---|
| Attribute | Plot-level, small woody debris volume (Compiled) |
| Variable name | PLOTVOL_SWD |
| Description | Total volume (m³/ha) for all small woody debris (≥ 1.0 cm to ≤ 7.5 cm). Includes bark where present. |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

| | |
|------------------|---|
| Attribute | Plot-level, small woody debris biomass (Compiled) |
| Variable name | PLOTBIO_SWD |
| Description | Total above ground biomass of small woody debris (Mg/ha of oven-dry material) ≥ 1.0 cm to ≤ 7.5 cm in diameter. Determined from woody debris line transects. Includes bark where present. |
| Permitted values | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|---|
| Attribute | Plot-level, coarse woody debris volume (Compiled) |
| Variable name | PLOTVOL_WD |
| Description | Total volume (m³/ha) for all coarse woody debris > 7.5 cm in diameter. Includes all round and odd-shaped pieces. Includes bark where present. |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

| | |
|------------------|--|
| Attribute | Plot-level, coarse woody debris biomass (Compiled) |
| Variable name | PLOTBIO_WD |
| Description | Total above ground biomass of coarse woody debris (Mg/ha of oven-dry material) > 7.5 cm in diameter. Determined from woody debris line transects. Includes all round and odd-shaped pieces. Includes bark where present. |
| Permitted values | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Plot-level, coarse woody debris volume – round pieces (Compiled) |
| Variable name | PLOTVOL_ROUNDWD |
| Description | Total volume (m³/ha) for all coarse woody debris round pieces > 7.5 cm in diameter. Includes bark where present. |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

| | |
|------------------|---|
| Attribute | Plot-level, coarse woody debris biomass – round pieces (Compiled) |
| Variable name | PLOTBIO_ROUNDWD |
| Description | Total above ground biomass of coarse woody debris round pieces (Mg/ha of oven-dry material) > 7.5 cm in diameter. Determined from woody debris line transects. Includes bark where present. |
| Permitted values | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|---|
| Attribute | Plot-level, coarse woody debris volume odd-shaped pieces (Compiled) |
| Variable name | PLOTVOL_ODDWD |
| Description | Total volume (m³/ha) for all coarse woody debris odd-shaped pieces > 7.5 cm in diameter. Includes bark where present. |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

| | |
|------------------|--|
| Attribute | Plot-level, coarse woody debris biomass odd-shaped pieces (Compiled) |
| Variable name | PLOTBIO_ODDWD |
| Description | Total above ground biomass of coarse woody debris odd-shaped pieces (Mg/ha of oven-dry material) > 7.5 cm in diameter. Determined from woody debris line transects. Includes bark where present. |
| Permitted values | 0 to 99999.99 |
| Format | Dec 7.2 |

2. PLOT DISTURBANCE (disturbance)

Indexed attributes: NFI_PLOT, MEAS_NUM, DIST_AGENT, DIST_YR.

****Note:** This table should be completed for all plots.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |

| | |
|---------|--|
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |
|---------|--|

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Natural disturbance agent(s) (Field) |
| Variable name | DIST_AGENT |
| Description | Agents of natural disturbance |
| Permitted values/range | Fire: Plot has experienced a fire. Wind: Vegetation in plot has experienced windthrow. Snow: Vegetation in plot has experienced significant snow damage. Insect: Vegetation in plot has experienced insect attack. (Note: It can take several years of defoliation to do permanent damage to a tree. The threshold for significant defoliation varies with pest). Disease: Vegetation in plot has experienced a disease outbreak. Ice: Vegetation in plot has experienced ice damage. Other: Plot has experienced other disturbances. Enter the code 'other' followed by a word that better describes the type of disturbance agent, separated by a hyphen (e.g., other-flooding). Unknown: Plot disturbance is unknown. None: No disturbance observed. |
| Format | Char 20 |
| Rule(s) | Must have value Combination of DIST_AGENT and DIST_YR must be a unique value within a plot for a given MEAS_NUM. |

| | |
|------------------------|--|
| Attribute | Disturbance year(s) (Field) |
| Variable name | DIST_YR |
| Description | An estimate of the year of the disturbance. Enter -9 for not applicable (i.e. no disturbance). -1: Missing. |
| Permitted values/range | > 1400 to year of MEAS_DATE; -9, -1 |
| Format | Num 4 (YYYY) |
| Rule(s) | Must have value If DIST_AGENT = 'none' then DIST_YR = '-9' |

| | |
|------------------------|---|
| Attribute | Extent of disturbance (Field) |
| Variable name | DIST_PCT |
| Description | For the purposes of this inventory, a disturbance is described as a discreet force that has caused significant change in structure and/or composition of the plot vegetation (e.g. a change resulting in the normal growth pattern of the forest being significantly reduced). Extent of disturbance measured in percentage of area of the plot. Enter -1 for missing data. |
| Permitted values/range | 0 to 100, -1 |
| Format | Num 3 |

| | |
|---------|--|
| Rule(s) | Must have value. If DIST_AGENT = 'none' then DIST_PCT = 0 |
|---------|--|

| | |
|------------------------|--|
| Attribute | Extent of tree mortality (Field) |
| Variable name | MORT_PCT |
| Description | Extent of tree mortality, within the disturbed area, reported to the nearest percent. Enter -9 if there are no trees in the plot. Enter -1 for missing data. |
| Permitted values/range | 0 to 100, -1, -9 |
| Format | Num 3 |
| Rule(s) | Must have value. If a noticeable disturbance is present in the plot, but there are no dead trees, then MORT_PCT = 0 AND MORT_BASIS = 'NA'. If DIST_AGENT = 'none' then MORT_PCT = 0 |

| | |
|------------------------|---|
| Attribute | Mortality basis (Field) |
| Variable name | MORT_BASIS |
| Description | Basis for mortality extent. |
| Permitted values/range | VL: Volume BA: Basal area CA: Crown area ST: Stem numbers AR: Area NA: Non-applicable (e.g. there are no trees in the plot, no trees were killed, or no disturbance) M: Missing |
| Format | Char 2 |
| Rule(s) | Must have value. If a noticeable disturbance is present in the plot, but there are no dead trees, then MORT_PCT = 0 AND MORT_BASIS = 'NA'. If there are no trees in the plot THEN MORT_PCT = -9 AND MORT_BASIS = 'NA'. If DIST_AGENT = 'none' then MORT_BASIS = 'NA' |

| | |
|------------------------|---|
| Attribute | Specific disturbance agent (Field) |
| Variable name | AGENT_TYPE |
| Description | Significant disturbance event. A data field for comments. |
| Permitted values/range | Examples of typical comments entered in the agent_type_(n) field: Name of suspected disturbance agent (i.e. Armillaria, spruce budworm) Specific erosion agents include: Natural erosion caused by soil instability. Erosion caused by surface water runoff. Erosion caused by avalanche. Erosion caused by harvesting operations (including roads). Erosion caused by heavy equipment traffic. Erosion caused by road construction (other than harvest roads). Erosion caused by mining. Erosion caused by forest fire. Erosion caused by wind. Other causes of erosion or cause not understood. |
| Format | Char 100 |
| Rule(s) | None. |

3. PLOT ORIGIN (origin)

Indexed attributes: NFI_PLOT, MEAS_NUM, REGEN_TYPE, REGEN_YR.

****Note:** This table should be completed for all plots.

| | |
|---------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |

| | |
|------------------------|--|
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|---|
| Attribute | Vegetation cover origin(s) (Field, Records) |
| Variable name | VEG_ORIG |
| Description | Origin of the vegetation cover in the plot. |
| Permitted values/range | SUCC: The establishment of trees through secondary succession. HARV: Regeneration after harvest. DIST: Regeneration after other disturbance. AFOR: Aforestation– the establishment of trees on an area that was lacking in forest cover for some time or that was never forested. UNK: Vegetation cover origin is unknown. NA: Not applicable as site is temporarily non-treed |
| Format | Char 4 |
| Rule(s) | Must have value Combination of VEG_ORIG, REGEN_TYPE and REGEN_YR must be a unique value for a given plot for a given MEAS_NUM. |

| | |
|------------------------|--|
| Attribute | Type of regeneration (Field, Records) |
| Variable name | REGEN_TYPE |
| Description | The method used in the continuous renewal of a forest stand (i.e., establishment of new young trees) by natural or artificial means. |
| Permitted values/range | NAT: Natural regeneration. SUP: Natural regeneration with supplementary planting (<50%). PLA: Planted regeneration. SOW: Seeded regeneration. NA: Not applicable as site is temporarily non-treed |
| Format | Char 3 |
| Rule(s) | Must have value If VEG_ORIG = 'NA' then REGEN_TYPE = 'NA' |

| | |
|---------------|---|
| Attribute | Year of regeneration (Field, Records) |
| Variable name | REGEN_YR |
| Description | An estimate of the year of regeneration. Must be related to vegetation cover origin. Enter -9 for not applicable. Enter -1 for missing. |

| | |
|------------------------|---|
| Permitted values/range | 1400 to present year, -1 |
| Format | Num 4 (YYYY) |
| Rule(s) | Must have value $1400 \leq \text{REGEN_YR} \leq \text{year of MEAS_DATE}$ If VEG_ORIG = 'NA' then REGEN_YR = '-9' |

4. PLOT TREATMENT (treatment)

Indexed attributes: NFI_PLOT, MEAS_NUM, TREAT_TYPE, TREAT_YR.

**Note: All plots should be included in this table.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|---------------|---|
| Attribute | Treatment type(s) (Field, Records) |
| Variable name | TREAT_TYPE |
| Description | An activity or treatment that has occurred in a vegetation layer of the plot. |

| | |
|------------------------|---|
| Permitted values/range | CC: Stand has been harvested in full (>80% by crown area of the previous forest cover has been removed). PC: Stand has been harvested in part (<80% by crown area of the previous forest cover has been removed). DC: Deforestation CL: Cleaning, including brushing and weeding. JS: Juvenile spacing – altering the number of stems in the stand. PR: Pruning PT: Pre-commercial thinning – reduction of number of stems to increase spacing. CT: Commercial thinning – partial cut in older immature stands. FT: Fertilization SP: Mechanical site preparation PB: Prescribed burning HC: Herbicide OT: Other NO: No treatment observed FP: FLUXNET treatment code IC: FLUXNET treatment code |
| Format | Char 2 |
| Rule(s) | Must have value Combination of TREAT_TYPE, TREAT_YR must be a unique value. 'FP' and 'IC' are valid entries IF NFI_PLOT > 2,000,000. |

| | |
|------------------------|--|
| Attribute | Treatment year(s) (Field, Records) |
| Variable name | TREAT_YR |
| Description | An estimate of the year of treatment. Treatment year must be related to treatment. Enter -9 if not applicable (i.e. no treatment observed). Enter -1 for missing data. |
| Permitted values/range | 1800 to present year, -1, -9. |
| Format | Num 4 (YYYY) |
| Rule(s) | Must have value. $1800 \leq \text{TREAT_YR} \leq \text{year of the MEAS_DATE}$. |

| | |
|------------------------|---|
| Attribute | Treatment extent (Field, Records) |
| Variable name | TREAT_PCT |
| Description | Extent of treatment, expressed as a percentage of the total plot area. Enter -1 for missing data. |
| Permitted values/range | 0 to 100, -1, -9 |
| Format | Num 3 |
| Rule(s) | Must have value |

5. LARGE TREE PLOT, HEADER AND SUMMARY INFORMATION (ltp_header)

Indexed attributes: NFI_PLOT, MEAS_NUM.

**Note: This table should be completed for all plots where a large tree plot was assessed (even if there were no large trees present to measure.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

LARGE TREE PLOT, HEADER AND SUMMARY INFORMATION

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------|--|
| Attribute | Plot type (Field) |
| Variable name | PLOT_TYPE |
| Description | Description of the ground plot design used to collect sample measurements. |
| Permitted values | LTC = circular large tree plot LTS = square large tree plot |
| Format | Char 3 |
| Rule(s) | Must have value. |

| | |
|------------------|--|
| Attribute | Nominal plot size (Field) |
| Variable name | NOM_PLOT_SIZE |
| Description | The nominal size (area) of the sample plot in ha . -1: Not submitted |
| Permitted values | 0.03 to 0.1000; -1 |
| Format | Dec 5.4 |
| Rule(s) | Must have value Warning will be raised if plot size \neq 0.04 ha. |

| | |
|------------------|---|
| Attribute | Measured plot size (Field) |
| Variable name | MEAS_PLOT_SIZE |
| Description | The measured size (area) of the sample plot in ha . Excludes portions of the plot that were not measured due to inaccessibility. |
| Permitted values | 0.0075 to 0.1000 |
| Format | Dec 5.4 |
| Rule(s) | Must have value Warning will be raised if plot size \neq 0.04 ha. |

| | |
|------------------------|---|
| Attribute | Site index (Compiled) |
| Variable name | SITE_INDEX |
| Description | An expression of forest site quality based on the height, at a base age of 50 years, of the dominant and codominant trees in the large tree plot. Expressed in m . |
| Permitted values/range | 0.1 to 99.9 |
| Format | Dec 3.1 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Site index genus (Compiled) |
| Variable name | SITE_INDEX_GENUS |
| Description | Site index genus code. Use the first four letters of the scientific genus name. If unknown conifer use code GENC , if unknown hardwood use code GENH . For a list of acceptable genus codes, refer to the <i>NFI Tree Species List</i> . |
| Permitted values/range | |

LARGE TREE PLOT, HEADER AND SUMMARY INFORMATION

| | |
|---------|---|
| Format | Char 4 |
| Rule(s) | SITE_INDEX_GENUS codes must conform to standard set by the <i>NFI Tree Species List</i> . |

| | |
|------------------------|--|
| Attribute | Site index species (Compiled) |
| Variable name | SITE_INDEX_SPECIES |
| Description | Site index species code. Use the first three letters of the scientific species name. If unknown species, use code SPP . For a list of acceptable species codes, refer to the <i>NFI Tree Species List</i> . |
| Permitted values/range | |
| Format | Char 3 |
| Rule(s) | Must have value SITE_INDEX_SPECIES codes must conform to standard set by the <i>NFI Tree Species List</i> . |

| | |
|------------------------|--|
| Attribute | Site height (Compiled) |
| Variable name | SITE_HEIGHT |
| Description | The average height of dominant and co-dominant trees of the main species forming the stand (site trees), expressed in m . |
| Permitted values/range | 1.3 to 99.9 |
| Format | Dec 3.1 |

| | |
|------------------------|---|
| Attribute | Average (Lorey) height (Compiled) |
| Variable name | LOREY_HEIGHT |
| Description | The average height of all live trees in the plot, weighted by their basal area, expressed in m . |
| Permitted values/range | 1.3 to 99.9 |
| Format | Dec 3.1 |

| | |
|------------------------|---|
| Attribute | Site age (Compiled) |
| Variable name | SITE_AGE |
| Description | The average age of the dominant and co-dominant trees of the main species forming the stand (site trees), expressed in years . |
| Permitted values/range | 1 to 999 |
| Format | Num 3 |

| | |
|------------------------|---|
| Attribute | Lab counted (Compiled) |
| Variable name | NUM_LAB |
| Description | A field to indicate the number of lab-counted tree cores used in the determination of site age. |
| Permitted values/range | 1 to 99 |
| Format | Num 2 |

| | |
|------------------------|---|
| Attribute | Field counted (Compiled) |
| Variable name | NUM_FIELD |
| Description | A field to indicate the number of field-counted tree cores used in the determination of site age. |
| Permitted values/range | 1 to 99 |
| Format | Num 2 |

| | |
|------------------------|---|
| Attribute | Basal area, standing live (Compiled) |
| Variable name | BASAL_AREA_STANDLIVE |
| Description | The cross-sectional area of a tree's bole measured at breast height and expressed in m²/ha . Minimum DBH measured = 9.0 cm. Must be present for all standing live trees within the large tree plot. |
| Permitted values/range | 0.0 to 999.99 |
| Format | Dec 5.2 |

| | |
|------------------------|---|
| Attribute | Basal area, standing dead (Compiled) |
| Variable name | BASAL_AREA_STANDDEAD |
| Description | The cross-sectional area of a tree's bole measured at breast height and expressed in m²/ha . Minimum DBH measured = 9.0 cm. Must be present for all standing dead trees within the large tree plot. |
| Permitted values/range | 0.0 to 999.99 |
| Format | Dec 5.2 |

| | |
|---------------|------------------------------------|
| Attribute | Basal area, fallen live (Compiled) |
| Variable name | BASAL_AREA_FALLIVE |

LARGE TREE PLOT, HEADER AND SUMMARY INFORMATION

| | |
|------------------------|---|
| Description | The cross-sectional area of a tree's bole measured at breast height and expressed in m²/ha . Minimum DBH measured = 9.0 cm. Must be present for all fallen live trees within the large tree plot. |
| Permitted values/range | 0.0 to 99.99 |
| Format | Dec 4.2 |

| | |
|------------------------|---|
| Attribute | Stem density, standing live (Compiled) |
| Variable name | STEM_DENSITY_STANLIVE |
| Description | The number of standing live stems/ha including stems with a minimum DBH = 9.0 cm. |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

| | |
|------------------------|---|
| Attribute | Stem density, standing dead (Compiled) |
| Variable name | STEM_DENSITY_STANDDEAD |
| Description | The number of standing dead stems/ha including stems with a minimum DBH = 9.0 cm. |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

| | |
|------------------------|---|
| Attribute | Stem density, fallen live (Compiled) |
| Variable name | STEM_DENSITY_FALLLIVE |
| Description | The number of fallen live stems/ha including stems with a minimum DBH = 9.0 cm. |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

| | |
|------------------------|---|
| Attribute | Total unique large tree species (Compiled) |
| Variable name | SPECIES_LTNUM |
| Description | The total number of unique species of live standing large trees in an area. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |

| | |
|------------------------|--|
| Attribute | Shannon-Weaver index for large trees (Compiled) |
| Variable name | BINDEX_LTSHANNON |
| Description | The Shannon-Weaver diversity index, which is a measure of the species richness and evenness for large trees. |
| Permitted values/range | 0 to 999.99 |
| Format | Dec 5.2 |

| | |
|------------------------|--|
| Attribute | Evenness index for large trees (Compiled) |
| Variable name | BINDEX_LTEVEN |
| Description | The evenness index, which measures how even the numbers of individual large trees of each species are to each other. |
| Permitted values/range | 0 to 999.99 |
| Format | Dec 5.2 |

| | |
|------------------------|--|
| Attribute | Margalef (species richness) index for large trees (Compiled) |
| Variable name | BINDEX_LTMARGALEF |
| Description | The Margalef (species richness) index, which measures the total number of large tree species in an area. |
| Permitted values/range | 0 to 999.99 |
| Format | Dec 5.2 |

| | |
|------------------------|--|
| Attribute | Total stem wood biomass of live standing trees (Compiled) |
| Variable name | PLOTBIO_STEMWOOD_LIVE |
| Description | The total stem wood biomass of live standing and live fallen trees (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Total stem bark biomass of live standing trees (Compiled) |
| Variable name | PLOTBIO_STEMBARK_LIVE |
| Description | The total stem bark biomass of live standing and live fallen trees (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |

LARGE TREE PLOT, HEADER AND SUMMARY INFORMATION

| | |
|--------|---------|
| Format | Dec 7.2 |
|--------|---------|

| | |
|------------------------|---|
| Attribute | Total branch biomass of live standing trees (Compiled) |
| Variable name | PLOTBIO_BRANCHES_LIVE |
| Description | The total branch biomass of live standing and live fallen trees (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Total foliage biomass of live standing ltp trees in (Compiled) |
| Variable name | PLOTBIO_FOLIAGE_LIVE |
| Description | The total foliage biomass of live standing and live fallen trees (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Total stem wood biomass of dead standing trees (Compiled) |
| Variable name | PLOTBIO_STEMWOOD_DEAD |
| Description | The total stem wood biomass of dead standing trees (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Total stem bark biomass of dead standing trees (Compiled) |
| Variable name | PLOTBIO_STEMBARK_DEAD |
| Description | The total stem bark biomass of dead standing trees (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Total branch biomass of dead standing trees (Compiled) |
| Variable name | PLOTBIO_BRANCHES_DEAD |
| Description | Total branch biomass of dead standing trees (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

5a. LARGE TREE SPECIES COMPOSITION PERCENT

Indexed attributes: NFI_PLOT, MEAS_NUM, SPECIES_NUM.

**Note: this table is compiled by the CFS project office.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Species number (Compiled) |
| Variable name | SPECIES_NUM |
| Description | Office-compiled attribute based on data in the large tree list table. Identifies the species rank in the plot by percentage of basal area per hectare. Species number will be ordered consecutively from 1, with 1 being the largest tree species percent value in the plot. |
| Permitted values/range | 1 to 20 |
| Format | Num 2 |

| | |
|------------------------|---|
| Attribute | Genus (Compiled) |
| Variable name | GENUS |
| Description | Genus code. Use the first four letters of the scientific genus name. If unknown conifer use code GENC , if unknown hardwood use code GENH . Enter GENUS = 'UNKN' and SPECIES = 'SPP' for unknown. |
| Permitted values/range | For a list of acceptable genus codes, refer to the <i>NFI Tree Species List</i> . |
| Format | Char 4 |

| | |
|------------------------|---|
| Attribute | Species (Compiled) |
| Variable name | SPECIES |
| Description | Species code. Use the first three letters of the scientific species name. If unknown species, use code SPP . |
| Permitted values/range | For a list of acceptable species codes, refer to the <i>NFI Tree Species List</i> . |
| Format | Char 3 |

| | |
|------------------------|--|
| Attribute | Variety (Compiled) |
| Variable name | VARIETY |
| Description | May be left blank if variety is unknown or not present. |
| Permitted values/range | Refer to the <i>NFI Tree List</i> for valid combinations of genus/species/variety codes. |
| Format | Char 3 |

| | |
|------------------------|---|
| Attribute | Species percent (Compiled) |
| Variable name | PERCENT |
| Description | Office-compiled attribute based on data in the large tree list table. Percentage of the species in the plot determined by basal area per hectare in the large tree plot, expressed as a percent . Record to the nearest percent. |
| Permitted values/range | 1 to 100. |
| Format | Num 3 |

5b. LARGE TREE LIST (ltp_tree)

Indexed attributes: NFI_PLOT, MEAS_NUM, TREE_NUM.

**Note: Only plots that have large trees to tally need to be included in this table.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|---------------|--------------------------|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |

| | |
|------------------------|---|
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Plot sector (Field) |
| Variable name | SECTOR |
| Description | The large tree plot is divided into eight sectors. Plot sectors are numbered in ascending order, starting with sector 1, with is always the first sector clockwise from due north. Record the sector the large tree being measured is located in. -1 for missing values. |
| Permitted values/range | 1 to 8; -1 |
| Format | Num 1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Tree number (Field) |
| Variable name | TREE_NUM |
| Description | Unique number assigned to each tree in the plot. Use 8000 series for trees with dbh < 9.0 cm (if trees with diameters <9.0 cm have been selected as site trees). Use 9000 series for trees outside the plot (if surrogate site trees are being selected from outside the plot in an effort to avoid damaging trees inside the plot when collecting core samples). |
| Permitted values/range | 1 to 9,999 |
| Format | Num 4 |
| Rule(s) | Must have value Tree number must be unique within the plot. |

| | |
|------------------------|---|
| Attribute | Tree genus (Field) |
| Variable name | LGTREE_GENUS |
| Description | Large tree (DBH \geq 9.0 cm) genus code. Use the first four letters of the scientific genus name. If unknown conifer use code GENC , if unknown hardwood use code GENH . Enter LGTREE_GENUS = 'UNKN' and LGTREE_SPECIES = 'SPP' for unknown. |
| Permitted values/range | Refer to the NFI Tree Species List. |
| Format | Char 4 |
| Rule(s) | Must have value Codes must conform to standard outlined by <i>NFI Tree Species List</i> . |

| | |
|------------------------|--|
| Attribute | Tree species (Field) |
| Variable name | LGTREE_SPECIES |
| Description | Large tree species code. Use the first 3 letters of the scientific species name. If unknown, use code SPP . |
| Permitted values/range | Refer to the NFI Tree Species List |
| Format | Char 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Tree variety (Field) |
| Variable name | LGTREE_VARIETY |
| Description | Use the first 3 letters of the scientific variety name. |
| Permitted values/range | Refer to the NFI Tree Species List. |
| Format | Char 3 |

| | |
|---------|--|
| Rule(s) | May be blank if LGTREE_VARIETY not present. LGTREE_VARIETY codes must conform to standard set by <i>NFI Tree Species List</i> . |
|---------|--|

| | |
|------------------------|--|
| Attribute | Tree status (Field) |
| Variable name | LGTREE_STATUS |
| Description | An indicator of tree status. Note that <u>dead fallen</u> trees are NOT tallied in this section. They are counted as woody debris. Classify if the tree is live or dead and whether it is self-supporting (standing) or not self-supporting (fallen) at the time of measurement. |
| Permitted values/range | LS: Live standing Live trees have enough foliage to keep them alive (live cambium is present), are intact and rooted into the ground. Lack of foliage for some species, of course, is no indication of death during some seasons. Standing trees are self-supporting (that is, the tree would remain standing if all supporting materials were removed). LF: Live fallen See previous definition of "live". Fallen live trees are not self-supporting and would not remain standing if all supporting materials were removed. DS: Dead standing Dead trees are obviously (physiologically) dead. They are still self-supporting (rooted into the ground) and would remain standing if all supporting materials were removed, e.g. snags. M: Missing data |
| Format | Char 2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Diameter at breast height (Field) |
| Variable name | DBH |
| Description | The diameter at breast height of each large tree within the Large Tree Plot. Breast height is 1.3 m above high side ground level and measured perpendicular to the tree bole. Refer to the NFI ground plot protocol for detailed definitions and procedures. DBH is recorded to the nearest 0.1 cm. Enter -1 for missing data. |
| Permitted values/range | 9.0 to 999.9, -1 |
| Format | Dec 4.1 |
| Rule(s) | Must have value Warning will be raised for DBH > 600.0 cm. |

| | |
|------------------------|---|
| Attribute | Measure or estimated DBH (Field) |
| Variable name | MEAS_EST_DBH |
| Description | An indicator of whether the DBH was actually measured or estimated. DBH will be estimated where physical circumstances do not permit an actual measurement. |
| Permitted values/range | M: DBH was measured. E: DBH was estimated. |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Tree height (Field) |
| Variable name | HEIGHT |
| Description | The height of each large tree within the Large Tree Plot. Height is measured from the ground level on the high side along the stem to the top of the stem. Refer to the NFI ground plot protocol for detailed definitions and procedures. Tree height is reported to the nearest 0.1 m. Enter -1 for missing data. |
| Permitted values/range | 1.3 to 99.9, -1 |
| Format | Dec 3.1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Measured or estimated height (Field) |
| Variable name | MEAS_EST_HEIGHT |
| Description | An indicator of whether tree height was measured, estimated, or calculated. |
| Permitted values/range | M: tree height was an actual measurement C: tree height was calculated (e.g. using tree length and an offset distance in the instance of leaning trees.) E: tree height was estimated (e.g. estimated from height-diameter curves.) |
| Format | Char 1 |

| | |
|------------------------|---|
| Rule(s) | Must have value |
| Attribute | Crown class (Field) |
| Variable name | CROWN_CLASS |
| Description | Crown class is a ranking by crown position of a tree in relation to other trees in the immediate area surrounding the tree being measured. Crown class is assigned to all standing live trees. Dead trees and fallen live trees will not have a crown class assigned. Refer to <i>NFI Ground Plot Guidelines</i> for detailed definitions and procedures. |
| Permitted values/range | D: Dominant C: Co-dominant I: Intermediate S: Suppressed V: Veteran N: Not applicable (e.g. broken top resulting in missing crown or dead standing tree). M: Missing |
| Format | Char 1 |
| Rule(s) | If TREE_STATUS = 'LS' then CROWN_CLASS must have value, any other case will be 'N'. Must have value. |

| | |
|------------------------|--|
| Attribute | Height to base of live crown (Field) |
| Variable name | CROWN_BASE |
| Description | The distance along the bole from the high side ground level to the base of the live crown. The primary objective is to estimate the "effective" extent of live crown for growth projections. Recorded to the nearest 0.1 m . -1: Missing. -9: Non-applicable (e.g. TREE_STATUS = 'DS' or 'LF'). |
| Permitted values/range | 0.0 to 99.9, -1, -9 |
| Format | Dec 3.1 |
| Rule(s) | Must have value. HEIGHT ≥ HEIGHT_LIVE. IF TREE_STATUS = 'DS' or 'LF' THEN HEIGHT_LIVE = -9. |

| | |
|------------------------|--|
| Attribute | Height to top of live crown (Field) |
| Variable name | CROWN_TOP |
| Description | The distance along the bole from the high side ground level to the top of the live crown. The primary objective is to estimate the "effective" extent of live crown for growth projections. Recorded to the nearest 0.1 m . Unless there is dieback CROWN_TOP will generally = HEIGHT. -1: Missing. -9: Non-applicable (e.g. TREE_STATUS = 'DS' or 'LF'). |
| Permitted values/range | 0.0 to 99.9, -1, -9 |
| Format | Dec 3.1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Stem condition (Field) |
| Variable name | STEM_COND |
| Description | An indicator of whether the stem of the tree is broken or intact. |
| Permitted values/range | B: Broken I: Intact |
| Format | Char 1 |
| Rule(s) | Must have value. |

| | |
|---------------|---|
| Attribute | Crown condition (Field) |
| Variable name | CROWN_COND |
| Description | A measure of the condition of the crown in relation to a normal live crown (lower crown loss due to self-pruning is not included). Enter -1 for missing data. |

| | |
|------------------------|--|
| Permitted values/range | <p>1: All foliage, twigs, and branches present.</p> <p>2: Some or all foliage lost, possibly some twigs lost, all branches usually present, possible broken top.</p> <p>3: No foliage, up to 50% of twigs lost, most branches present, possible broken top.</p> <p>4: No foliage or twigs, up to 50% of branches lost, top may be broken.</p> <p>5: Most branches gone, some sound branch stubs remain, top may be broken.</p> <p>6: No branches, some sound and rotting branch stubs, top usually broken.</p> <p>7: No branches, minimum of rotting branch stubs, top usually broken.</p> <p>-1: Missing data</p> |
| Format | Num 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Bark retention (Field) |
| Variable name | BARK_RET |
| Description | An indicator of the proportion of bark retained on the tree. Enter -1 for missing data. |
| Permitted values/range | <p>1: All bark present.</p> <p>2: Bark lost on damaged areas only (<5% lost).</p> <p>3: Most bark present, bare patches, some bark may be loose (5%–25% lost).</p> <p>4: Bare sections, firm and loose bark remains (26%–50% lost).</p> <p>5: Most bark gone, firm, and loose bark remains (51%–75% lost).</p> <p>6: Trace of bark remains (76%–99% lost).</p> <p>7: No bark (100% lost).</p> <p>-1: Missing</p> |
| Format | Num 1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Wood condition (Field) |
| Variable name | WOOD_COND |
| Description | An indicator of the soundness of the stem. Enter -1 for missing data. |
| Permitted values/range | <p>1: No decay.</p> <p>2: Probable limited internal decay and/or deformities.</p> <p>3: Limited decay, wood essentially hard.</p> <p>4: Wood mostly hard but decay spreading, soft wood present.</p> <p>5: Balance of hard and soft wood, spongy sections.</p> <p>6: More soft and spongy wood than hard wood.</p> <p>7: No more hard wood, all soft or spongy, powdery sections.</p> <p>8: Hollow shell, outer wood mostly hard or firm.</p> <p>-1: Missing data</p> |
| Format | Num 1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Azimuth to tree (Field) |
| Variable name | AZIMUTH |
| Description | A measurement of the azimuth from the plot centre to the face of the tree. Reported to the nearest degree. Enter -1 for AZIMUTH and DISTANCE if trees were not stem mapped. |
| Permitted values/range | 0 to 360, -1 |
| Format | Num 3 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Distance to tree face (Field) |
| Variable name | DISTANCE |
| Description | A measurement of the horizontal distance from the plot centre to the face of the tree. Reported to the nearest 0.01 m. Enter -1 for AZIMUTH and DISTANCE if trees were not stem mapped. |
| Permitted values/range | 0.01 to 99.99, -1 |
| Format | Dec 4.2 |
| Rule(s) | <p>IF PLOT_TYPE = 'LTC' then DISTANCE < large tree plot radius.</p> <p>IF PLOT_TYPE = 'LTS' then DISTANCE < ½*(large tree plot diagonal).</p> <p>Must have value.</p> |

| | |
|---------------|------------------------------|
| Attribute | Live crown length (Compiled) |
| Variable name | CROWN_LENGTH |

| | |
|------------------------|---|
| Description | A measurement of live crown length. The vertical distance from the top of the live crown to the base of the live crown. Crown length is recorded to the nearest 0.1 m. Enter -1 for dead trees; -9 if tree status = 'DS' or 'LF'. |
| Permitted values/range | 0.1 to 99.9; -1, -9 |
| Format | Dec 3.1 |
| Rule(s) | Must have value CROWN_LENGTH = CROWN_TOP – CROWN_BASE Enter -1 for dead trees. |

| | |
|------------------------|---|
| Attribute | Total tree volume (Compiled) |
| Variable name | VOL_TOTAL |
| Description | Total volume by tree, reported to the nearest 0.0001 m ³ , for all trees ≥ 1.3 m in height, having roots attached to the bole or an identifiable root collar; and greater than or equal to 9.0 cm DBH. Includes volume inside bark of the main stem, including stump and top of all standing live and dead trees in the large tree plot. |
| Permitted values/range | 0.0001 to 999.9999 |
| Format | Dec 7.4 |

| | |
|------------------------|--|
| Attribute | Volume to projected tree height (Compiled) |
| Variable name | VOL_PROJ |
| Description | Volume of the tree calculated to the projected height of the tree before its break. For non-broken trees VOL_PROJ = VOL_TOTAL. |
| Permitted values/range | 0.0001 to 999.9999 |
| Format | Dec 7.4 |

| | |
|------------------------|---|
| Attribute | Total tree biomass (Compiled) |
| Variable name | BIOMASS_TOTAL |
| Description | Total above ground biomass by tree, for all trees ≥ 1.3 m in height, having roots attached to the bole or an identifiable root collar; and greater than or equal to 9.0 cm at DBH. Includes all standing live and dead trees. Reported to the nearest 0.01 kg of oven dry material. |
| Permitted values/range | 0.01 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Total stem wood biomass of live standing trees (Compiled) |
| Variable name | BIOMASS_STEMWOOD |
| Description | The total stem wood biomass of live standing trees (kg of oven dry material) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Total stem bark biomass of live standing trees (Compiled) |
| Variable name | BIOMASS_STEMBARK |
| Description | The total stem bark biomass of live standing trees (kg of oven dry material) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|---|
| Attribute | Total branch biomass of live standing trees (Compiled) |
| Variable name | BIOMASS_BRANCHES |
| Description | The total branch biomass of live standing trees (kg of oven dry material) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|---|
| Attribute | Total foliage biomass of live standing trees in (Compiled) |
| Variable name | BIOMASS_FOLIAGE |
| Description | The total foliage biomass of live standing trees in (kg of oven dry material) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|-----------|--|
| Attribute | Biomass equation ID for computing stem wood biomass (Compiled) |
|-----------|--|

| | |
|------------------------|---|
| Variable name | BMEQ_WOOD |
| Description | The biomass equation ID for computing stem wood biomass |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

| | |
|------------------------|--|
| Attribute | Biomass equation ID for computing stem bark biomass (Compiled) |
| Variable name | BMEQ_BARK |
| Description | The biomass equation ID for computing stem bark biomass |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

| | |
|------------------------|--|
| Attribute | Biomass equation ID form computing branch biomass (Compiled) |
| Variable name | BMEQ_BRANCHES |
| Description | The biomass equation ID form computing branch biomass |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

| | |
|------------------------|--|
| Attribute | Biomass equation ID for computing foliage biomass (Compiled) |
| Variable name | BMEQ_FOLIAGE |
| Description | The biomass equation ID for computing foliage biomass |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

5c. LARGE TREE PLOT, DAMAGE AGENTS (ltp_tree_damage)

Indexed attributes: NFI_PLOT, MEAS_NUM, TREE_NUM, DAMAGE_AGENT, DAMAGE_LOCATION.

**Note: This table should include at least one record for every tree in each large tree plot.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|--|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |

| | |
|---------|---|
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |
|---------|---|

| | |
|------------------------|--|
| Attribute | Tree number (Field) |
| Variable name | TREE_NUM |
| Description | Tree number. Trees must be numbered in ascending order. |
| Permitted values/range | 1 to 9,999 |
| Format | Num 4 |
| Rule(s) | Must have value Tree number must be unique within the plot. |

| | | | | |
|--|--|--|---|---|
| Attribute | Damage agent(s) (Field) | | | |
| Variable name | DAMAGE_AGENT | | | |
| Description | A description of the damage agents affecting each tree in the large tree plot. | | | |
| Permitted values/range | <table border="0"> <tr> <td style="vertical-align: top;"> A: Animal damage AB: Bear AC: Cattle AD: Deer AE: Elk AH: Hare or rabbit AM: Moose AP: Porcupine AS: Squirrel AV: Vole AX: Birds AZ: Beaver D: Diseases DB: Broom rusts DD: Stem rot DF: Foliage disease DL: Disease-caused dieback of leader DM: Dwarf mistletoe DR: Root disease DS: Stem disease </td> <td style="vertical-align: top;"> I: Insects IA: Aphids IB: Bark beetles ID: Defoliators IS: Shoot insects IW: Root and terminal weevils N: Non-biological injuries NB: Fire ND: Drought NF: Flooding NG: Frost NH: Hail NK: Fumekill NL: Lightening NN: Road salt NR: Redbelt NS: Slide NW: Windthrow NX: Scarring and rubbing NY: Snow or ice NZ: Sunscald </td> <td style="vertical-align: top;"> T: Treatment injuries TC: Chemical TL: Logging TP: Planting TM: Other mechanical damage (non-logging) TR: Pruning TT: Thinning or spacing M: mite damage VH: herbaceous competition VP: vegetation press VS: shrub competition VT: tree competition U: Damage evident but causal agent unknown O: no detectable abiotic or biotic damage </td> </tr> </table> | A: Animal damage AB: Bear AC: Cattle AD: Deer AE: Elk AH: Hare or rabbit AM: Moose AP: Porcupine AS: Squirrel AV: Vole AX: Birds AZ: Beaver D: Diseases DB: Broom rusts DD: Stem rot DF: Foliage disease DL: Disease-caused dieback of leader DM: Dwarf mistletoe DR: Root disease DS: Stem disease | I: Insects IA: Aphids IB: Bark beetles ID: Defoliators IS: Shoot insects IW: Root and terminal weevils N: Non-biological injuries NB: Fire ND: Drought NF: Flooding NG: Frost NH: Hail NK: Fumekill NL: Lightening NN: Road salt NR: Redbelt NS: Slide NW: Windthrow NX: Scarring and rubbing NY: Snow or ice NZ: Sunscald | T: Treatment injuries TC: Chemical TL: Logging TP: Planting TM: Other mechanical damage (non-logging) TR: Pruning TT: Thinning or spacing M: mite damage VH: herbaceous competition VP: vegetation press VS: shrub competition VT: tree competition U: Damage evident but causal agent unknown O: no detectable abiotic or biotic damage |
| A: Animal damage AB: Bear AC: Cattle AD: Deer AE: Elk AH: Hare or rabbit AM: Moose AP: Porcupine AS: Squirrel AV: Vole AX: Birds AZ: Beaver D: Diseases DB: Broom rusts DD: Stem rot DF: Foliage disease DL: Disease-caused dieback of leader DM: Dwarf mistletoe DR: Root disease DS: Stem disease | I: Insects IA: Aphids IB: Bark beetles ID: Defoliators IS: Shoot insects IW: Root and terminal weevils N: Non-biological injuries NB: Fire ND: Drought NF: Flooding NG: Frost NH: Hail NK: Fumekill NL: Lightening NN: Road salt NR: Redbelt NS: Slide NW: Windthrow NX: Scarring and rubbing NY: Snow or ice NZ: Sunscald | T: Treatment injuries TC: Chemical TL: Logging TP: Planting TM: Other mechanical damage (non-logging) TR: Pruning TT: Thinning or spacing M: mite damage VH: herbaceous competition VP: vegetation press VS: shrub competition VT: tree competition U: Damage evident but causal agent unknown O: no detectable abiotic or biotic damage | | |
| Format | Char 2 | | | |
| Rule(s) | Must have value Combination of DAMAGE_AGENT and DAMAGE_LOCATION must be unique. | | | |

| | |
|------------------------|--|
| Attribute | Damage location code (Field) |
| Variable name | DAMAGE_LOCATION |
| Description | Location of damage on individual tree. |
| Permitted values/range | 0: Below ground 1: Lower third only 2: Middle third only 3: Upper third only 4: Lower and middle thirds 5: Middle and upper thirds 6: Lower and upper thirds 7: Entire tree -1: Non-applicable -9: Missing data |
| Format | Num 2 |
| Rule(s) | Must have value |

| | |
|---------------|------------------|
| Attribute | Severity (Field) |
| Variable name | SEVERITY |

| | |
|------------------|---|
| Description | The severity of the effect of the damage agent on the tree. Assessed subjectively using a percent value or left blank (severity is difficult to assess without training). Enter N for non-applicable. Enter S for missing data. |
| Permitted values | <p>L: Low - Damage agent appears to have minimal impact on tree growth or vitality.</p> <p>M: Moderate - Damage agent has some obvious impact on a portion of the tree but its impact is limited.</p> <p>H: High - Damage agent has obvious impact on the tree with evidence of decay or suppression of tree growth evident.</p> <p>C: Critical - Damage agent has critically impacted and killed the tree [dead trees] or the damage agent is severely impacting the tree and is expected to kill the tree in the near future.</p> <p>U: Unknown - Damage agent is evident on a "dead" tree but no evidence that this specific damage agent killed the tree.</p> <p>N: Not Applicable</p> <p>S: Missing</p> |
| Format | Char 1 |
| Rule(s) | Must have value. |

5d. LARGE TREE PLOT, REMOVED TREES (ltp_tree_removed)

Indexed attributes: NFI_PLOT, MEAS_NUM, TREE_NUM.

****Note:** All trees removed from the large tree list since the last measurement cycle should be included in this table.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|---------------------|
| Attribute | Tree number (Field) |
| Variable name | TREE_NUM |
| Description | Tree number. |
| Permitted values/range | 1 to 9,999 |

| | |
|---------|--|
| Format | Num 4 |
| Rule(s) | Must have value Tree number must be unique within the plot. |

| | |
|------------------------|--|
| Attribute | Reason for removal (Field) |
| Variable name | REASON |
| Description | Trees measured in the previous measurement cycle may be removed from the large tree list at the time of re-measurement if they no longer meet the definition of a large tree. This field indicates the reason the tree no longer meets the definition of a large tree. |
| Permitted values/range | C: tree cut below the 1.3 m mark, B: tree broken below the 1.3 m mark D: tree no longer meets the minimum diameter requirement (e.g. bark has fallen off a dead standing tree) F: tree is now dead fallen (i.e. woody debris) U: tree can not be found on re-measurement. O: other N: not specified |
| Format | Char 1 |
| Rule(s) | Must have value |

5e. LARGE TREE PLOT, SITE TREE AND AGE INFORMATION (ltp_tree_age)

Indexed attributes: NFI_PLOT, MEAS_NUM, TREE_NUM.

****Note:** Only trees sampled for age need to be included in this table.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|-----------|------------------|
| Attribute | Quadrant (Field) |
|-----------|------------------|

LARGE TREE PLOT, SITE TREE AND AGE INFORMATION

| | |
|------------------------|--|
| Variable name | QUADRANT |
| Description | Indicates the quadrant where the site tree is located. |
| Permitted values/range | NE: North East quadrant SE: South East quadrant SW: South West quadrant NW: North West quadrant OP: Out of Plot selection |
| Format | Char 2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Tree number (Field) |
| Variable name | TREE_NUM |
| Description | Unique tree number. |
| Permitted values/range | 1 to 9,999 |
| Format | Num 4 |
| Rule(s) | Must have value Tree number must be unique within the plot. |

| | |
|------------------------|--|
| Attribute | Site tree type (Field) |
| Variable name | SITE_TYPE |
| Description | Record the criteria used for selecting the site tree. |
| Permitted values/range | T: Top height tree L: Leading species tree S: Second leading species tree O: Other major species R: Residual trees N: Non-standard tree selection |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Boring diameter outside bark (Field) |
| Variable name | BORE_DOB |
| Description | Diameter outside bark at location of boring. Reported to the nearest 0.1 cm. Enter -1 for missing value. |
| Permitted values/range | ≥ 1.0 to 999.9 or -1 |
| Format | Dec 4.1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Bored height (Field) |
| Variable name | BORE_HT |
| Description | Height (above high side ground level) where boring was made. Reported to the nearest 0.1 m. |
| Permitted values/range | 0.0 to 9.9, -1 |
| Format | Dec 2.1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Suitable height (Field) |
| Variable name | SUIT_HT |
| Description | Indicates whether the height of the tree is suitable to be used in compiling height and site index for the sample. Y: yes N: no M: missing. |
| Permitted values/range | Y, N |
| Format | Char 1 |
| Rule(s) | Must have value. |

| | |
|---------------|-------------------|
| Attribute | Field age (Field) |
| Variable name | FIELD_AGE |

LARGE TREE PLOT, SITE TREE AND AGE INFORMATION

| | |
|------------------------|--|
| Description | Field determined age in years. Useful as a backup age count in case core samples are lost in transit to the lab. Enter '-8' for trees that were cored in previous measurement cycles. Enter -1 if field age data is missing. |
| Permitted values/range | 1 to 9999, -8, -1 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Suitable age (Field) |
| Variable name | SUIT_AGE |
| Description | Indicates whether the age of the tree is suitable to be used in compiling age and site index for the sample. Y: yes N: no M: Missing data |
| Permitted values/range | Y, N |
| Format | Char 1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Prorate Code (Field) |
| Variable name | PRO_CODE |
| Description | Indicates the reason a full boring was not possible |
| Permitted values/range | ROT: tree core is rotten CRC: cannot reach centre with increment borer |
| Format | Char 3 |
| Rule(s) | May be blank |

| | |
|------------------------|--|
| Attribute | Prorate data, core length (Lab) |
| Variable name | PRO_CORE_LENGTH |
| Description | When a full boring is not possible, the actual measurements are recorded. In this case, the length of the increment core, from the outer edge inward, upon which the ring count was made. Reported in cm. Note that where a full boring WAS possible, PRO_CORE_LENGTH must = 0.0 cm. Enter -1 if not applicable. |
| Permitted values/range | 0.0 to 999.9, -1 |
| Format | Dec 4.1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Prorate data, ring count (Lab) |
| Variable name | PRO_RING_COUNT |
| Description | Estimated age at cored height for trees where a full boring was NOT possible. Calculated in the lab from the number of rings counted on the proportion of the core analyzed. Reported in years. Note: where a full boring WAS possible, PRO_RING_COUNT = 0. Enter -1 for missing data, or if tree is not suitable for age estimates. |
| Permitted values/range | 0 to 9999, -1 |
| Format | Num 4 |
| Rule(s) | Must have value IF SUIT_AGE = 'N' then PRO_RING_COUNT = -1. |

| | |
|------------------------|---|
| Attribute | Cored age (Lab) |
| Variable name | CORE_AGE |
| Description | Age at cored height for trees where a full boring WAS possible. Determined in the lab from core sample. Reported in years. Enter -1 if not applicable (e.g., if full boring was NOT possible or tree is not suitable for age estimate) or for missing data. |
| Permitted values/range | 1 to 9999, -1 |
| Format | Num 4 |
| Rule(s) | Must have value IF SUIT_AGE = 'N' then PRO_RING_COUNT = -1. |

| | |
|---------------|--|
| Attribute | Age correction (Field) |
| Variable name | AGE_CORR_YEARS |
| Description | Number of full years of tree growth below the boring height, determined either directly on that tree or by means of a modeled estimate. Reported in years. Enter -1 if not applicable or lab results have not been returned yet. |

| | |
|------------------------|-----------------|
| Permitted values/range | 0 to 999, -1 |
| Format | Num 3 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Age correction method (Lab) |
| Variable name | AGE_CORR_METH |
| Description | Method to arrive at number of full years of tree growth below the boring height – in some cases it can be measured directly and in other cases it is a modeled estimate. |
| Permitted values/range | D: measured directly M: modelled N: not applicable S: not specified |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Total age (Lab) |
| Variable name | AGE_TOTAL |
| Description | Total age, as determined in the lab. Reported in years. Enter -1 if not applicable or lab results have not been returned yet. |
| Permitted values/range | 1 to 9999, -1 |
| Format | Num 4 |
| Rule(s) | Must have value AGE_TOTAL = (CORE_AGE + AGE_CORR_YEARS) OR (PRO_RING_COUNT + AGE_CORR_YEARS). |

5f. LARGE TREE PLOT, ANNUAL GROWTH INFORMATION

Indexed attributes: NFI_PLOT, MEAS_NUM, TREE_NUM, YEAR.

****Note:** Only trees assessed for annual growth need to be included in this table.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|--|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |

LARGE TREE PLOT, FIVE-YEAR INCREMENT INFORMATION

| | |
|---------|---|
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |
|---------|---|

| | |
|------------------------|--|
| Attribute | Tree number (Field) |
| Variable name | TREE_NUM |
| Description | Tree number. Trees must be numbered in ascending order. |
| Permitted values/range | 1 to 9,999 |
| Format | Num 4 |
| Rule(s) | Must have value Tree number must be unique within the plot. |

| | |
|------------------------|--|
| Attribute | Year (Lab) |
| Variable name | YEAR |
| Description | The year the annual growth relates to. |
| Permitted values/range | 1500 to current year |
| Format | Num 4 [YYYY] |
| Rule(s) | Must have value Combination of year and growth must be unique. Number of records must be < tree age. |

| | |
|------------------------|---|
| Attribute | Growth (Lab) |
| Variable name | GROWTH |
| Description | Annual growth in millimeters, as determined in the lab. |
| Permitted values/range | 0.00 to 99.99 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

5g. LARGE TREE PLOT, FIVE-YEAR INCREMENT INFORMATION

Indexed attributes: NFI_PLOT, MEAS_NUM, TREE_NUM.

****Note: Only trees assessed for five-year increment information need to be included in this table.**

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|---------------|----------------------------|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |

LARGE TREE PLOT, FIVE-YEAR INCREMENT INFORMATION

| | |
|------------------------|---|
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Tree number (Field) |
| Variable name | TREE_NUM |
| Description | Tree number. Trees must be numbered in ascending order. |
| Permitted values/range | 1 to 9,999 |
| Format | Num 4 |
| Rule(s) | Must have value Tree number must be unique within the plot. |

| | |
|------------------------|---|
| Attribute | Five-year increment (Lab) |
| Variable name | INCR_5YR |
| Description | Five-year increment measure (mm), as determined in the lab. |
| Permitted values/range | 000.00 to 999.99 |
| Format | Dec 5.2 |
| Rule(s) | Must have value. |

6. SMALL TREE PLOT, HEADER AND SUMMARY INFORMATION (stp_header)

Indexed attributes: **NFI_PLOT**, **MEAS_NUM**.

****Note:** This table should be completed for all plots where a small tree plot was assessed (even if there were no small trees present to measure).

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|--|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |

SMALL TREE PLOT, SPECIES COMPOSITION

| | |
|---------|---|
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |
|---------|---|

| | |
|------------------------|--|
| Attribute | Plot type (Field) |
| Variable name | PLOT_TYPE |
| Description | Description of the ground plot design used to collect sample measurements. |
| Permitted values/range | STC = circular small tree plot STS = square small tree plot |
| Format | Char 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Nominal plot size (Field) |
| Variable name | NOM_PLOT_SIZE |
| Description | The nominal size (area) of the sample plot. Reported in ha . |
| Permitted values/range | 0.0020 to 0.04000, -1 |
| Format | Dec 5.4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Measured plot size (Field) |
| Variable name | MEAS_PLOT_SIZE |
| Description | The measured size (area) of the sample plot. Reported in ha . Excludes portions of the plot that were not measured due to inaccessibility. |
| Permitted values/range | 0.0005 to 0.0400 |
| Format | Dec 5.4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Total unique small tree species (Compiled) |
| Variable name | SPECIES_SMTNUM |
| Description | The total number of all unique small tree species in an area. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |

| | |
|------------------------|--|
| Attribute | Shannon-Weaver index for small trees (Compiled) |
| Variable name | BINDEX_STSHANNON |
| Description | The Shannon-Weaver diversity index, which is a measure of the species richness and evenness for small trees. |
| Permitted values/range | 0 to 999.99 |
| Format | Dec 5.2 |

| | |
|------------------------|--|
| Attribute | Evenness index for small trees (Compiled) |
| Variable name | BINDEX_STEVEN |
| Description | The evenness index, which measures how even the numbers of individual small trees of each species are to each other. |
| Permitted values/range | 0 to 999.99 |
| Format | Dec 5.2 |

| | |
|------------------------|--|
| Attribute | Margalef (species richness) index for small trees (Compiled) |
| Variable name | BINDEX_STMARGALEF |
| Description | The Margalef (species richness) index, which measures the total number of small tree species in an area. |
| Permitted values/range | 0 to 999.99 |
| Format | Dec 5.2 |

| | |
|------------------------|--|
| Attribute | Total stem wood biomass of live standing small trees (Compiled) |
| Variable name | PLOTBIO_SMT_STEMWOOD_LIVE |
| Description | The total stem wood biomass of live standing small trees (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Total stem bark biomass of live standing small trees (Compiled) |
| Variable name | PLOTBIO_SMT_STEMBARK_LIVE |
| Description | The total stem bark biomass of live standing small trees (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|---|
| Attribute | Total branch biomass of live standing small trees (Compiled) |
| Variable name | PLOTBIO_SMT_BRANCHES_LIVE |
| Description | The total branch biomass of live standing small trees (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|---|
| Attribute | Total foliage biomass of live standing small trees in (Compiled) |
| Variable name | PLOTBIO_SMT_FOLIAGE_LIVE |
| Description | The total foliage biomass of live standing small trees in (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Total stem wood biomass of dead standing small trees (Compiled) |
| Variable name | PLOTBIO_SMT_STEMWOOD_DEAD |
| Description | The total stem wood biomass of dead standing small trees (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Total stem bark biomass of dead standing small trees (Compiled) |
| Variable name | PLOTBIO_SMT_STEMBARK_DEAD |
| Description | The total stem bark biomass of dead standing small trees (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Total branch biomass of dead standing small trees (Compiled) |
| Variable name | PLOTBIO_SMT_BRANCHES_DEAD |
| Description | Total branch biomass of dead standing small trees (Mg/ha) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

6a. SMALL TREE PLOT, SPECIES LIST (stp_tree)

Indexed attributes: NFI_PLOT, MEAS_NUM, SMTREE_NUM.

**Note: Only plots that have small trees to tally need to be included in this table.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|---------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |

| | |
|------------------------|---|
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|---|
| Attribute | Small tree number (Field) |
| Variable name | SMTREE_NUM |
| Description | Tree number. Trees must be numbered in ascending order. |
| Permitted values/range | 1 to 9999 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Small tree genus (Field) |
| Variable name | SMTREE_GENUS |
| Description | A list of all small tree species in the plot with a measurable DBH < 9.0 cm. Use the first 4 letters of the scientific genus name. If unknown conifer use GENC , if unknown hardwood use GENH . Enter SMTREE_GENUS = 'UNKN' and SMTREE_SPECIES = 'SPP' for unknown. |
| Permitted values/range | Refer to NFI Tree Species List. |
| Format | Char 4 |
| Rule(s) | Must have value Combination of SMTREE_GENUS, SMTREE_SPECIES and SMTREE_VARIETY must agree with <i>NFI Tree Species List</i> codes. |

| | |
|------------------------|---|
| Attribute | Small tree species (Field) |
| Variable name | SMTREE_SPECIES |
| Description | Use the first 3 letters of the scientific species name. If unknown, use code SPP . |
| Permitted values/range | Refer to the NFI Tree Species List. |
| Format | Char 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Small tree variety (Field) |
| Variable name | SMTREE_VARIETY |
| Description | Use the first 3 letters of the scientific variety name. |
| Permitted values/range | Refer to the NFI Tree Species List. |
| Format | Char 3 |
| Rule(s) | May be blank if variety not present. |

| | |
|---------------|--|
| Attribute | Small tree status (Field) |
| Variable name | SMTREE_STATUS |
| Description | Describes the condition of the small tree. |

| | |
|------------------------|--|
| Permitted values/range | <p>LS: Live standing Live trees have enough foliage to keep them alive (live cambium is present), are intact and rooted into the ground. Lack of foliage for some species, of course, is no indication of death during some seasons. Standing trees are self-supporting (that is, the tree would remain standing if all supporting materials were removed).</p> <p>LF: Live fallen See previous definition of "live". Fallen live trees are not self-supporting and would not remain standing if all supporting materials were removed.</p> <p>DS: Dead standing Dead trees are obviously (physiologically) dead. They are still self-supporting (rooted into the ground) and would remain standing if all supporting materials were removed, e.g. snags.</p> |
| Format | Char 2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Small tree DBH (Field) |
| Variable name | SMTREE_DBH |
| Description | DBH of small trees/woody shrubs with a DBH < 9.0 cm in the small tree plot. Expressed to the nearest 0.1 cm. Enter -1 for missing data. |
| Permitted values/range | 0.1 cm to 8.9 cm, -1 |
| Format | Dec 2.1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Small tree height (Field) |
| Variable name | SMTREE_HT |
| Description | Height of small trees/woody shrubs with a DBH < 9.0 cm in the small tree plot. Expressed to the nearest 0.1 m. If estimated, estimate to the nearest 0.5 meter. Enter -1 for missing data. |
| Permitted values/range | 1.3 to 20.0, -1 |
| Format | Dec 3.1 |
| Rule(s) | Must have value Height must be \geq 1.3 m. |

| | |
|------------------------|---|
| Attribute | Measured or estimated small tree height (Field) |
| Variable name | SMTREE_MEASEST_HT |
| Description | Code indicating whether the small tree height was an actual measurement or it was estimated (modeled). |
| Permitted values/range | <p>M: small tree height is an actual measurement</p> <p>E: small tree height was estimated (modeled)</p> <p>S: not specified</p> |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Stem condition (Field) |
| Variable name | STEM_COND |
| Description | An indicator of whether the stem of the tree is broken or intact. |
| Permitted values/range | <p>B: Broken</p> <p>I: Intact</p> |
| Format | Char 1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Small tree volume (Compiled) |
| Variable name | SMTREE_VOLUME |
| Description | Total volume of each small tree in the small tree plot. Includes volume inside bark of the main stem, including stump and top of all standing live and dead small trees. Small tree volume must be calculated for all trees < 9.0 cm in DBH. Reported in m ³ . |
| Permitted values/range | 0.00000001 to 999.99999999 |
| Format | Dec 11.8 |

| | |
|------------------------|--|
| Attribute | Small tree biomass (Compiled) |
| Variable name | SMTREE_BIOMASS |
| Description | Total above ground biomass of small trees (kg of oven-dry material). |
| Permitted values/range | 0.01 to 9999.99 |

SMALL TREE PLOT, SPECIES COMPOSITION

| | |
|--------|---------|
| Format | Dec 6.2 |
|--------|---------|

| | |
|------------------------|--|
| Attribute | Total stem wood biomass of live standing small trees (Compiled) |
| Variable name | BIOMASS_STEMWOOD |
| Description | The total stem wood biomass of live standing small trees (kg of oven dry material) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Total stem bark biomass of live standing small trees (Compiled) |
| Variable name | BIOMASS_STEMBARK |
| Description | The total stem bark biomass of live standing small trees (kg of oven dry material) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|---|
| Attribute | Total branch biomass of live standing small trees (Compiled) |
| Variable name | BIOMASS_BRANCHES |
| Description | The total branch biomass of live standing small trees (kg of oven dry material) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|---|
| Attribute | Total foliage biomass of live standing small trees in (Compiled) |
| Variable name | BIOMASS_FOLIAGE |
| Description | The total foliage biomass of live standing small trees in (kg of oven dry material) |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Biomass equation ID for computing stem wood biomass (Compiled) |
| Variable name | BMEQ_WOOD |
| Description | The biomass equation ID for computing stem wood biomass |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

| | |
|------------------------|--|
| Attribute | Biomass equation ID for computing stem bark biomass (Compiled) |
| Variable name | BMEQ_BARK |
| Description | The biomass equation ID for computing stem bark biomass |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

| | |
|------------------------|--|
| Attribute | Biomass equation ID form computing branch biomass (Compiled) |
| Variable name | BMEQ_BRANCHES |
| Description | The biomass equation ID form computing branch biomass |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

| | |
|------------------------|--|
| Attribute | Biomass equation ID for computing foliage biomass (Compiled) |
| Variable name | BMEQ_FOLIAGE |
| Description | The biomass equation ID for computing foliage biomass |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

| | |
|------------------------|---|
| Attribute | Volume ratio(Compiled) |
| Variable name | VOL_PROJ |
| Description | Ratio of the volume of the broken tree to the volume of the tree to it's projected height |
| Permitted values/range | 0 to 1.00000 |
| Format | Dec 6.5 |

6b. SMALL TREE PLOT, SPECIES COMPOSITION

Indexed attributes: NFI_PLOT, MEAS_NUM, SM_TREE_SPECIES_NUM.

**Note: this table is compiled by the CFS project office.

| | |
|------------------------|---|
| Attribute | NFI network label (Compiled) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement number (Compiled) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Species number (Compiled) |
| Variable name | SMTREE_SPECIES_NUM |
| Description | Office-compiled attribute based on data in the small tree list table. Identifies the species rank in the plot by percentage of basal area per hectare. Species number will be ordered consecutively from 1, with 1 being the largest tree species percent value in the plot. |
| Permitted values/range | 1 to 20 |
| Format | Num 2 |

| | |
|------------------------|---|
| Attribute | Small tree genus (Compiled) |
| Variable name | SMTREE_GENUS |
| Description | A list of all small tree species in the plot with a measurable DBH < 9.0 cm. Use the first 4 letters of the scientific genus name. If unknown conifer use GENC , if unknown hardwood use GENH . Enter SMTREE_GENUS = 'UNKN' and SMTREE_SPECIES = 'SPP' for unknown. |
| Permitted values/range | Refer to NFI Tree Species List. |
| Format | Char 4 |
| Rule(s) | Must have value Combination of SMTREE_GENUS, SMTREE_SPECIES and SMTREE_VARIETY must agree with <i>NFI Tree Species List</i> codes. |

| | |
|------------------------|---|
| Attribute | Small tree species (Compiled) |
| Variable name | SMTREE_SPECIES |
| Description | Use the first 3 letters of the scientific species name. If unknown, use code SPP . |
| Permitted values/range | Refer to the NFI Tree Species List. |
| Format | Char 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Small tree variety (Compiled) |
| Variable name | SMTREE_VARIETY |
| Description | Use the first 3 letters of the scientific variety name. |
| Permitted values/range | Refer to the NFI Tree Species List. |
| Format | Char 3 |

| | |
|------------------------|---|
| Rule(s) | May be blank if variety not present. |
| Attribute | Percent composition by species (Compiled) |
| Variable name | SMTREE_PERCENT |
| Description | The percent composition based on proportion of total basal area occupied by that species. |
| Permitted values/range | 0 to 100 |
| Format | Num 3 |

7. SHRUB PLOT, HEADER AND SUMMARY INFORMATION (shrub_header)

Indexed attributes: NFI_PLOT, MEAS_NUM.

**Note: This table should be completed for all plots where shrubs were assessed (even if there were no shrubs present to measure).

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Plot type (Field) |
| Variable name | PLOT_TYPE |
| Description | Description of the ground plot design used to collect sample measurements. |
| Permitted values/range | STC = circular shrub plot STS = square shrub plot |
| Format | Char 3 |
| Rule(s) | Must have value. |

| | |
|---------------|---|
| Attribute | Nominal plot size (Field) |
| Variable name | NOM_PLOT_SIZE |
| Description | The nominal size (area) of the sample plot. Reported in ha . |

SHRUB PLOT, HEADER AND SUMMARY INFORMATION

| | |
|------------------------|----------------------|
| Permitted values/range | 0.0020 to 0.0400, -1 |
| Format | Dec 5.4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Measured plot size (Field) |
| Variable name | MEAS_PLOT_SIZE |
| Description | The measured size (area) of the sample plot. Reported in ha . Excludes portions of the plot that were not measured due to inaccessibility. |
| Permitted values/range | 0.0005 to 0.0400 |
| Format | Dec 5.4 |
| Rule(s) | Must have value |

7a. SHRUB PLOT, SPECIES LIST (shrub_list)

Indexed attributes: **NFI_PLOT**, **MEAS_NUM**, **SHRUB_NUM**.

****Note: Only plots that have shrubs to tally need to be included in this table.**

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|----------------------|
| Attribute | Shrub number (Field) |
| Variable name | SHRUB_NUM |
| Description | Shrub number. |
| Permitted values/range | 1 to 9999 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|---------------|---------------------|
| Attribute | Shrub genus (Field) |
| Variable name | SHRUB_GENUS |

| | |
|------------------------|---|
| Description | A list the genus of each shrub ≥ 1.3 m in height within the plot area. Use the first 4 letters of the scientific genus name. If unknown, use code UNKN . |
| Permitted values/range | |
| Format | Char 4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Shrub species (Field) |
| Variable name | SHRUB_SPECIES |
| Description | Use the first 3 letters of the scientific species name. If unknown, use code SPP . |
| Permitted values/range | |
| Format | Char 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Shrub variety (Field) |
| Variable name | SHRUB_VARIETY |
| Description | Use the first 3 letters of the scientific variety name. |
| Permitted values/range | Refer to the NFI Tree Species List. |
| Format | Char 3 |
| Rule(s) | May be blank if variety unknown or not applicable. |

| | |
|------------------------|--|
| Attribute | Shrub status (Field) |
| Variable name | SHRUB_STATUS |
| Description | Describes the condition of the shrub. |
| Permitted values/range | LV: Live shrubs. DS: Dead standing shrubs - Dead shrubs that are still self-supporting (rooted into the ground) and would remain standing if all supporting materials were removed, e.g. snags. |
| Format | Char 2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Basal diameter class (Field) |
| Variable name | BD_CLASS |
| Description | Basal diameter class of shrub measured at the ground line or just above the root collar, whichever is higher. Enter -1 for missing data. |
| Permitted values/range | 0: 0.1 cm to 1.0 cm 1: 1.1 cm to 3.0 cm 2: 3.1 cm to 5.0 cm 3: 5.1 cm to 7.5cm 4: 7.6 cm to 10.0 cm 5: 10.1 cm to 12.5 cm 6: 12.6 cm to 15.0 cm |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Shrub height (Field) |
| Variable name | HT_CLASS |
| Description | Height of shrubs ≥ 1.3 m in height in the shrub plot. Expressed to the nearest 0.1 m. Enter -1 for missing data. |
| Permitted values/range | 1: 1.3 m to 2.0 m 2: 2.1 m to 3.0 m 3: 3.1 m to 4.0 m 4: 4.1 m to 5.0 m |
| Format | Char 1 |
| Rule(s) | Must have value Height must be ≥ 1.3 m. |

| | |
|---------------|---|
| Attribute | Frequency (Field) |
| Variable name | FREQUENCY |
| Description | When there are multiple occurrences of a shrub species with the same status, basal diameter class and height class, they may be recorded as a multiple occurrence. If there are no multiple occurrences, frequency = 1. |

| | |
|------------------------|-----------------|
| Permitted values/range | 1 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Shrub biomass (Compiled) |
| Variable name | SHRUB_BIOMASS |
| Description | Total above ground biomass of shrubs (kg of oven dry material). |
| Permitted values/range | 0.01 to 9999.99 |
| Format | Dec 6.2 |

| | |
|------------------------|--|
| Attribute | Woody biomass of live shrubs (Compiled) |
| Variable name | SH_BIOMASS_WOODY |
| Description | The total woody above ground biomass of live shrubs (kg of oven dry material). |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|---|
| Attribute | Total foliage biomass of live shrubs (Compiled) |
| Variable name | SH_BIOMASS_FOLIAGE |
| Description | The total foliage biomass of live shrubs (kg of oven dry material). |
| Permitted values/range | 0.00 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Biomass equation ID for computing foliage biomass (Compiled) |
| Variable name | SH_BMEQ_BIOMASS |
| Description | The biomass equation ID for computing total aboveground biomass. |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

| | |
|------------------------|--|
| Attribute | Biomass equation ID for computing foliage biomass (Compiled) |
| Variable name | SH_BMEQ_WOODY |
| Description | The biomass equation ID for computing woody biomass. |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

| | |
|------------------------|--|
| Attribute | Biomass equation ID for computing foliage biomass (Compiled) |
| Variable name | SH_BMEQ_FOLIAGE |
| Description | The biomass equation ID for computing foliage biomass. |
| Permitted values/range | 0 to 99999 |
| Format | Num 5 |

8. STUMP PLOT, HEADER AND SUMMARY INFORMATION (stump_header)

Indexed attributes: **NFI_PLOT**, **MEAS_NUM**.

****Note:** This table should be completed for all plots where a stump plot was assessed (even if there were no stumps present to measure).

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |

| | |
|---------|--|
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |
|---------|--|

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Plot type (Field) |
| Variable name | PLOT_TYPE |
| Description | Description of the ground plot design used to collect sample measurements. |
| Permitted values/range | STC = circular stump tree plot STS = square stump tree plot |
| Format | Char 3 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Nominal plot size (Field) |
| Variable name | NOM_PLOT_SIZE |
| Description | The nominal size (area) of the sample plot. Reported in ha . |
| Permitted values/range | 0.0020 to 0.0400, -1 |
| Format | Dec 5.4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Measured plot size (Field) |
| Variable name | MEAS_PLOT_SIZE |
| Description | The measured size (area) of the sample plot. Reported in ha . Excludes portions of the plot that were not measured due to inaccessibility. |
| Permitted values/range | 0.0005 to 0.0400 |
| Format | Dec 5.4 |
| Rule(s) | Must have value |

8a. STUMP LIST (stump_list)

Indexed attributes: **NFI_PLOT**, **MEAS_NUM**, **STUMP_NUM**.

**Note: Only plots with stumps to tally need to be included in this table.

| | |
|---------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |

| | |
|------------------------|--|
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Stump number (Field) |
| Variable name | STUMP_NUM |
| Description | Stump number. Stumps must be numbered in ascending order. Includes all stumps < 1.3 m in length. |
| Permitted values/range | 1 to 9999 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Stump genus (Field) |
| Variable name | STUMP_GENUS |
| Description | Use the first 4 letters of the scientific genus name. If unknown conifer use GENC , if unknown hardwood use GENH . Enter STUMP_GENUS = 'UNKN' and STUMP_SPECIES = 'SPP' for unknown. |
| Permitted values/range | Refer to NFI Tree Species List. |
| Format | Char 4 |
| Rule(s) | Must have value Combination of STUMP_GENUS, STUMP_SPECIES and STUMP_VARIETY must agree with <i>NFI Tree Species List</i> . |

| | |
|------------------------|---|
| Attribute | Stump species (Field) |
| Variable name | STUMP_SPECIES |
| Description | Use the first 3 letters of the scientific species name. If unknown, use code SPP . |
| Permitted values/range | Refer to the NFI Tree Species List. |
| Format | Char 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Stump variety (Field) |
| Variable name | STUMP_VARIETY |
| Description | Use the first 3 letters of the scientific variety name. |
| Permitted values/range | Refer to the NFI Tree Species List. |
| Format | Char 3 |
| Rule(s) | May be blank if variety is not present. |

| | |
|-----------|-------------------|
| Attribute | Stump DIB (Field) |
|-----------|-------------------|

| | |
|------------------------|--|
| Variable name | STUMP_DIB |
| Description | Top inside bark diameter of stump in cm . |
| Permitted values/range | 0.1 to 999.9, -1 |
| Format | Dec 4.1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Stump diameter (Field) |
| Variable name | STUMP_DIAMETER |
| Description | Top diameter of stump including bark, if present. If no bark present then STUMP_DIAMETER = STUMP_DIB. Reported in cm. Enter -1 for missing data. |
| Permitted values/range | 0.1 to 999.9, -1 |
| Format | Dec 4.1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Stump decay class (Field) |
| Variable name | STUMP_DECAY |
| Description | Average decay class of the stump. Decay classes are based on the majority condition of the entire stump. The five classes used to describe the decay class of the stump are the same ones that are used to describe WD. For detailed descriptions, refer to the NFI Ground Sampling Guidelines document. 0: Decay class was not measured or decay classes were combined. -1: Missing decay class. |
| Permitted values/range | 0 to 5, -1 |
| Format | Num2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Stump length (Field) |
| Variable name | STUMP_LENGTH |
| Description | Length, measured to the nearest 0.01 m. Enter -1 for missing data. |
| Permitted values/range | 0.01 to 1.29, -1 |
| Format | Dec 3.2 |
| Rule(s) | Must have value STUMP_LENGTH < 1.30 m |

| | |
|------------------------|--|
| Attribute | Stump volume (Compiled) |
| Variable name | STUMP_VOLUME |
| Description | Total volume of each stump in the stump plot. Stump volume is calculated for all stumps ≥ 4.0 cm DIB. Reported in m^3 . |
| Permitted values/range | 0 to 999.9999 |
| Format | Dec 8.5 |

| | |
|------------------------|--|
| Attribute | Stump biomass (Compiled) |
| Variable name | STUMP_BIOMASS |
| Description | Total above ground biomass of stump (kg of oven-dry material). |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

9. MICRO PLOT (microplot)

Indexed attributes: NFI_PLOT, MEAS_NUM, MICRO_PLOT_NUM, MICRO_LAYER_ID.

**Note: This table should be completed for all plots where microplots were destructively sampled.

| | |
|---------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |

| | |
|------------------------|--|
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Micro plot number (Field) |
| Variable name | MICRO_PLOT_NUM |
| Description | Shrub/herb micro plot number. |
| Permitted values/range | 0 to 4 0 = samples were combined by layer for all 4 microplots. |
| Format | Num 1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Micro plot layer (Field) |
| Variable name | MICRO_LAYER_ID |
| Description | Identify the type of material sampled using the codes below. |
| Permitted values/range | 1: Shrub/tree - all woody plants and small trees < 1.3 m tall that do not have a measurable DBH. 2: Herbaceous - all herbaceous species, regardless of height. Includes herbs, graminoids, and forbs. For detailed definitions refer to the <i>NFI Ground Plot Sampling Guidelines</i> document. 3: Bryoid - mosses, lichens and liverworts, slime molds and mushrooms. 4: Fine woody debris - woody debris ≤ 1.0 cm in diameter 5: Small Stumps - stumps with top diameter inside bark of < 4.0 cm) |
| Format | Num 1 |
| Rule(s) | Must have value. No repeated value allowed in a microplot. |

| | |
|------------------------|--|
| Attribute | Plot type (Field) |
| Variable name | PLOT_TYPE |
| Description | Description of the ground plot design used to collect sample measurements. |
| Permitted values/range | MPC = circular mini-plot MPS = square mini-plot |
| Format | Char 3 |
| Rule(s) | Must have value |

| | |
|---------------|--|
| Attribute | Nominal plot size (Field) |
| Variable name | NOM_PLOT_SIZE |
| Description | The nominal area of the micro plot. Reported in ha . Plot size is reported as the total micro plot area. -1: Not submitted |

| | |
|------------------------|-------------------|
| Permitted values/range | 0.000025 to 0.001 |
| Format | Dec 7.6 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Measured plot size (Field) |
| Variable name | MEAS_PLOT_SIZE |
| Description | The measured area of the micro plot. Excludes portions of the plot that were not measured due to inaccessibility. Reported in ha. |
| Permitted values/range | 0.000025 to 0.001 |
| Format | Dec 7.6 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Micro plot biomass by layer (Lab) |
| Variable name | MICRO_LAYER_BIOMASS |
| Description | Total above ground biomass of shrubs and herbs, bryoids and fine woody debris (FWD) (kg of oven-dry material) by layer. Samples are collected in the field and then oven-dried and weighed in the lab. Must have value. Enter -1 for missing data. |
| Permitted values/range | 0 to 99.9999; -1 |
| Format | Dec 6.4 |

10. ECOLOGICAL PLOT SUMMARY INFORMATION (ecp_header)

Indexed attributes: NFI_PLOT, MEAS_NUM, PLOT_TYPE.

**Note: This table should be completed for all plots where an ecological plot data was assessed.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|-----------|-------------------|
| Attribute | Plot type (Field) |
|-----------|-------------------|

| | |
|------------------------|---|
| Variable name | PLOT_TYPE |
| Description | Description of the ecological plot design used to collect sample measurements. Numbers are used to denote plots where more than one plot is used to measure ecological species. If only one plot or transect was used, use the first number in the series, e.g. 'EC1' or 'ET1' etc. |
| Permitted values/range | EC1 to EC9 = circular ecological plot(s) ES1 to ES9 = square ecological plot(s) ET1 to ET9 = ecological transect(s) |
| Format | Char 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Nominal plot size (Field) |
| Variable name | NOM_PLOT_SIZE |
| Description | The nominal area of the ecological sample plot. Reported in ha . |
| Permitted values/range | 0.000025 to 0.08; -1 |
| Format | Dec 5.4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Measured plot size (Field) |
| Variable name | MEAS_PLOT_SIZE |
| Description | The measured area of the ecological sample plot. Excludes portions of the plot that were not measured due to inaccessibility. Reported in ha . |
| Permitted values/range | 0.000025 to 0.08; -1 |
| Format | Dec 5.4 |
| Rule(s) | Must have value |

10a. ECOLOGICAL SPECIES LIST (ecp_species)

Indexed attributes: **NFI_PLOT**, **MEAS_NUM**, **PLOT_TYPE**, **EC_GENUS**, **EC_SPECIES**, **EC_VARIETY**, **EC_LAYERID**.

**Note: This table should be completed for all plots where ecological plot data was assessed.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|--|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |

| | |
|---------|---|
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |
|---------|---|

| | |
|------------------------|---|
| Attribute | Plot type (Field) |
| Variable name | PLOT_TYPE |
| Description | Description of the ecological plot design used to collect sample measurements. Numbers are used to denote plots where more than one plot is used to measure ecological species. If only one plot or transect was used, use the first number in the series, e.g. 'EC1' or 'ET1' etc. |
| Permitted values/range | EC1 to EC9 = circular ecological plot(s) ES1 to ES9 = square ecological plot(s) ET1 to ET9 = ecological transect(s) |
| Format | Char 3 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Ecological genus (Field) |
| Variable name | EC_GENUS |
| Description | A list of all ecological species in the plot. Use the first 4 letters of the scientific genus name. |
| Permitted values/range | Use the first 4 letters of the scientific genus name. Enter EC_GENUS = 'UNKN' and EC_SPECIES = 'SPP' for unknown. |
| Format | Char 4 |
| Rule(s) | Must have value Genus/species/var combination must be unique. |

| | |
|------------------------|---|
| Attribute | Ecological species (Field) |
| Variable name | EC_SPECIES |
| Description | A list of all ecological species in the plot. Excludes fine woody debris layer. Use the first 3 letters of the scientific species name. |
| Permitted values/range | Use the first 3 letters of the scientific species name. SPP : use where EC_GENUS is defined but EC_SPECIES is unknown |
| Format | Char 3 |
| Rule(s) | Must have value. Genus/species/var combination must be unique. |

| | |
|------------------------|---|
| Attribute | Ecological variety (Field) |
| Variable name | EC_VARIETY |
| Description | A list of all ecological species in the plot. |
| Permitted values/range | Use the first 3 letters of the scientific variety name. |
| Format | Char 3 |
| Rule(s) | May be blank. |

| | |
|------------------------|--|
| Attribute | Ecological layer ID (Field) |
| Variable name | EC_LAYERID |
| Description | Record the ecological layer in which the species occurs. A species may occur in more than one layer at a plot. Each unique combination of species and layer, should be entered as a separate record. <ul style="list-style-type: none"> A Tree Layer: Any species taller than 10 m in height. These are usually tree species. For the ecology plots, no sub-division of height within this layer is necessary. B1 Tall Shrub Layer: Includes woody species (tree and shrub) > 2.0 m and < 10 m in height. B2 Low Shrub Layer: Includes woody species (tree and shrub) where the entire plant is < 2.0 m in height. Tree species at least two years old. C Herb Layer: Herbaceous species including forbs, ferns, grasses, sedges, rushes, saprophytes, club-mosses, horsetails, and some low woody species. D Bryoid Layer: Includes mosses, liverworts, foliose and fruticose lichens, and tree seedlings less than 2 years old. |
| Permitted values/range | |
| Format | Char 3 |
| Rule(s) | Must have value. |

| | |
|-----------|---|
| Attribute | Ecological species area percent (Field) |
|-----------|---|

| | |
|------------------------|--|
| Variable name | EC_SPECIES_PCT |
| Description | Estimate of the percent cover for each ecological species in the plot. Excludes fine woody debris layer. Reported in percent. Enter -1 for missing data. |
| Permitted values/range | 0.001 to 100.000; -1 |
| Format | Dec 6.3 |
| Rule(s) | Must have value. |

10b. ECOLOGICAL BIODIVERSITY (biodiversity_ec)

Indexed attributes: NFI_PLOT, MEAS_NUM, EC_LAYERID

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Ecological layer ID (Field) |
| Variable name | EC_LAYERID |
| Description | Record the ecological layer in which the species occurs. A species may occur in more than one layer at a plot. Each unique combination of species and layer, should be entered as a separate record. <ul style="list-style-type: none"> A Tree Layer: Any species taller than 10 m in height. These are usually tree species. For the ecology plots, no sub-division of height within this layer is necessary. B1 Tall Shrub Layer: Includes woody species (tree and shrub) > 2.0 m and < 10 m in height. B2 Low Shrub Layer: Includes woody species (tree and shrub) where the entire plant is < 2.0 m in height. Tree species at least two years old. C Herb Layer: Herbaceous species including forbs, ferns, grasses, sedges, rushes, saprophytes, club-mosses, horsetails, and some low woody species. D Bryoid Layer: Includes mosses, liverworts, foliose and fruticose lichens, and tree seedlings less than 2 years old. |
| Permitted values/range | May include any 3 character string. |
| Format | Char 3 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Total unique ecological species (Compiled) |
| Variable name | SPECIES_ECNUM |
| Description | The total number of all unique ecological species in an area. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |

| | |
|---------------|--|
| Attribute | Shannon-Weaver index for ecological species (Compiled) |
| Variable name | BINDEX_EC Shannon |

| | |
|------------------------|---|
| Description | The Shannon-Weaver diversity index, which is a measure of the species richness and evenness for ecological species (shrub, herb, moss, lichen and liverwort species). |
| Permitted values/range | 0 to 999.99 |
| Format | Dec 5.2 |

| | |
|------------------------|--|
| Attribute | Evenness index for ecological species (Compiled) |
| Variable name | BINDEX_ECEVEN |
| Description | The evenness index, which measures how even the numbers of individual shrubs, herbs, mosses, lichens and liverworts of each species are to each other. |
| Permitted values/range | 0 to 999.99 |
| Format | Dec 5.2 |

11. WOODY DEBRIS HEADER INFORMATION (woody_debris_header)

Indexed attributes: NFI_PLOT, MEAS_NUM, TRANSECT_NUM.

**Note: this table includes small and coarse woody debris only (e.g. pieces > 1.0 cm in diameter). FWD (pieces ≤ 1.0 cm in diameter) are collected and reported in the micro plot section.

**Note: This table should be completed for all plots where small or coarse woody debris was assessed (even if there were no woody debris present to measure).

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|-----------------------------|
| Attribute | Transect number (Field) |
| Variable name | TRANSECT_NUM |
| Description | The number of the transect. |
| Permitted values/range | 1 to 9 |

| | |
|---------|--|
| Format | Num 1 |
| Rule(s) | Must have value Must be unique within a plot. |

| | |
|------------------------|---|
| Attribute | Nominal transect length (Field) |
| Variable name | NOM_TRANSECT_LENGTH |
| Description | The nominal length of the sample transect. Reported in m . |
| Permitted values/range | 10.0 to 150.0 |
| Format | Dec 4.1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Transect azimuth (Field) |
| Variable name | TRANSECT_AZIMUTH |
| Description | The azimuth of the transect. Reported in degrees . |
| Permitted values/range | 0 to 360 |
| Format | Num 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Small woody debris measured transect length (Field) |
| Variable name | SWD_MEASLEN |
| Description | The total distance along the transect assessed for small woody debris. Excludes length of transect intersected by major roads, water, etc. Recorded to the nearest 0.1 m. |
| Permitted values/range | 0 to 150.0 |
| Format | Dec 4.1 |
| Rule(s) | Must have value. SWD_MEASLEN ≤ NOM_TRANSECT_LENGTH. |

| | |
|------------------------|--|
| Attribute | Medium coarse woody debris – round pieces, measured transect length (Field) |
| Variable name | MCWD_MEASLEN |
| Description | The total distance along the transect assessed for round pieces of medium coarse woody debris (MCWD). Excludes length of transect intersected by major roads, water, etc. Recorded to the nearest 0.1 m. |
| Permitted values/range | 0.0 to 150.0 |
| Format | Dec 4.1 |
| Rule(s) | Must have value. MCWD_MEASLEN ≤ NOM_TRANSECT_LENGTH |

| | |
|------------------------|---|
| Attribute | Large coarse woody debris – round pieces, measured transect length (Field) |
| Variable name | LCWD_MEASLEN |
| Description | The total distance along the transect assessed for round pieces of large coarse woody debris (LCWD). Excludes length of transect intersected by major roads, water, etc. Recorded to the nearest 0.1 m. |
| Permitted values/range | 0.0 to 150.0 |
| Format | Dec 4.1 |
| Rule(s) | Must have value. LCWD_MEASLEN ≤ NOM_TRANSECT_LENGTH |

**11a. SMALL WOODY DEBRIS (>1.0 cm diameter ≤ 7.5 cm)
(woody_debris_small)**

Indexed attributes: NFI_PLOT, MEAS_NUM, TRANSECT_NUM, SWD_DIAM_CLASS.

**Note: This table should be completed for transects along which small woody debris were tallied.

| | |
|---------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |

| | |
|------------------------|--|
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Transect number (Field) |
| Variable name | TRANSECT_NUM |
| Description | The number of the transect. |
| Permitted values/range | 1 to 9 |
| Format | Num 1 |
| Rule(s) | Must have value Must be unique within a plot. |

| | |
|------------------------|--|
| Attribute | Small woody debris diameter class (Field) |
| Variable name | SWD_DIAM_CLASS |
| Description | Small woody debris sampling diameter class. All small woody debris pieces must be > 1.0 cm in diameter and ≤ 7.5 cm in diameter. Small woody debris is sampled in the field using corresponding 'go-no-go' tool assigned diameter classes. |
| Permitted values/range | SWD diameter classes are as follows: 1: > 1.0 cm to ≤ 3.0 cm 2: > 3.0 cm to ≤ 5.0 cm 3: > 5.0 cm to ≤ 7.5 cm |
| Format | Num 1 |
| Rule(s) | Must have value. Must be unique for a given transect, within a ground plot, for a given measurement number. |

| | |
|------------------------|--|
| Attribute | Small woody debris tally of pieces by diameter class (Field) |
| Variable name | SWD_TALLY |
| Description | Tally of pieces of SWD by diameter class. |
| Permitted values/range | 0 to 9999999 |
| Format | Num 7 |
| Rule(s) | Must have value. |

| | |
|---------------|--|
| Attribute | Small woody decay class (Field) |
| Variable name | SWD_DECAY_CLASS |
| Description | Small woody debris sampling decay class. An average decay class is assigned to all pieces of small woody debris. Decay classes are based on the majority condition of the entire piece. The five classes |

| | |
|------------------------|---|
| | used to describe the WD condition are based primarily upon wood texture, and secondarily on other wood characteristics. For detailed descriptions, refer to <i>NFI Ground Sampling Guidelines</i> document. Decay class 0 indicates that a decay class was unmeasured or combines all decay classes. |
| Permitted values/range | 0 to 5 |
| Format | Num 1 |
| Rule(s) | Must have value. |

11b. COARSE WOODY DEBRIS (> 7.5 cm diameter) – ROUND PIECES (woody_debris_round)

Indexed attributes: NFI_PLOT, MEAS_NUM, TRANSECT_NUM, WD_PIECE_NUM.

****Note:** This table should be completed for transects along which round coarse woody debris were tallied.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Transect number (Field) |
| Variable name | TRANSECT_NUM |
| Description | The number of the transect. |
| Permitted values/range | 1 to 9 |
| Format | Num 1 |
| Rule(s) | Must have value Must be unique within a plot. |

| | |
|---------------|---|
| Attribute | Piece number (Field) |
| Variable name | WD_PIECE_NUM |
| Description | Woody debris piece number. Piece numbers are assigned in ascending order along the transect. Pieces measured in this table must be > 7.5 in diameter. |

COARSE WOODY DEBRIS – ROUND PIECES

| | |
|------------------------|--|
| Permitted values/range | 1 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Must be unique for a given transect, within a ground plot, for a given measurement number. |

| | |
|------------------------|---|
| Attribute | Woody debris genus (Field) |
| Variable name | WD_GENUS |
| Description | Woody debris genus codes are assigned using the codes listed in the <i>NFI Tree Species List</i> . For unknown softwood, use GENC and for unknown hardwood use GENH . Enter WD_GENUS = 'UNKN' and WD_SPECIES = 'SPP' for unknown. |
| Permitted values/range | Refer to the NFI Tree Species List. |
| Format | Char 4 |
| Rule(s) | Must have value. Combination of genus/species code must agree with <i>NFI Tree Species List</i> . |

| | |
|------------------------|--|
| Attribute | Woody debris species (Field) |
| Variable name | WD_SPECIES |
| Description | Woody debris species codes are assigned using the codes listed in the <i>NFI Tree Species List</i> . Tree list species codes use the first three letters of the scientific species name. For unknown species, use SPP . |
| Permitted values/range | Refer to the NFI Tree Species List. |
| Format | Char 3 |
| Rule(s) | Must have value. Combination of genus/species code must agree with <i>NFI Tree Species List</i> . |

| | |
|------------------------|--|
| Attribute | Woody debris piece diameter (Field) |
| Variable name | WD_DIAMETER |
| Description | Piece diameter as determined by calipers or diameter tape measurement. Reported to the nearest 0.1 cm. |
| Permitted values/range | 7.6 to 999.9 |
| Format | Dec 4.1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Woody debris decay class (Field) |
| Variable name | DECAY_CLASS |
| Description | Coarse woody debris sampling decay class. Decay classes are based on the majority condition of the entire piece. The five classes used to describe the CWD condition are based primarily upon wood texture, and secondarily on other wood characteristics. For detailed descriptions, refer to <i>NFI Ground Sampling Guidelines</i> document. Decay class 0 indicates that a decay class was unmeasured or combines all decay classes. |
| Permitted values/range | 0 to 5 |
| Format | Num 1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Tilt angle (Field) |
| Variable name | TILT_ANGLE |
| Description | Reported in degrees. Tilt angle is only required in the case of round pieces and is not required in the case of odd-shaped pieces or accumulations. Typically measured in the field using a clinometer. |
| Permitted values/range | 0 to 90 |
| Format | Num 2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Wood density (Compiled) |
| Variable name | DENSITY |
| Description | The density of the woody debris, based on a combination of the species codes and wood condition (DECAY_CLASS). Reported in (g/cm³). Wood density data is necessary for the compilation of biomass and will be provided by the NFI project office. |
| Permitted values/range | 0.00001 to 2.65000(rock) |
| Format | Dec 6.5 |

11c. COARSE WOODY DEBRIS – ODD SHAPED PIECES AND ACCUMULATIONS. (woody_debris_odd)

Indexed attributes: NFI_PLOT, MEAS_NUM, TRANSECT_NUM, WD_PIECE_NUM.

**Note: This table should be completed for transects along which roundcoarse woody debris were tallied.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Transect number (Field) |
| Variable name | TRANSECT_NUM |
| Description | The number of the transect. |
| Permitted values/range | 1 to 9 |
| Format | Num 1 |
| Rule(s) | Must have value Must be unique within a plot. |

| | |
|------------------------|---|
| Attribute | Piece number (Field) |
| Variable name | WD_PIECE_NUM |
| Description | Woody debris piece number. Piece numbers are assigned in ascending order along the transect. Pieces measured in this table must be > 7.5 in diameter. |
| Permitted values/range | 1 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Must be unique for a given transect, within a ground plot, for a given measurement number. |

| | |
|---------------|---|
| Attribute | Accumulation or odd-shaped piece (Field) |
| Variable name | ACCUM_ODD |
| Description | A one-letter code indicating whether the woody debris measurements apply to an accumulation or odd- |

COARSE WOODY DEBRIS – ODD SHAPED PIECES AND ACCUMULATIONS

| | |
|------------------------|--|
| | shaped piece. A: accumulation measured O: odd-shaped piece measured M: Missing data |
| Permitted values/range | A, O |
| Format | Char 1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Woody debris genus (Field) |
| Variable name | WD_GENUS |
| Description | Woody debris genus codes are assigned using the codes listed in the <i>NFI Tree Species List</i> . For unknown softwood, use GENC and for unknown hardwood use GENH . Enter WD_GENUS = 'UNKN' and WD_SPECIES = 'SPP' for unknown. |
| Permitted values/range | Refer to NFI Tree Species List. |
| Format | Char 4 |
| Rule(s) | Must have value. Combination of genus/species code must agree with <i>NFI Tree Species List</i> . |

| | |
|------------------------|--|
| Attribute | Woody debris species (Field) |
| Variable name | WD_SPECIES |
| Description | Woody debris species codes are assigned using the codes listed in the <i>NFI Tree Species List</i> . Tree list species codes use the first three letters of the scientific species name. For unknown species, use SPP . |
| Permitted values/range | Refer to the NFI Tree Species List. |
| Format | Char 3 |
| Rule(s) | Must have value. Combination of genus/species code must agree with <i>NFI Tree Species List</i> . |

| | |
|------------------------|--|
| Attribute | Horizontal piece length (Field) |
| Variable name | HOR_LENGTH |
| Description | Odd shaped pieces are measured as a rectangle. The width and height of the rectangle, that represents a cross-sectional area of the piece along the plane formed by the line transect, are measured. For examples of measuring odd-shaped pieces, refer to the <i>NFI Ground Sampling Guidelines</i> . Reported to the nearest 0.1 cm . |
| Permitted values/range | 0.1 to 9999.9 |
| Format | Dec 5.1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Vertical piece depth (Field) |
| Variable name | VER_DEPTH |
| Description | Odd shaped pieces are measured as a rectangle. The width and height of the rectangle, that represents a cross-sectional area of the piece along the plane formed by the line transect, are measured. For examples of measuring odd-shaped pieces, refer to the <i>NFI Ground Sampling Guidelines</i> . Reported in to the nearest 0.1 cm . |
| Permitted values/range | 0.1 to 999.9 |
| Format | Dec 4.1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Woody debris decay class (Field) |
| Variable name | DECAY_CLASS |
| Description | Coarse woody debris sampling decay class. Decay classes are based on the majority condition of the entire piece. The five classes used to describe the CWD condition are based primarily upon wood texture, and secondarily on other wood characteristics. For detailed descriptions, refer to <i>NFI Ground Sampling Guidelines</i> document. Decay class 0 indicates that a decay class was unmeasured or combines all decay classes. |
| Permitted values/range | 0 to 5 |
| Format | Num 1 |
| Rule(s) | Must have value. |

| | |
|---------------|-------------------------|
| Attribute | Wood density (Compiled) |
| Variable name | DENSITY |

| | |
|------------------------|--|
| Description | The density of the woody debris, based on a combination of the species codes and wood condition (DECAY_CLASS). Reported in (g/cm ³). Wood density data is necessary for the compilation of biomass and will be provided by the NFI project office. |
| Permitted values/range | 0.00001 to 2.65000 (rock) |
| Format | Dec 6.5 |

11d. WOODY DEBRIS – SUMMARY

**Note: this table is compiled by the CFS project office.

| | |
|------------------------|---|
| Attribute | NFI network label (Compiled) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement number (Compiled) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Woody debris decay class (Compiled) |
| Variable name | DECAY_CLASS |
| Description | Coarse woody debris sampling decay class. Decay classes are based on the majority condition of the entire piece. The five classes used to describe the CWD condition are based primarily upon wood texture, and secondarily on other wood characteristics. For detailed descriptions, refer to <i>NFI Ground Sampling Guidelines</i> document. Decay class 0 indicates that a decay class was unmeasured or combines all decay classes. |
| Permitted values/range | 0 to 5 |
| Format | Num 1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Volume of small woody debris (Compiled) |
| Variable name | PLOTVOL_SWD |
| Description | The volume of small woody debris (m ³ /ha) |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

| | |
|------------------------|---|
| Attribute | Biomass of small woody debris (Compiled) |
| Variable name | PLOTBIO_SWD |
| Description | The biomass of small woody debris (Mg/ha) |
| Permitted values/range | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|---------------|---|
| Attribute | Total volume of woody debris (Compiled) |
| Variable name | PLOTVOL_WD |
| Description | The total volume of woody debris measured along the transect (SWD, MCWD, LCWD) (m ³ /ha) |

| | |
|------------------------|--------------|
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

| | |
|------------------------|--|
| Attribute | Total biomass of woody debris (Compiled) |
| Variable name | PLOTBIO_WD |
| Description | The total biomass of woody debris measured along the transect (SWD, MCWD, LCWD (Mg/ha) |
| Permitted values/range | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|---|
| Attribute | Volume of round woody debris (Compiled) |
| Variable name | PLOTVOL_ROUNDWD |
| Description | The volume of round woody debris (m ³ /ha) |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

| | |
|------------------------|---|
| Attribute | Biomass of round woody debris (Compiled) |
| Variable name | PLOTBIO_ROUNDWD |
| Description | The biomass of round woody debris (Mg/ha) |
| Permitted values/range | 0 to 99999.99 |
| Format | Dec 7.2 |

| | |
|------------------------|--|
| Attribute | Volume of odd shaped woody debris (Compiled) |
| Variable name | PLOTVOL_ODDWD |
| Description | The volume of odd shaped woody debris (m ³ /ha) |
| Permitted values/range | 0 to 9999.99 |
| Format | Dec 6.2 |

| | |
|------------------------|--|
| Attribute | Biomass of odd shaped woody debris (Compiled) |
| Variable name | PLOTBIO_ODDWD |
| Description | The biomass of odd shaped woody debris (Mg/ha) |
| Permitted values/range | 0 to 99999.99 |
| Format | Dec 7.2 |

12. SURFACE SUBSTRATE HEADER (surface_substrate_header)

Indexed attributes: NFI_PLOT, MEAS_NUM, TRANSECT_NUM.

Note: This table should be completed for each ground plot.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Transect number (Field) |
| Variable name | TRANSECT_NUM |
| Description | The number of the transect. |
| Permitted values/range | 1 to 9 |
| Format | Num 1 |
| Rule(s) | Must have value Must be unique within a plot. |

| | |
|------------------------|--|
| Attribute | Transect azimuth (Field) |
| Variable name | TRANSECT_AZIMUTH |
| Description | The azimuth of the transect. Reported in degrees . Enter -1 for missing data. |
| Permitted values/range | 0 to 360; -1 |
| Format | Num 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Transect measured length (Field) |
| Variable name | SS_MEASLEN |
| Description | Total length of transect along which surface substrate was actually measured. E.g. excludes length of transect intersected by major roads, water, etc. Recorded to the nearest 0.1 m. |
| Permitted values/range | 0.0 to 99.9 |
| Format | Dec 3.1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Total number of surface substrate measurements |
| Variable name | TOTAL_MEAS |
| Description | Total number of surface substrate measurements made along the transect. For example, if the transect is 30.0 m long, TOTAL_MEAS = 15 (for surface substrate tallied every 2 nd meter). |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Surface substrate tally of measurements, organic matter (Compiled) |
| Variable name | TALLY_SS_ORG |
| Description | A tally of surface substrate measurements along the transect line representative of the ground plot area covered by organic matter. Surficial accumulations of organic materials, including the following: organic layers \geq 1 cm thick overlying mineral soil, cobbles, stones or bedrock; layers of decaying wood < 10 cm thick; large animal droppings; and areas covered by mats of bunchgrass (mats include L horizons). Reported as a tally of the number of occurrences along a given transect. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. $TALLY_SS_ORG \leq TOTAL_MEAS$ |

| | |
|---------------|--|
| Attribute | Average thickness of organic matter (Compiled) |
| Variable name | AVG_ORG_THICK |

| | |
|------------------------|---|
| Description | The average depth (cm) of the organic matter surface substrate (if present). |
| Permitted values/range | 0.0 to 500.0 |
| Format | Dec 4.1 |
| Rule(s) | Must be 0.0 if organic matter not present in plot. |

| | |
|------------------------|---|
| Attribute | Surface substrate tally of measurements, buried wood (Compiled) |
| Variable name | TALLY_SS_BURIED |
| Description | A tally of surface substrate measurements along the transect line representative of the ground plot area covered by buried wood. Class 5 woody debris with > 50% thickness below surrounding surface. Does not include freshly fallen material that has yet become to decompose. May be covered with mosses, lichens, liverworts, or other plants. If an organic layer has developed over the wood, buried wood must be > 10 cm thick otherwise it is classed as "organic matter". Reported as a tally of the number of occurrences along a given transect. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. TALLY_SS_BURIED ≤ TOTAL_MEAS |

| | |
|------------------------|--|
| Attribute | Average thickness of buried wood (Compiled) |
| Variable name | AVG_BURIED_THICK |
| Description | The average depth (cm) of the buried wood surface substrate (if present). |
| Permitted values/range | 0.0 to 500.0 |
| Format | Dec 4.1 |
| Rule(s) | Must be 0.0 if buried wood not present. |

| | |
|------------------------|---|
| Attribute | Surface substrate tally of measurements, decaying wood (Compiled) |
| Variable name | TALLY_SS_DECAY |
| Description | A tally of surface substrate measurements along the transect line representative of the ground plot area covered by decaying wood. Fallen trees, large branches on the ground surface, and partially buried stumps with an exposed edge: Does not include freshly fallen material that has yet begun to decompose and material that is suspended above the surface (e.g. decay class 1 and 2 logs). In such cases, substrate type is measured below or immediately adjacent to the log. May be covered with mosses, lichens, liverworts, or other plants. If an organic layer has developed over the wood, decaying wood must have > 50% of its thickness above the surrounding surface, otherwise it is classed as "buried wood". Reported as a tally of the number of occurrences along a give transect. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. TALLY_SS_DECAY ≤ TOTAL_MEAS |

| | |
|------------------------|--|
| Attribute | Surface substrate tally of measurements, bedrock (Compiled) |
| Variable name | TALLY_SS_BED |
| Description | A tally of surface substrate measurements along the transect line representative of the ground plot area covered by bedrock. Exposed consolidated mineral material. May have a partial covering of mosses, lichens, liverworts, or other epilithic plants. Does not qualify as bedrock if covered by unconsolidated mineral or organic material ≥ 1 cm in thickness. Reported as a tally of the number of occurrences along a given transect. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. TALLY_SS_BED ≤ TOTAL_MEAS |

| | |
|---------------|---|
| Attribute | Surface substrate tally of measurements, rock or cobbles and stones (Compiled) |
| Variable name | TALLY_SS_ROCK |
| Description | A tally of surface substrate measurements along the transect line representative of the ground plot area covered by rock or cobbles and stones. |

| | |
|------------------------|---|
| | Rock or cobbles and stones includes exposed unconsolidated rock fragments > 7.5 cm in diameter. May be covered by mosses, lichens, liverworts, epilithic plants (plants attached to an inorganic substrate); or an organic layer < 1 cm in thickness. Does not include gravels < 7.5 cm in diameter. Reported as a tally of the number of occurrences along a given transect. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. TALLY_SS_ROCK ≤ TOTAL_MEAS |

| | |
|------------------------|---|
| Attribute | Surface substrate tally of measurements, mineral soil (Compiled) |
| Variable name | TALLY_SS_MIN |
| Description | A tally of surface substrate measurements along the transect line representative of the ground plot area covered by mineral soil. Unconsolidated mineral material of variable texture not covered by organic materials. May have a partial cover of mosses, lichens, and liverworts. Often associated with cultivation, tree tip-ups, active erosion or deposition, severe fires, trails, or late snow retention areas. Includes small cobbles and gravel < 7.5 cm in diameter. Areas of living grass or forb cover where mineral soil is visible between stems are classed as mineral soil, as are exposed Ah or Ae horizons. Reported as a tally of the number of occurrences along a given transect. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. TALLY_SS_MIN ≤ TOTAL_MEAS |

| | |
|------------------------|---|
| Attribute | Surface substrate tally of measurements, water (Compiled) |
| Variable name | TALLY_SS_WATER |
| Description | A tally of surface substrate measurements along the transect line representative of the ground plot area covered by streams, puddles, or areas of open water in bogs or fens. This does not include "casual" or non-permanent water. The sample point should be recorded to reflect the conditions at the time of sampling, e.g. a gravel or sandbar below the high water mark for a stream would be recorded as mineral soil. Reported as a tally of the number of occurrences along a given transect. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. TALLY_SS_WATER ≤ TOTAL_MEAS |

12a. SURFACE SUBSTRATE (surface_substrate)

Indexed attributes: NFI_PLOT, MEAS_NUM, TRANSECT_NUM.

Note: This table should be completed for each ground plot.

| | |
|------------------------|--|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|---------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |

| | |
|------------------------|---|
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Transect number (Field) |
| Variable name | TRANSECT_NUM |
| Description | The number of the transect. |
| Permitted values/range | 1 to 9 |
| Format | Num 1 |
| Rule(s) | Must have value Must be unique within a plot. |

| | |
|------------------------|--|
| Attribute | Station number (Field) |
| Variable name | STATION_NUM |
| Description | The number of the station measured along the transect. |
| Permitted values/range | 1 to 16 |
| Format | Num 2 |
| Rule(s) | Must have value Must be unique within a transect. |

| | |
|------------------------|---|
| Attribute | Substrate type (Field) |
| Variable name | SUBSTRATE_TYPE |
| Description | The surface substrate identified at the station |
| Permitted values/range | DW: Decayed wood BR: Bedrock RC: Rock or cobbles MS: Mineral soil OM: Organic matter BW: Buried wood |
| Format | Char 2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Depth (Field) |
| Variable name | DEPTH |
| Description | The depth of the substrate in cm down to mineral soil or to another impenetrable object. Depth is measured for organic matter and buried wood substrate types only. |
| Permitted values/range | 1 to 500 |
| Format | Num 3 |
| Rule(s) | Must have value if SUBSTATE_TYPE = OM or BW; otherwise must be blank. |

| | |
|---------------|--|
| Attribute | Depth limit (Field) |
| Variable name | DEPTH_LIMIT |
| Description | The impenetrable object the depth was measured to. |

| | |
|------------------------|---|
| Permitted values/range | 1: Mineral soil 2: Bedrock 3: Frozen Layer 4: Sound Wood 5: Other or unknown impenetrable object 6: Maximum depth achieved (500cm) |
| Format | Num 1 |
| Rule(s) | Must have value |

13. SOIL SITE INFORMATION (soil_site_info)

Indexed attributes: **NFI_PLOT**, **MEAS_NUM**.

****Note:** All plots where soil was sampled or described should be included in this table.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|---|
| Attribute | CSSC soil classification (Field) |
| Variable name | SOIL_CLASS |
| Description | CSSC Soil Classification. Order, Great Group and Sub-group. Classified to the subgroup level if possible but at least to the Order level (minimum). Enter -1 for unreported. |
| Permitted values/range | Refer to the Canadian System of Soil Classification (CSSC, 1998) for reporting instructions, -1. |
| Format | Char 9 |
| Rule(s) | Must have value |

| | |
|---------------|--|
| Attribute | Profile depth (Field) |
| Variable name | PROFILE_DEPTH |
| Description | Depth to which total carbon content (CC_TOT) is determined. Total carbon content should be measured to a minimum of 60 cm (depth starting at surface of mineral soil) in mineral soils and to a total depth of |

| | |
|------------------------|---|
| | 100 cm in organic soils. Measurement is to the nearest 0.1 cm. Enter -1 for unreported. |
| Permitted values/range | 0.0 to 200.0, -1 |
| Format | Dec 4.1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Soil drainage class (Field) |
| Variable name | DRAINAGE |
| Description | Six classes of soil drainage are recognized (National Soil Survey Committee 1974; Agriculture Canada Expert Committee on Soil Survey 1987). 1: Very Rapidly 2: Rapidly 3: Well 4: Moderately Well 5: Imperfectly 6: Poorly 7: Very Poorly -1: Missing -9: Non-applicable |
| Permitted values/range | 1 to 7; -1, -9 |
| Format | Num 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Soil moisture class (Field) |
| Variable name | MOISTURE |
| Description | Soil moisture class. |
| Permitted values/range | 1: Xeric, water removed extremely rapidly in relation to supply; soil is moist for a negligible time after precipitation 2: Mesic, water removed somewhat slowly in relation to supply; soil may remain moist for a significant, but sometimes short period of the year. Available soil moisture reflects climatic inputs. 3: Hygric, water removed slowly enough to keep soil wet for most of the growing season; permanent seepage and mottling; gleyed colours common. -1: Missing (unreported) -9: Non-applicable |
| Format | Num 1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Mode of deposition of soil parent material (Field) |
| Variable name | DEPOSITION |
| Description | This is the dominant soil parent material mode of deposition as reported or implied by the source (Agriculture Canada Expert Committee on Soil Survey, 1983). |
| Permitted values/range | Unconsolidated A: Anthropogenic C: Colluvial E: Eolian F: Fluvial L: Lacustrine M: Morainal S: Sapolite V: Volcanic W: Marine UU: Unspecified Unconsolidated Consolidated R: Bedrock Ice I: Ice Organic B: Bog FE: Fen SW: Swamp UO: Unspecified Organic Genetic Material |
| Format | Char 2 |

| | |
|------------------------|---|
| Rule(s) | Must have value |
| Attribute | Humus form (Field) |
| Variable name | HUMUS_FORM |
| Description | Form of the organic and organic-enriched mineral horizons at the soil surface. Humus form is reported to at least the Order level, minimum. Humus form codes and their definitions were taken from the Canada Soil Information System (Expert Committee on Soil Survey, 1982). |
| Permitted values/range | <p>L: Mull LV: compact LF: fine LM: medium LC: coarse D: Moder DM: mull-like DT: typical DR: raw R: Mor RF: fibri-mor RH: humi-fibrimor RM: fibri-humimor RI: humi-mor P: Peaty Mor PH: humic PM: mesic PF: fibric AM: Anmoor UR: Unreported</p> |
| Format | Char 2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Total carbon content of organic and mineral profile, plot level (Compiled) |
| Variable name | CC_TOTAL |
| Description | Calculated by summing corresponding organic and mineral horizon carbon content values (CC_HOR) in the soils site information table. When bulk density and horizon carbon content (CC_HOR) values are edited, CC_TOT must be updated also. Reported in Mg/ha . Refer to the <i>National Compilation Standard for Ground Plots: Compilation Procedures</i> document for more information. |
| Permitted values/range | |
| Format | Dec 5.1 |

| | |
|------------------------|---|
| Attribute | Carbon content below the mineral surface, plot level (Compiled) |
| Variable name | CC_MIN |
| Description | The carbon content for the entire mineral component of the profile, includes buried organic horizons. Calculated by summing the corresponding horizon carbon content values (CC_HOR). When bulk density and horizon carbon content (CC_HOR) values are edited, CC_MIN must be updated also. Value includes corrections for percent area without mineral soil and percent volume of large coarse fragments in horizons. Reported in Mg/ha . Refer to the <i>National Compilation Standard for Ground Plots: Compilation Procedures</i> document for more information. |
| Permitted values/range | |
| Format | Dec 5.1 |

| | |
|------------------------|--|
| Attribute | Carbon content organics above the mineral surface, plot level (Compiled) |
| Variable name | CC_ORG |
| Description | The carbon content for the organic component of the profile (all material above the mineral soil surface). Calculated by summing the organic horizon carbon content values (CC_HOR). When bulk density and horizon carbon content (CC_HOR) values are edited, CC_ORG must be updated also. Value includes correction for percent area without surface organics and mean thickness of surface organics. A zero (0) value represents a profile without organic horizon carbon data. Reported in Mg/ha . Refer to the <i>National Compilation Standard for Ground Plots: Compilation Procedures</i> document for more information. |
| Permitted values/range | |

| | |
|--------|---------|
| Format | Dec 5.1 |
|--------|---------|

| | |
|------------------------|---|
| Attribute | Average carbon content of organic soil and forest floor samples (Compiled) |
| Variable name | AVG_ORG_CARB |
| Description | The average carbon content of organic soil and forest floor samples (g kg ⁻¹) |
| Permitted values/range | 0 to 999.99 |
| Format | Dec 5.2 |

| | |
|------------------------|--|
| Attribute | Average bulk density of organic soil and forest floor samples (Compiled) |
| Variable name | AVG_BULK_DENSITY_ORG |
| Description | average bulk density of organic soil and forest floor samples (g/cm ³) |
| Permitted values/range | 0 to 999.99 |
| Format | Dec 5.2 |

13a. SOIL PIT DEPTH (soil_pit_depth)

Indexed attributes: NFI_PLOT, MEAS_NUM, PIT_NUM.

**Note: A record for each pit number used for sampling or describing soil at each plot is required.

| | |
|------------------------|---|
| Attribute | NFI network label (Compiled) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Compiled) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Compiled) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Soil pit code (Compiled) |
| Variable name | PIT_NUM |
| Description | Soil pit coder. Allows for multiple pits to be sampled, 1 minimum. |
| Permitted values/range | MP1: Microplot 1 MP2: Microplot 2 MP3: Microplot 3 MP4: Microplot 4 |

| | |
|---------|---|
| | LP0: Large (representative) soil pit PT1: Other location 1 PT2: Other location 2 PT3: Other location 3 PT4: Other location 4 |
| Format | Char 3 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Total depth of mineral soil samples collected (Compiled) |
| Variable name | DEPTH_MIN |
| Description | Total depth (cm) of the mineral soils for which samples were collected for each soil pit. |
| Permitted values/range | 0.0 to 999.9 |
| Format | Dec 4.1 |

| | |
|------------------------|---|
| Attribute | Total depth of organic soil samples collected (Compiled) |
| Variable name | DEPTH_ORG |
| Description | Total depth (cm) of the organic soils for which samples were collected for each soil pit. |
| Permitted values/range | 0.0 to 999.9 |
| Format | Dec 4.1 |

13b. SOIL PIT FEATURES (soil_pit_features)

Indexed attributes: NFI_PLOT, MEAS_NUM, PIT_NUM, SOIL_FEATURE, DEPTH_FEATURE.

****Note:** This table should be completed for the primary soil pit at each plot.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|-----------|-----------------------|
| Attribute | Soil pit code (Field) |
|-----------|-----------------------|

| | |
|------------------------|---|
| Variable name | PIT_NUM |
| Description | Soil pit code. Allows for multiple pits to be sampled. |
| Permitted values/range | LP0: Large (representative) soil pit PT1: Other location 1 PT2: Other location 2 PT3: Other location 3 PT4: Other location 4 |
| Format | Char 3 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Soil feature (Field) |
| Variable name | SOIL_FEATURE |
| Description | Soil feature noted from soil pit. |
| Permitted values/range | Soil features may include the following: W: Water table or seepage M: Mottles (not applicable in organic soils) R: Root-restricting pan B: Bedrock F: Frozen layer C: Carbonates S: Missing (unreported) N: Non-applicable |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Depth to soil feature (Field) |
| Variable name | DEPTH_FEATURE |
| Description | Observed depth in cm to soil feature, measured from "zero depth" to soil feature. "Zero depth" is mineral soil surface for mineral soils, and ground surface for organic soils. |
| Permitted values/range | 0 to 200 -9: Non-applicable (to be used if soil_feature value is N) |
| Format | Num 3 |
| Rule(s) | Depth to soil feature field must have value when soil feature field is filled. Must have value. |

13c. SOIL PIT HORIZON DESCRIPTION (soil_horizon_desc)

Indexed attributes: NFI_PLOT, MEAS_NUM, PIT_NUM, HORIZON_NUM.

**Note: This table should be completed for the primary soil pit at each plot.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |

| | |
|---------|---|
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |
|---------|---|

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|---|
| Attribute | Soil pit code (Field) |
| Variable name | PIT_NUM |
| Description | Soil pit code. Allows for multiple pits to be sampled. |
| Permitted values/range | LP0: Large (representative) soil pit PT1: Other location 1 PT2: Other location 2 PT3: Other location 3 PT4: Other location 4 |
| Format | Char 3 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Horizon number (Field) |
| Variable name | HORIZON_NUM |
| Description | Indicates the order of the horizon measurements. |
| Permitted values/range | 1 to 99 |
| Format | Num 2 |
| Rule(s) | Must have value Horizons must be numbered consecutively, starting with one for the uppermost horizon listed first. |

| | |
|------------------------|---|
| Attribute | Horizon (Field) |
| Variable name | HORIZON |
| Description | The horizon designations conform to CSSC codes (Agriculture Canada expert committee on soil survey 1998). |
| Permitted values/range | Refer to CSSC (1998). |
| Format | Char 6 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Horizon upper depth (cm) (Field) |
| Variable name | HORIZON_UPPER |
| Description | The absolute distance from "zero depth" to the top of the layer being described. "Zero depth" is the boundary between the forest floor organic material and the mineral or deep organic soil material. The uppermost layer of mineral or organic soil will have a horizon upper depth of 0 cm. |
| Permitted values/range | 0 to 200.0 |
| Format | Dec 4.1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Horizon thickness (Field) |
| Variable name | THICKNESS |
| Description | The thickness of the horizon being described in cm. Code as -1 if missing (for example, the thickness of the bottom horizon can not always be determined) |
| Permitted values/range | 0 to 300.0, -1 |
| Format | Dec 4.1 |
| Rule(s) | Must have value. |

| | |
|---------------|---------------------|
| Attribute | Soil colour (Field) |
| Variable name | COLOR |

| | |
|------------------------|--|
| Description | A description of the general colour of the rooting-zone mineral soil. Codes based on the Munsell Colour Chart codes. |
| Permitted values/range | D: Dark, chocolate brown or black (Munsell colour value < 4 when moist) M: Medium, intermediate colour (most commonly encountered) L: Light, very pale soil (Munsell colour value > 6 when moist) N: Not applicable (bedrock, no soil) S: Missing |
| Format | Char 1 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Soil texture for each mineral horizon (Field) |
| Variable name | TEXTURE |
| Description | Soil textural class determined in the field from a hand estimation of the percentage of clay and sand. Soil textural classes and codes are determined from the CSSC (1998) soil texture triangle. |
| Permitted values/range | HC: Heavy Clay C: Clay SC: Sandy clay VFSC: Very fine Sandy Clay FSC: Fine Sandy Clay MSC: Medium Sandy Clay CSC: Coarse Sandy Clay VCSC: Very coarse Sandy Clay SCL: Sandy clay loam VFSL: Very fine Sandy Clay Loam FSL: Fine Sandy Clay Loam MSL: Medium Sandy Clay Loam CSL: Coarse Sandy Clay Loam VCSL: Very coarse Sandy Clay Loam CL: Clay loam SI: Silt SIL: Silt loam SIC: Silty clay SICL: Silty clay loam L: Loam SL: Sandy loam VFSL: Very fine Sandy Loam FSL: Fine Sandy Loam MSL: Medium Sandy Loam CSL: Coarse Sandy Loam VCSL: Very coarse Sandy Loam LS: Loamy sand S: Sand VFS: Very fine sand FS: Fine sand MS: Medium sand CS: Coarse sand VCS: Very coarse sand R = Rock NA: For non-mineral layers. |
| Format | Char 5 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Coarse fragment content, gravel (Field) |
| Variable name | CF_GRAV |
| Description | The percent coarse fragment content by volume of the mineral horizon. (Diameter <7.5 cm or length < 15 cm.) -1: Missing (unreported) -9: Not applicable (non-mineral horizons) |
| Permitted values/range | 0 to 100; -1, -9 |
| Format | Num 3 |
| Rule(s) | Must have value. |

| | |
|--|-------------------------------------|
| | CF_GRAV + CF_COBB + CF_STONE ≤ 100. |
|--|-------------------------------------|

| | |
|------------------------|---|
| Attribute | Coarse fragment content, cobbles (Field) |
| Variable name | CF_COBB |
| Description | The percent coarse fragment (diameter = 7.5 to 25 cm or length = 15 to 38 cm) content by volume of the mineral horizon. -1: Missing (unreported) -9: Not applicable (non-mineral horizons) |
| Permitted values/range | 0 to 100; -1, -9 |
| Format | Num 3 |
| Rule(s) | Must have value. CF_GRAV + CF_COBB + CF_STONE ≤ 100. |

| | |
|------------------------|--|
| Attribute | Coarse fragment content, stones (Field) |
| Variable name | CF_STONE |
| Description | The percent coarse fragment (diameter > 25 cm or length > 38 cm) content by volume of the mineral horizon. -1: Missing (unreported) -9: Not applicable (non-mineral horizons) |
| Permitted values/range | 0 to 100; -1, -9 |
| Format | Num 3 |
| Rule(s) | Must have value. CF_GRAV + CF_COBB + CF_STONE ≤ 100. |

13d. FOREST FLOOR ORGANIC SAMPLE INFORMATION (for_flr_org_sample)

Indexed attributes: NFI_PLOT, MEAS_NUM, PIT_NUM, SAMPLE_NUM.

****Note:** This table should be completed for each plot where forest floor organic samples were collected.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|--|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |

FOREST FLOOR ORGANIC SAMPLE INFORMATION

| | |
|---------|---|
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |
|---------|---|

| | |
|------------------------|---|
| Attribute | Soil pit code (Field) |
| Variable name | PIT_NUM |
| Description | Code of the pit from which the sample was collected. Allows for multiple pits to be sampled. |
| Permitted values/range | MP1: Microplot 1 MP2: Microplot 2 MP3: Microplot 3 MP4: Microplot 4 LP0: Large (representative) soil pit PT1: Other location 1 PT2: Other location 2 PT3: Other location 3 PT4: Other location 4 |
| Format | Char 3 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Sample number (Field) |
| Variable name | SAMPLE_NUM |
| Description | A unique number assigned to each forest floor sample collected from a given soil pit or microplot (PIT_NUM). At each pit, samples should be numbered in ascending order. |
| Permitted values/range | 1 to 9 |
| Format | Num 1 |
| Rule(s) | Must have value. Combination of NFI_PLOT, MEAS_NUM, PIT_NUM and SAMPLE_NUM must be unique. |

| | |
|------------------------|--|
| Attribute | Horizon Designation (Field) |
| Variable name | HORIZON |
| Description | The horizon designations conform to CSSC codes (Agriculture Canada expert committee on soil survey 1998). When sampling by depth a combination of classes may be needed. Use '/' to separate codes, e.g. L/F/H |
| Permitted values/range | Refer to CSSC (1998). |
| Format | Char 20 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Horizon measurement (Field) |
| Variable name | HORIZON_MEAS |
| Description | Indicates whether samples were collected by depth increment, or by pedogenic indicator. |
| Permitted values/range | D: horizon sampled by depth P: horizon sampled by pedogenic indicator N: missing value |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Upper depth of sample (Field) |
| Variable name | SAMPLE_UPPER |
| Description | The upper depth of the sample collected, measured from the surface of the forest floor (0.0 cm). If forest floor is collected as a single layer, SAMPLE_UPPER = 0.0 cm. Record to the nearest 0.1 cm. Enter -1 for missing data. |
| Permitted values/range | 0.0 to 40.0, -1 |
| Format | Dec 4.1 |
| Rule(s) | Must have value. |

| | |
|---------------|--------------------------------|
| Attribute | Bottom depth of sample (Field) |
| Variable name | SAMPLE_BOTTOM |

FOREST FLOOR ORGANIC SAMPLE INFORMATION

| | |
|------------------------|--|
| Description | The average bottom depth of the sample collected, measured from the surface of the forest floor (0.0 cm). Report to the nearest 0.1 cm. Enter -1 for missing data. |
| Permitted values/range | 0.1 to 200.0, -1 |
| Format | Dec 4.1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Volume of forest floor organic sample (Field) |
| Variable name | VOLUME |
| Description | Excavated volume of forest floor organic sample. If an aluminium template was used to sample forest floor, volume can be calculated by multiplying SAMPLE_WIDTH x SAMPLE_LENGTH x (SAMPLE_UPPER - SAMPLE_LOWER). Report to the nearest mL. Enter -1 for missing data or if unable to excavate e.g. plot is located on solid bedrock with no organic material. |
| Permitted values/range | 1 to 30000, -1 |
| Format | Num 5 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Sample collection method (Field) |
| Variable name | SAMPLE_METHOD |
| Description | A field indicating the technique used for the collection of the sample. |
| Permitted values/range | T: Sampled but method not specified F: Not sampled H: Sample collected using hole excavation/template technique S: Sample collected using a small diameter core (< 60 mm) C: Sample collected using a large diameter core (60 to 100 mm) |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Sample width (Field) |
| Variable name | SAMPLE_WIDTH |
| Description | Excavated width of organic material. For example, if a 20 x 20 cm template was used SAMPLE_WIDTH would = 20 cm Report to the nearest cm. Enter -1 for missing data or if unable to excavate (e.g. plot is located on solid bedrock with no organic material). Enter -9 if not applicable (i.e. sample was not collected using a template) |
| Permitted values/range | 1 to 30; -1, -9 |
| Format | Num 2 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Sample length (Field) |
| Variable name | SAMPLE_LENGTH |
| Description | Excavated length of organic material. For example, if a 20 x 20 cm template was used SAMPLE_LENGTH would = 20 cm Report to the nearest cm. Enter -1 for missing data or if unable to excavate (e.g. plot is located on solid bedrock with no organic material). Enter -9 if not applicable (i.e. sample was not collected using a template) |
| Permitted values/range | 1 to 30; -1, -9 |
| Format | Num 2 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Bulk density ≤8mm forest floor (Lab) |
| Variable name | BULK_DENSITY_8MM |
| Description | The Bulk density of the ≤8mm portion of the forest floor, oven dry (70°C), sample. All parameters required for this calculation are specified in Appendix K of the Ground Plot Sampling Guidelines. Report as g cm ⁻³ . Missing or out of range data will be reported as -1 |
| Permitted values/range | 0.010 to 1.000, -1 |

FOREST FLOOR ORGANIC SAMPLE INFORMATION

| | |
|---------|-----------------|
| Format | Dec 4.3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Bulk density measurement criteria (Lab) |
| Variable name | BD_MEAS |
| Description | Bulk density measurement criteria for the entire horizon. |
| Permitted values/range | H: Bulk density measurement of organic matter in horizon excluding live root mass. T: Total of all bulk density of samples. N: Not specified. |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Organic carbon content (Lab) |
| Variable name | ORG_CARB |
| Description | The organic carbon content of the ≤8mm oven dried (70°C) portion of the forest floor sample, finely ground to 1mm. The organic carbon is equal to the value of total carbon (TOT_CARB) minus the carbonate (CO3) value. Report as g kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future |
| Permitted values/range | 0.10 to 999.99, -1, -8, -7 |
| Format | Dec 5.2 |
| Rule(s) | Must have value, must be less than or equal to TOT_CARB |

Av

| | |
|------------------------|--|
| Attribute | Measured organic carbon or not (Lab) |
| Variable name | ORG_CARB_REAL |
| Description | A logical field to indicate whether the organic carbon value in the ORG_CARB_REAL field is a measured value (T) or not (F). If the organic carbon has been estimated from LOI, conversion is achieved by multiplying by 1.724 (assuming 58% of organic is organic carbon). If reporting organic carbon from LOI, enter F. Enter 'N' if not applicable. |
| Permitted values/range | T, F, N |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Total carbon (Lab) |
| Variable name | TOT_CARB |
| Description | Total carbon content of the ≤8mm oven dried (70°C) portion of the forest floor sample, finely ground to 1mm. Report as g kg ⁻¹ . Enter -1 for missing data. Enter -7 if not requisitioned, but possible in future |
| Permitted values/range | 0.10 to 999.99, -1 |
| Format | Dec 5.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Total Nitrogen (Lab) |
| Variable name | N |
| Description | Total nitrogen content of the ≤8mm oven dried (70°C) portion of the forest floor sample, finely ground to 1mm. Report as g kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.01 to 99.99, -1, -8,-7 |
| Format | Dec 4.2 |
| Rule(s) | Must have value. |

| | |
|---------------|----------------------------|
| Attribute | Available phosphorus (Lab) |
| Variable name | P |

FOREST FLOOR ORGANIC SAMPLE INFORMATION

| | |
|------------------------|---|
| Description | The available phosphorus content of the ≤ 8 mm oven dried (70°C) portion of the forest floor sample, finely ground to 1mm. Report as mg kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0 to 9999, -1, -8, -7 |
| Format | Num 4 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Total phosphorus (Lab) |
| Variable name | TOTAL_P |
| Description | Total phosphorus content of the ≤ 8 mm oven dried (70°C) portion of the forest floor sample, finely ground to 1mm. Report as mg kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 1 to 9999, -1, -8, -7 |
| Format | Num 4 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Exchangeable potassium (Lab) |
| Variable name | K |
| Description | Exchangeable potassium content of the ≤ 8 mm oven dried (70°C) portion of the forest floor sample, finely ground to 1mm Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.001 to 99.999, -1, -8, -7 |
| Format | Dec 5.3 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Exchangeable calcium (Lab) |
| Variable name | CA |
| Description | Exchangeable calcium content of the ≤ 8 mm oven dried (70°C) portion of the forest floor sample, finely ground to 1mm. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.01 to 999.99, -1, -8, -7 |
| Format | Dec 5.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Exchangeable magnesium (Lab) |
| Variable name | MG |
| Description | Exchangeable magnesium content of the ≤ 8 mm oven dried (70°C) portion of the forest floor sample, finely ground to 1mm. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.01 to 999.99, -1, -8, -7 |
| Format | Dec 5.2 |
| Rule(s) | Must have value. |

| | |
|---------------|---------------------------|
| Attribute | Exchangeable sodium (Lab) |
| Variable name | NA |

FOREST FLOOR ORGANIC SAMPLE INFORMATION

| | |
|------------------------|--|
| Description | Exchangeable sodium content of ≤ 8 mm oven dried (70°C) portion of the forest floor sample, finely ground to 1mm. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.001 to 99.999, -1, -8, -7 |
| Format | Dec 5.3 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Cation exchange capacity (Lab) |
| Variable name | CEC |
| Description | The total cation exchange capacity of the < 8 mm oven dried (70°C) portion of the forest floor sample, finely ground to 1mm. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.01 to 999.99, -1, -8, -7 |
| Format | Dec 5.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | pH (Lab) |
| Variable name | PH |
| Description | pH (hydrogen ion concentration) of the ≤ 8 mm air dried portion of the forest floor sample as measured in CaCl ₂ . Enter -1 for missing data. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 2.50 to 10.00, -1, -7 |
| Format | Dec 4.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Carbonate (Lab) |
| Variable name | CO3 |
| Description | Carbonate content of the ≤ 8 mm portion of the oven dried (70°C) forest floor sample, finely ground to 1mm. This may only apply to forest floor samples with pH ≥ 6.7 and on limestone parent materials. Report as g kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -9 if test not applicable i.e. sample has a pH ≥ 6.7 . Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.01 to 999.99, -1, -8, -9, -7 |
| Format | Dec 5.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Mass of total forest floor sample, oven dried 70°C (Lab) |
| Variable name | MASS_TOTAL |
| Description | The mass of the total forest floor sample, oven dry (70°C). Report as g. Enter -1 for missing data. |
| Permitted values/range | 0.01 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value. |

| | |
|---------------|--|
| Attribute | Mass of forest floor sample > 8 mm (Lab) |
| Variable name | MASS_GT8MM |
| Description | The mass of the > 8 mm portion of the oven dry (70°C) forest floor sample, including dead root, woody debris, moss and forest floor, excluding live roots. Report as g. Zeroes (0) are real values, i.e. if sample has no > 8 mm portion. Enter -1 for missing data. |

FOREST FLOOR ORGANIC SAMPLE INFORMATION

| | |
|------------------------|---|
| Permitted values/range | 0.00 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value, must be less than MASS_TOTAL |

| | |
|------------------------|---|
| Attribute | Mass of forest floor sample live roots (Lab) |
| Variable name | MASS_LIVE_ROOT |
| Description | The mass of the live root portion of the oven dry (70°C) forest floor sample. Report as g. Zeroes (0) are real values. Enter -1 for missing data. |
| Permitted values/range | 0.00 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value, must be less than MASS_TOTAL |

| | |
|------------------------|---|
| Attribute | Mass of forest floor sample gravel (Lab) |
| Variable name | MASS_GRAVEL |
| Description | The mass of the gravel portion of the oven dried (70°C) forest floor sample, including cobbles and stones if present. Report as g. Zeroes (0) are real values. Enter -1 for missing data. |
| Permitted values/range | 0.00 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value, must be less than MASS_TOTAL |

| | |
|------------------------|---|
| Attribute | Mass of forest floor sample ≤8mm (Lab) |
| Variable name | MASS_8MM |
| Description | The mass of the ≤8 mm portion of the oven dry (70°C) forest floor sample. Report as g. Zeroes (0) are real values. Enter -1 for missing data. |
| Permitted values/range | 0.00 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value, must be less than MASS_TOTAL |

| | |
|------------------------|--|
| Attribute | Internal designation of lab number (Lab) |
| Variable name | LAB_NUM |
| Description | Unique number given by lab to each sample processed. For example, PE20040001 Prince Edward Island, 2004, lab number 0001 (unique 4 digit number). Enter M (missing) if no lab number reported. |
| Permitted values/range | |
| Format | Char 25 |
| Rule | Must have value. |

| | |
|------------------------|---|
| Attribute | Sample layer carbon content (Compiled) |
| Variable name | LAYER_CC |
| Description | Carbon content for forest floor layer sampled in each pit. Reported in kg m ⁻² . |
| Permitted values/range | 0.00 to 999.99, -1 |
| Format | Dec 5.2 |

13e. MINERAL SOIL SAMPLE INFORMATION (soil_mineral_sample)

Indexed attributes: NFI_PLOT, MEAS_NUM, PIT_NUM, SAMPLE_NUM.

**Note: This table should be completed for all plots where mineral soil samples were collected.

| | |
|------------------------|--|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |

MINERAL SOIL SAMPLE INFORMATION

| | |
|---------|--|
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|---|
| Attribute | Soil pit number (Field) |
| Variable name | PIT_NUM |
| Description | Soil pit number or microplot number from which the sample is collected. Allows for multiple pits to be sampled. |
| Permitted values/range | MP1: Microplot 1 MP2: Microplot 2 MP3: Microplot 3 MP4: Microplot 4 LP0: Large (representative) soil pit PT1: Other location 1 PT2: Other location 2 PT3: Other location 3 PT4: Other location 4 |
| Format | Char 3 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Sample number (Field) |
| Variable name | SAMPLE_NUM |
| Description | A unique number assigned to each mineral soil sample collected from a given soil pit or microplot (PIT_NUM). At each pit, samples should be numbered in ascending order. |
| Permitted values/range | 1 to 9 |
| Format | Num 1 |
| Rule(s) | Must have value. Combination of NFI_PLOT, MEAS_NUM, PIT_NUM and SAMPLE_NUM must be unique. |

| | |
|------------------------|---|
| Attribute | Horizon designation(Field) |
| Variable name | HORIZON |
| Description | The horizon designations conform to CSSC codes (Agriculture Canada expert committee on soil survey 1998). When sampling by depth a combination of classes may be needed. Use '/' to separate codes, e.g. 'Ah/Bt'. |
| Permitted values/range | Refer to CSSC (1998). |
| Format | Char 20 |
| Rule(s) | Must have value |

| | |
|---------------|-----------------------------|
| Attribute | Horizon measurement (Field) |
| Variable name | HORIZON_MEAS |

MINERAL SOIL SAMPLE INFORMATION

| | |
|------------------------|---|
| Description | Indicates whether samples were collected by depth increment, or by pedogenic indicator. |
| Permitted values/range | D: sampled by depth P: sampled by pedogenic indicator |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Upper depth of sample (Field) |
| Variable name | SAMPLE_UPPER |
| Description | The distance from the surface of the uppermost mineral horizon (0 cm) to the top of the excavated sample. Record to the nearest 0.1 cm. Enter -1 for missing data. |
| Permitted values/range | 0 to 200.0, -1 |
| Format | Dec 4.1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Bottom depth of sample (Field) |
| Variable name | SAMPLE_BOTTOM |
| Description | The distance from the top of the uppermost mineral horizon to the bottom of the excavated sample. Record to the nearest 0.1 cm. Enter -1 for missing data. |
| Permitted values/range | 0.1 to 200.0, -1 |
| Format | Dec 4.1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Volume of mineral soil sample (Field) |
| Variable name | VOLUME |
| Description | Excavated volume of mineral soil sample. Report to the nearest mL. Enter -1 for missing data or if unable to excavate. Record 0.0 mL if unable to excavate sample, e.g. plot is located on solid bedrock with no soil. |
| Permitted values/range | 1 to 30000, -1 |
| Format | Num 5 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Sample collection method (Field) |
| Variable name | SAMPLE_METHOD |
| Description | A field indicating the technique used for the collection of the sample. |
| Permitted values/range | T: Sample collected, but method not specified F: Not sampled H: Sample collected using hole excavation/template technique S: Sample collected using a small diameter core (< 50 mm) C: Sample collected using a large diameter core (60 to 100 mm) |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Bulk density of ≤ 2 mm mineral soil (Lab) |
| Variable name | BULK_DENSITY_2MM |
| Description | The Bulk density of the ≤ 2 mm portion of the mineral soil total. All parameters required for this calculation are specified in the Appendix K of the Ground Plot Sampling Guidelines. Report in g cm ⁻³ . Enter -1 for missing or out of range data. |
| Permitted values/range | 0.010 to 2.650, -1 |
| Format | Dec 4.3 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Bulk density measurement criteria (Lab) |
| Variable name | BD_MEAS |
| Description | Bulk density measurement criteria for the entire horizon. |
| Permitted values/range | H: Bulk density measurement of horizon, excluding live root mass (e.g. larger live roots were weighed or volume estimated and discarded / left in the field). T: Total bulk density of all components (e.g. mass total / volume total). |

MINERAL SOIL SAMPLE INFORMATION

| | |
|---------|-------------------|
| | N: Not specified. |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Organic carbon content (Lab) |
| Variable name | ORG_CARB |
| Description | The organic carbon content of the ≤2mm air dried portion of the mineral soil sample, finely ground to 149 microns (100 mesh). The Organic carbon is equal to the value of Total Carbon (TOT_CARB) minus the carbonate (CO ₃) value. Report as g kg ⁻¹ . Enter -1 for missing data. Enter -7 if not requisitioned, but possible in future. Enter -8 if value is below the minimum detectable concentration for the test. |
| Permitted values/range | 0.01 to 999.99, -1, -7, -8 |
| Format | Dec 5.2 |
| Rule(s) | Must have value, must be less than or equal to the TOT_CARB. |

| | |
|------------------------|---|
| Attribute | Measured organic carbon or not (Lab) |
| Variable name | ORG_CARB_REAL |
| Description | A logical field to indicate whether the organic carbon value in the ORG_CARB field is a measured value (T) or not (F). If the organic carbon has been estimated from LOI, conversion is achieved by multiplying by 1.724 (assuming 58% of organic is organic carbon). If reporting organic carbon from LOI, enter F. Enter 'N' if not applicable. |
| Permitted values/range | T, F, N |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Total carbon (Lab) |
| Variable name | TOT_CARB |
| Description | Total carbon content of the ≤2mm air dried portion of the mineral soil sample, finely ground to 149 microns (100 mesh). Report as g kg ⁻¹ . Enter -1 for missing data. Enter -7 if not requisitioned, but possible in future. Enter -8 if value is below the minimum detectable concentration for the test. |
| Permitted values/range | 0.01 to 999.99, -1, -7, -8 |
| Format | Dec 5.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Total nitrogen (Lab) |
| Variable name | N |
| Description | The total nitrogen content of the ≤2mm portion of the air dried mineral soil sample, finely ground to 149 microns (100 mesh). Report as g kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.01 to 99.99, -1, -8, -7 |
| Format | Dec 4.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Available phosphorus (Lab) |
| Variable name | P |
| Description | The available phosphorus content of the ≤2mm air dried portion of the mineral soil sample. Report as mg kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0 to 9999, -1, -8, -7 |
| Format | Num 4 |

MINERAL SOIL SAMPLE INFORMATION

| | |
|------------------------|---|
| Rule(s) | Must have value. |
| Attribute | Exchangeable potassium (Lab) |
| Variable name | K |
| Description | Exchangeable potassium content of the ≤2mm air dried portion of the mineral soil sample. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.001 to 99.999, -1, -8, -7 |
| Format | Dec 5.3 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Exchangeable calcium (Lab) |
| Variable name | CA |
| Description | Exchangeable calcium content of the ≤2mm air dried portion of the mineral soil sample. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.01 to 999.99, -1, -8, -7 |
| Format | Dec 5.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Exchangeable magnesium (Lab) |
| Variable name | MG |
| Description | Exchangeable magnesium content of the ≤2mm air dried portion of the mineral soil sample. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.01 to 999.99, -1, -8, -7 |
| Format | 5.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Exchangeable sodium (Lab) |
| Variable name | NA |
| Description | Exchangeable sodium content of the ≤2mm air dried portion of the mineral soil sample. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.001 to 99.999, -1, -8, -7 |
| Format | Dec 5.3 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Cation exchange capacity (Lab) |
| Variable name | CEC |
| Description | The total cation exchange capacity of the ≤2mm air dried portion of the mineral soil sample. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 00.01 to 999.99, -1, -8, -7 |
| Format | Dec 5.2 |
| Rule(s) | Must have value. |

| | |
|---------------|---|
| Attribute | pH (Lab) |
| Variable name | PH |
| Description | pH (hydrogen ion concentration) of the ≤2mm air dried portion of the mineral soil sample as measured in |

MINERAL SOIL SAMPLE INFORMATION

| | |
|------------------------|--|
| | CaCl ₂ . Report value found. Enter -1 for missing data. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 2.50 to 10.00; -1, -7 |
| Format | Dec 4.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Carbonates (Lab) |
| Variable name | CO3 |
| Description | Carbonate content of the ≤2mm air dried portion of the mineral soil sample, finely ground to 149 microns (100 mesh). This may only apply to soils with pH ≥ 6.7 and on limestone parent materials. Report as g kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -9 if analysis not applicable. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.01 to 999.99, -1, -8, -9, -7 |
| Format | Dec 5.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Pyrophosphate Al and Fe (Lab) |
| Variable name | AL_FE |
| Description | Sum of analyzed values of Al and Fe found in the ≤2mm air dried portion of the mineral soil sample. Report total as mg kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 1 to 99999, -1, -8, -7 |
| Format | Num 5 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Silt content, mineral soil percent (Lab) |
| Variable name | SILT |
| Description | The silt content of the ≤2mm air dried portion of the mineral soil sample. Report as %. Zeroes (0) are real values. Enter -1 for missing data. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0 to 100, -1, -7 |
| Format | Num 3 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Clay content, mineral soil percent (Lab) |
| Variable name | CLAY |
| Description | The clay content of the ≤2mm air dried portion of the mineral soil sample. Report as %. Zeroes (0) are real values. Enter -1 for missing data. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0 to 100, -1, -7 |
| Format | Num 3 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Bulk density of total mineral sample (Lab) |
| Variable name | BULK_DENSITY_TOTAL |
| Description | The bulk density of the total mineral soil sample. All parameters required for this calculation are specified in the Appendix K. Report in g cm ⁻³ . Enter -1 for missing or out of range data. |
| Permitted values/range | 0.010 to 2.650, -1 |

MINERAL SOIL SAMPLE INFORMATION

| | |
|---------|-----------------|
| Format | Dec 4.3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Mass of total mineral soil sample, air dried (Lab) |
| Variable name | MASS_TOTAL |
| Description | The mass of the total mineral soil sample, air dried. Report as g. Enter -1 for missing data. |
| Permitted values/range | 0.01 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Mass of mineral soil sample organic matter, roots (Lab) |
| Variable name | MASS_ROOT |
| Description | The mass of the organic matter and root component of the air dry mineral soil sample. Report as g. Zeroes (0) are real values. Enter -1 for missing data. |
| Permitted values/range | 0.00 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value, must be less than MASS_TOTAL |

| | |
|------------------------|--|
| Attribute | Mass of mineral soil sample cobbles >75mm-250mm (Lab) |
| Variable name | MASS_COBBLE |
| Description | The mass of the cobble component (> 75 mm and < than 250 mm) of the air dry mineral soil sample. Report as g. Zeroes (0) are real values. Enter -1 for missing data. |
| Permitted values/range | 0.00 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value, must be less than MASS_TOTAL |

| | |
|------------------------|--|
| Attribute | Mass of mineral soil sample gravel >2mm-75mm (Lab) |
| Variable name | MASS_GRAVEL |
| Description | The mass of the gravel component (>2mm and <75 mm) of the air dry mineral soil sample. Report as g. Zeroes (0) are real values. Enter -1 for missing data. |
| Permitted values/range | 0.00 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value, must be less than MASS_TOTAL |

| | |
|------------------------|--|
| Attribute | Mass of mineral soil sample ≤2mm (Lab) |
| Variable name | MASS_2MM |
| Description | The mass of the ≤2mm portion of the air dry mineral soil sample. Report as g. Zeroes (0) are real values. Enter -1 for missing data. |
| Permitted values/range | 0.00 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value, must be less than MASS_TOTAL |

| | |
|------------------------|---|
| Attribute | Water content of air dry ≤2mm soil (Lab) |
| Variable name | SOIL_MOISTURE |
| Description | The water content of the ≤2mm soil is calculated from an approx. 50 g sub-sample of air dry soil dried to 105°C. Report as kg kg ⁻¹ . Enter -1 for missing data. |
| Permitted values/range | 0.0001 to 0.9999, -1 |
| Format | Dec 5.4 |
| Rule(s) | Must have value. |

| | |
|---------------|--------------------------------------|
| Attribute | Water content of air dry roots (Lab) |
| Variable name | ROOT_MOISTURE |

MINERAL SOIL SAMPLE INFORMATION

| | |
|------------------------|--|
| Description | The water content of the air dry roots and organic matter is dried to 105°C. (only measured if mass of roots > 1% total mass of sample). Report as kg kg ⁻¹ . Enter -1 for missing data. Enter 0.0001 if not measured because sample size too small (< 1% total mass of sample) to significantly affect results. |
| Permitted values/range | 0.0001 to 0.9999, -1 |
| Format | Dec 5.4 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Soil textural class(Lab) |
| Variable name | SOIL_TEXTURE |
| Description | Soil texture as determined from hydrometer measurements, and the CSSC Textural Triangle. Textural Class of the sample is determined by referencing values for %Sand and %Clay on the Textural Triangle. The point of Intersection of these 2 values determines the Textural Class. Report as one of the thirteen textural classes listed in permitted range. |
| Permitted values/range | HC: Heavy Clay C: Clay SC: Sandy clay SCL: Sandy clay loam CL: Clay loam SI: Silt SIL: Silt loam SIC: Silty clay SICL: Silty clay loam L: Loam SL: Sandy loam LS: Loamy sand S: Sand or M: for missing data. F: if not requisitioned, but possible in future |
| Format | Char 4 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Internal designation of lab number (Lab) |
| Variable name | LAB_NUM |
| Description | Unique number given by lab to each sample processed. For example, PE20040001 Prince Edward Island, 2004, lab number 0001 (unique 4 digit number). Enter M (missing) if no lab number reported. |
| Permitted values/range | |
| Format | Char 25 |
| Rule | Must have value. |

| | |
|------------------------|---|
| Attribute | Coarse fragment content, percent gravel (Compiled) |
| Variable name | CF_GRAV |
| Description | The percent coarse fragment content by volume of the mineral horizon. (Diameter <7.5 cm or length < 15 cm). 0: No gravels present. -1: Missing |
| Permitted values/range | 0 to 100, -1 |
| Format | Num 3 |
| Rule(s) | Must have value. CF_GRAV + CF_COBB + CF_STONE ≤ 100. |

| | |
|------------------------|---|
| Attribute | Coarse fragment content, percent cobbles (Compiled) |
| Variable name | CF_COBB |
| Description | The percent coarse fragment (diameter = 7.5 to 25 cm or length = 15 to 38 cm) content by volume of the mineral horizon. 0: No cobbles present. -1: Missing |
| Permitted values/range | 0 to 100, -1 |

| | |
|---------|---|
| Format | Num 3 |
| Rule(s) | Must have value. CF_GRAV + CF_COBB + CF_STONE ≤ 100. |

| | |
|------------------------|---|
| Attribute | Coarse fragment content, percent stones (Compiled) |
| Variable name | CF_STONE |
| Description | The percent coarse fragment (diameter > 25 cm or length > 38 cm) content by volume of the mineral horizon. 0 : No stones present. -1 : Missing |
| Permitted values/range | 0 to 100, -1 |
| Format | Num 3 |
| Rule(s) | Must have value. CF_GRAV + CF_COBB + CF_STONE ≤ 100. |

| | |
|------------------------|--|
| Attribute | Sample layer carbon content (Compiled) |
| Variable name | LAYER_CC |
| Description | Carbon content for mineral soil layer sampled in each pit. Reported in kg m ² . |
| Permitted values/range | 0 to 999.99, -1 |
| Format | Dec 5.2 |

13f. ORGANIC SOIL SAMPLE INFORMATION (soil_org_sample)

Indexed attributes: NFI_PLOT, MEAS_DATE, MEAS_NUM, PIT_NUM, SAMPLE_NUM.

****Note:** This table should be completed for all plots where organic soil samples were collected.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement date (Field) |
| Variable name | MEAS_DATE |
| Description | The date of information capture in the field. |
| Permitted values/range | Jan 1, 1995 to present date. |
| Format | Date 11 (YYYY-MON-DD) |
| Rule(s) | Must have value. Jan 1, 1995 to present date. Measurement dates and measurement numbers correspond chronologically. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

ORGANIC SOIL SAMPLE INFORMATION

| | |
|------------------------|---|
| Attribute | Soil pit number (Field) |
| Variable name | PIT_NUM |
| Description | Soil pit number or microplot number from which the sample is collected. Allows for multiple pits to be sampled. |
| Permitted values/range | MP1: Microplot 1 MP2: Microplot 2 MP3: Microplot 3 MP4: Microplot 4 LP0: Large (representative) soil pit PT1: Other location 1 PT2: Other location 2 PT3: Other location 3 PT4: Other location 4 |
| Format | Char 3 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Sample number (Field) |
| Variable name | SAMPLE_NUM |
| Description | A unique number assigned to each organic soil sample collected from a given soil pit or microplot (PIT_NUM). At each pit, samples should be numbered in ascending order. |
| Permitted values/range | 1 to 9 |
| Format | Num 1 |
| Rule(s) | Must have value. Combination of NFI_PLOT, MEAS_NUM, PIT_NUM and SAMPLE_NUM must be unique. |

| | |
|------------------------|---|
| Attribute | Horizon Designation (Field) |
| Variable name | HORIZON |
| Description | The horizon designations conform to CSSC codes (Agriculture Canada expert committee on soil survey 1998). When sampling by depth a combination of classes may be needed. Use '/' to separate codes, e.g. 'Ah/Bt'. |
| Permitted values/range | Refer to CSSC (1998). |
| Format | Char 20 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Horizon measurement (Field) |
| Variable name | HORIZON_MEAS |
| Description | Indicates whether samples were collected by depth increment, or by pedogenic indicator. |
| Permitted values/range | D: horizon sampled by depth P: horizon sampled by pedogenic indicator |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Upper depth of sample (Field) |
| Variable name | SAMPLE_UPPER |
| Description | The distance from the surface of the uppermost organic soil horizon (0 cm) to the top of the excavated sample. Record to the nearest 0.1 cm. Enter -1 for missing data. |
| Permitted values/range | 0.0 to 200.0; -1 |
| Format | Dec 4.1 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Bottom depth of sample (Field) |
| Variable name | SAMPLE_BOTTOM |
| Description | The distance from the surface of the uppermost horizon of organic soil to the bottom of the organic soil sample collected. Record to the nearest 0.1 cm. Enter -1 for missing data. |
| Permitted values/range | 0.1 to 200.0; -1 |
| Format | Dec 4.1 |

ORGANIC SOIL SAMPLE INFORMATION

| | |
|------------------------|--|
| Rule(s) | Must have value |
| Attribute | Volume of organic soil sample (Field) |
| Variable name | VOLUME |
| Description | Excavated volume of organic material. Report to the nearest mL.. Enter -1 for missing data or if unable to excavate. |
| Permitted values/range | 1 to 30000, -1 |
| Format | Num 5 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Sample collection method (Field) |
| Variable name | SAMPLE_METHOD |
| Description | A field indicating the technique used for the collection of the sample. |
| Permitted values/range | T: Sample collected, but method not specified F: Not sampled H: Sample collected using hole excavation/template technique S: Sample collected using a small diameter core (< 50 mm) C: Sample collected using a large diameter core (60 to 100 mm) |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Bulk density of ≤8mm organic soil (Lab) |
| Variable name | BULK_DENSITY_8MM |
| Description | The Bulk density of the ≤8mm portion of the organic soil sample, oven dry (70°C). All parameters required for this calculation are specified in the Appendix K. Report as g cm ⁻³ . Enter -1 for missing data. |
| Permitted values/range | 0.010 to 1.000, -1 |
| Format | Dec 4.3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Bulk density measurement criteria (Lab) |
| Variable name | BD_MEAS |
| Description | Bulk density measurement criteria for the entire horizon. |
| Permitted values/range | H: Bulk density measurement of horizon excluding live root mass. T: Total of all bulk density of samples. N: Not specified. |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Organic carbon content (Lab) |
| Variable name | ORG_CARB |
| Description | The organic carbon content of the ≤8mm oven dried (70°C) portion of the organic soil sample, finely ground to 1mm. The Organic carbon is equal to the value of Total Carbon (TOT_CARB) minus the carbonate (CO ₃) value. Report as g kg ⁻¹ . Enter -1 for missing data Enter -7 if not requisitioned, but possible in future.. Enter -8 if value is below the minimum detectable concentration for the test. |
| Permitted values/range | 0.01 to 999.99; -1, -7, -8 |
| Format | Dec 5.2 |
| Rule(s) | Must have value |

| | |
|---------------|---|
| Attribute | Measured organic carbon or not (Lab) |
| Variable name | ORG_CARB_REAL |
| Description | A logical field to indicate whether the organic carbon value in the ORG_CARB field is a measured value (T) or not (F). If the organic carbon has been estimated from LOI, conversion is achieved by multiplying by 1.724 (assuming 58% of organic is organic carbon). If reporting organic carbon from LOI, enter F. Enter 'N' if not applicable. |

ORGANIC SOIL SAMPLE INFORMATION

| | |
|------------------------|-----------------|
| Permitted values/range | T, F, N |
| Format | Char 1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Total carbon (Lab) |
| Variable name | TOT_CARB |
| Description | Total carbon content of the ≤8mm oven dried (70°C) portion of the organic soil sample, finely ground to 1mm. Report as g kg ⁻¹ . Enter -1 for missing data. Enter -7 if not requisitioned, but possible in future. Enter -8 if value is below the minimum detectable concentration for the test. |
| Permitted values/range | 0.01 to 999.99, -1, -7, -8 |
| Format | Dec 5.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Total nitrogen (Lab) |
| Variable name | N |
| Description | Total nitrogen content of the ≤8mm oven dried (70°C) portion of the organic soil sample, finely ground to 1mm. Report as g kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.01 to 99.99, -1, -8, -7 |
| Format | Dec 4.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Available phosphorus (Lab) |
| Variable name | P |
| Description | The available phosphorus content of the ≤8mm oven dried (70°C) portion of the organic soil sample, finely ground to 1mm. Report as mg kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0 to 9999, -1, -8, -7 |
| Format | Num 4 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Total phosphorus (Lab) |
| Variable name | TOTAL_P |
| Description | Total phosphorus content of the ≤8mm oven dried (70°C) portion of the organic soil sample, finely ground to 1mm. Report as mg kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0 to 9999; -1, -8, -7 |
| Format | Num 4 |
| Rule(s) | Must have value. |

| | |
|---------------|--|
| Attribute | Exchangeable potassium (Lab) |
| Variable name | K |
| Description | Exchangeable potassium content of the ≤8mm oven dried (70°C) portion of the organic soil sample, finely ground to 1mm. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |

ORGANIC SOIL SAMPLE INFORMATION

| | |
|------------------------|-----------------------------|
| Permitted values/range | 0.001 to 99.999, -1, -8, -7 |
| Format | Dec 5.3 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Exchangeable calcium (Lab) |
| Variable name | CA |
| Description | Exchangeable calcium content of the ≤8mm oven dried (70°C) portion of the organic soil sample, finely ground to 1mm. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.01 to 999.99, -1, -8, -7 |
| Format | Dec 5.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Exchangeable magnesium (Lab) |
| Variable name | MG |
| Description | Exchangeable magnesium content of the ≤8mm oven dried (70°C) portion of the organic soil sample, finely ground to 1mm. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 00.01 to 999.99, -1, -8, -7 |
| Format | Dec 5.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Exchangeable sodium (Lab) |
| Variable name | NA |
| Description | Exchangeable sodium content of ≤8mm oven dried (70°C) portion of the organic soil sample, finely ground to 1mm. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future |
| Permitted values/range | 0.001 to 99.999, -1, -8, -7 |
| Format | Dec 5.3 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Cation exchange capacity (Lab) |
| Variable name | CEC |
| Description | The total cation exchange capacity of the ≤8mm oven dried (70°C) portion of the organic soil sample, finely ground to 1mm. Report as cmol kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 0.01 to 999.99, -1, -8, -7 |
| Format | Dec 5.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | pH (Lab) |
| Variable name | PH |
| Description | pH (hydrogen ion concentration) of the ≤8mm air dried portion of the organic soil sample as measured in CaCl ₂ . Report value found. Enter -1 for missing data. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 2.50 to 10.00, -1, -7 |

ORGANIC SOIL SAMPLE INFORMATION

| | |
|---------|------------------|
| Format | Dec 4.2 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Carbonates (Lab) |
| Variable name | CO3 |
| Description | Carbonate content of the ≤8mm oven dried (70°C) portion of the organic soil sample, finely ground to 1mm. This may only apply to soils with pH ≥ 6.7 and on limestone parent materials. Report as g kg ⁻¹ . Enter -1 for missing data. Enter -8 if value is below the minimum detectable concentration for the test. Enter -9 if analysis not applicable. Enter -7 if not requisitioned, but possible in future. |
| Permitted values/range | 00.01 to 999.99, -1, -8, -9, -7 |
| Format | Dec 5.3 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Mass of the total organic soil sample, oven dried 70°C (Lab) |
| Variable name | MASS_TOTAL |
| Description | The mass of the total organic soil sample, oven dry (70°C). Report as g. Enter -1 for missing data. |
| Permitted values/range | 0.01 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Mass of the organic soil sample >8mm (Lab) |
| Variable name | MASS_GT8MM |
| Description | The mass of the >8mm portion of the organic soil sample, oven dry (70°C), including dead root, woody debris, and moss, excluding live roots. Report as g. Zeroes (0) are real values. Enter -1 for missing data. |
| Permitted values/range | 0.00 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value, must be less than MASS_TOTAL |

| | |
|------------------------|---|
| Attribute | Mass of organic sample live roots (Lab) |
| Variable name | MASS_LIVE_ROOT |
| Description | The mass of the live root portion of the oven dry (70°C) organic soil sample. Report as g. Zeroes (0) are real values. Enter -1 for missing data. |
| Permitted values/range | 0.00 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value, must be less than MASS_TOTAL |

| | |
|------------------------|---|
| Attribute | Mass of organic soil sample gravel (Lab) |
| Variable name | MASS_GRAVEL |
| Description | The mass of the gravel portion of the oven dry (70°C) organic soil sample, including cobbles and stones if present. Report as g. Zeroes (0) are real values. Enter -1 for missing data. |
| Permitted values/range | 0.00 to 5000.00, -1 |
| Format | Dec 6.2 |
| Rule(s) | Must have value, must be less than MASS_TOTAL |

| | |
|------------------------|---|
| Attribute | Mass of organic soil sample ≤8mm (Lab) |
| Variable name | MASS_8MM |
| Description | The mass of the ≤8 mm portion of the oven dry (70°C) organic soil sample. Report as g. Zeroes (0) are real values. Enter -1 for missing data. |
| Permitted values/range | 0.00 to 5000.00, -1 |

| | |
|---------|---|
| Format | Dec 6.2 |
| Rule(s) | Must have value, must be less than MASS_TOTAL |

| | |
|------------------------|--|
| Attribute | Internal designation of lab number (Lab) |
| Variable name | LAB_NUM |
| Description | Unique number given by lab to each sample processed. For example, PE20040001 Prince Edward Island, 2004, lab number 0001 (unique 4 digit number). Enter M (missing) if no lab number reported. |
| Permitted values/range | |
| Format | Char 25 |
| Rule | Must have value. |

| | |
|------------------------|---|
| Attribute | Sample layer carbon content (Compiled) |
| Variable name | LAYER_CC |
| Description | Carbon content for organic soil layer sampled in each pit. Reported in kg m ⁻² . |
| Permitted values/range | 0.00 to 999.99, -1 |
| Format | Dec 5.2 |

14. RELATIVE ABUNDANCE FOR LARGE TREE SPECIES

Indexed attributes: NFI_PLOT, MEAS_NUM, GENUS, SPECIES.

**Note: this table is compiled by the CFS project office.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Species number (Field) |
| Variable name | SPECIES_NUM |
| Description | Species in the plot are numbered in order, from most abundant to least abundant. |
| Permitted values/range | 0 to 99 |
| Format | Num 2 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Genus (Compiled) |
| Variable name | GENUS |
| Description | Genus code. The first four letters of the scientific genus name. Unidentified genus is coded as GENC for conifers, GENH for hardwoods, or UNKN if unknown. |
| Permitted values/range | For a list of acceptable genus codes, refer to the <i>NFI Tree Species List</i> . |
| Format | Char 4 |

RELATIVE ABUNDANCE FOR LARGE TREE SPECIES

| | |
|------------------------|---|
| Attribute | Species (Compiled) |
| Variable name | SPECIES |
| Description | Species code. The first three letters of the scientific species name. Unidentified species is coded as SPP . |
| Permitted values/range | For a list of acceptable species codes, refer to the <i>NFI Tree Species List</i> . |
| Format | Char 3 |

| | |
|------------------------|--|
| Attribute | Variety (Compiled) |
| Variable name | VARIETY |
| Description | Variety code. The first 3 letters of the scientific variety name. Left blank if variety is unidentified. |
| Permitted values/range | |
| Format | Char 3 |
| Rule(s) | May be blank |

| | |
|------------------------|--|
| Attribute | Relative abundance for large trees (Compiled) |
| Variable name | SPECIES_LTREL |
| Description | The relative abundance, by species, of large tree species in an area. It is expressed as a proportion. |
| Permitted values/range | 0.000 to 1.000 |
| Format | Dec 4.3 |

15. RELATIVE ABUNDANCE FOR SMALLTREE SPECIES

Indexed attributes: **NFI_PLOT**, **MEAS_NUM**, **GENUS**, **SPECIES**.

****Note:** this table is compiled by the CFS project office.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|--|
| Attribute | Species number (Field) |
| Variable name | SPECIES_NUM |
| Description | Species in the plot are numbered in order, from most abundant to least abundant. |
| Permitted values/range | 0 to 99 |
| Format | Num 2 |
| Rule(s) | Must have value. |

| | |
|---------------|------------------|
| Attribute | Genus (Compiled) |
| Variable name | GENUS |

| | |
|------------------------|---|
| Description | Genus code. The first four letters of the scientific genus name. Unidentified genus is coded as GENC for conifers, GENH for hardwoods, or UNKN if unknown. |
| Permitted values/range | For a list of acceptable genus codes, refer to the <i>NFI Tree Species List</i> . |
| Format | Char 4 |

| | |
|------------------------|---|
| Attribute | Species (Compiled) |
| Variable name | SPECIES |
| Description | Species code. The first three letters of the scientific species name. Unidentified species is coded as SPP . |
| Permitted values/range | For a list of acceptable species codes, refer to the <i>NFI Tree Species List</i> . |
| Format | Char 3 |

| | |
|------------------------|--|
| Attribute | Variety (Compiled) |
| Variable name | VARIETY |
| Description | Variety code. The first 3 letters of the scientific variety name. Left blank if variety is unidentified. |
| Permitted values/range | |
| Format | Char 3 |
| Rule(s) | May be blank |

| | |
|------------------------|--|
| Attribute | Relative abundance for small trees (Compiled) |
| Variable name | SPECIES_SMTREL |
| Description | The relative abundance, by species, of small tree species in an area. It is expressed as a proportion. |
| Permitted values/range | 0.000 to 1.000 |
| Format | Dec 4.3 |

16. RELATIVE ABUNDANCE FOR ECOLOGICAL SPECIES

Indexed attributes: **NFI_PLOT**, **MEAS_NUM**, **GENUS**, **SPECIES**.

**Note: this table is compiled by the CFS project office.

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement number (Field) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|---------------|-----------------------------|
| Attribute | Ecological layer ID (Field) |
| Variable name | EC_LAYERID |

| | |
|------------------------|---|
| Description | Record the ecological layer in which the species occurs. A species may occur in more than one layer at a plot. Each unique combination of species and layer, should be entered as a separate record. A Tree Layer: Any species taller than 10 m in height. These are usually tree species. For the ecology plots, no sub-division of height within this layer is necessary. B1 Tall Shrub Layer: Includes woody species (tree and shrub) > 2.0 m and < 10 m in height. B2 Low Shrub Layer: Includes woody species (tree and shrub) where the entire plant is < 2.0 m in height. Tree species at least two years old. C Herb Layer: Herbaceous species including forbs, ferns, grasses, sedges, rushes, saprophytes, club-mosses, horsetails, and some low woody species. D Bryoid Layer: Includes mosses, liverworts, foliose and fruticose lichens, and tree seedlings less than 2 years old. |
| Permitted values/range | May include any 3 character string. |
| Format | Char 3 |
| Rule(s) | Must have value. |

| | |
|------------------------|--|
| Attribute | Species number (Field) |
| Variable name | SPECIES_NUM |
| Description | Species in the plot are numbered in order, from most abundant to least abundant. |
| Permitted values/range | 0 to 99 |
| Format | Num 2 |
| Rule(s) | Must have value. |

| | |
|------------------------|---|
| Attribute | Genus (Compiled) |
| Variable name | GENUS |
| Description | Genus code. The first four letters of the scientific genus name. Unidentified genus is coded as UNKN . |
| Permitted values/range | |
| Format | Char 4 |

| | |
|------------------------|---|
| Attribute | Species (Compiled) |
| Variable name | SPECIES |
| Description | Species code. The first three letters of the scientific species name. Unidentified species is coded as SPP . |
| Permitted values/range | |
| Format | Char 3 |

| | |
|------------------------|--|
| Attribute | Variety (Compiled) |
| Variable name | VARIETY |
| Description | Variety code. The first 3 letters of the scientific variety name. Left blank if variety is unidentified. |
| Permitted values/range | |
| Format | Char 3 |
| Rule(s) | May be blank |

| | |
|------------------------|--|
| Attribute | Relative abundance for ecological species (Compiled) |
| Variable name | SPECIES_ECREL |
| Description | The relative abundance, by species, of shrubs, herbs, mosses, lichens and liverwort species in an area. It is expressed as a proportion. |
| Permitted values/range | 0.000 to 1.000 |
| Format | Dec 4.3 |

17. UNIQUE SPECIES LIST

Indexed attributes: **NFI_PLOT, MEAS_NUM**

| | |
|---------------|---|
| Attribute | NFI network label (Compiled) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |

| | |
|------------------------|--|
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|------------------------|---|
| Attribute | Measurement number (Compiled) |
| Variable name | MEAS_NUM |
| Description | A newly established plot will have measurement number = 0. First re-measurement would be 1, etc. |
| Permitted values/range | 0 to 999 |
| Format | Num 3 |
| Rule(s) | Must have value. Measurement numbers are consecutive starting from 0 (e.g. 0, 1, 2, 3 not 1, 3). Measurement date and measurement number must correspond chronologically, e.g. more recent dates correspond with larger measurement numbers. |

| | |
|------------------------|---|
| Attribute | Genus (Compiled) |
| Variable name | GENUS |
| Description | Genus code. The first four letters of the scientific genus name. Unidentified genus is coded as GENC for conifers, GENH for hardwoods, or UNKN if unknown. |
| Permitted values/range | For a list of acceptable genus codes, refer to the <i>NFI Tree Species List</i> . |
| Format | Char 4 |

| | |
|------------------------|---|
| Attribute | Species (Compiled) |
| Variable name | SPECIES |
| Description | Species code. The first three letters of the scientific species name. Unidentified species is coded as SPP . |
| Permitted values/range | For a list of acceptable species codes, refer to the <i>NFI Tree Species List</i> . |
| Format | Char 3 |

| | |
|------------------------|--|
| Attribute | Variety (Compiled) |
| Variable name | VARIETY |
| Description | Variety code. The first 3 letters of the scientific variety name. Left blank if variety is unidentified. |
| Permitted values/range | |
| Format | Char 3 |
| Rule(s) | May be blank |

18. CLIMATE INFORMATION

Indexed attributes: **NFI_PLOT, YEAR**

| | |
|------------------------|---|
| Attribute | NFI network label (Field) |
| Variable name | NFI_PLOT |
| Description | The Number National Forest Inventory label that identifies the point on the network associated with the ground plot. Note that values > 2000000 indicate FLUXNET, PERD or other data source information. |
| Permitted values/range | NFI: 1 to 1600000 FLUXNET: 2000000 to 2199999 PERD: 2200000 to 2399999 |
| Format | Num 7 |
| Rule(s) | Must have value. NFI_PLOT and MEAS_NUM must be unique. No letters allowed in the format. |

| | |
|---------------|------|
| Attribute | Year |
| Variable name | YEAR |

| | |
|------------------------|---|
| Description | Year associated with climate information. |
| Permitted values/range | 1901 to present |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Longitude |
| Variable name | LONGITUDE |
| Description | Longitude of plot centre in decimal degrees. |
| Permitted values/range | |
| Format | Dec 7.4 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Latitude |
| Variable name | LATITUDE |
| Description | Elevation of plot centre in decimal degrees. |
| Permitted values/range | |
| Format | Dec 7.4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Elevation |
| Variable name | ELEVATION |
| Description | Elevation of plot centre based on 3 arc second dem. |
| Permitted values/range | 0 to 9999 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Mean diurnal range (Mean (period max-min)) |
| Variable name | MEAN_DIURNAL_RANGE |
| Description | The mean of all the monthly diurnal temperature ranges (°C). Each monthly diurnal range is the difference between that month's maximum and minimum temperature. |
| Permitted values/range | 3.0 to 16.0 |
| Format | Dec 3.1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Isothermality |
| Variable name | ISOTHERMALITY |
| Description | The mean diurnal range divided by the annual temperature range. |
| Permitted values/range | 0.10 to 0.50 |
| Format | Dec 3.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Temperature Seasonality (C of V) |
| Variable name | TEMP_SEASONALITY |
| Description | The temperature Coefficient of Variation (C of V) is the standard deviation of the monthly mean temperatures expressed as a percentage of the mean of those temperatures (i.e. the annual mean). For this calculation, the mean in degrees Kelvin is used. This avoids the possibility of having to divide by zero, but does mean that the values are usually quite small. |
| Permitted values/range | 1.00 to 8.00 |
| Format | Dec 3.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Max Temperature of Warmest Period |
| Variable name | MAXTEMP_WARMEST |
| Description | The highest temperature of any monthly maximum temperature (°C). |
| Permitted values/range | 10.0 to 35.0 |
| Format | Dec 3.1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Min Temperature of Coldest Period |
| Variable name | MINTEMP_COLDEST |
| Description | The lowest temperature of any monthly minimum temperature (°C). |
| Permitted values/range | -55.0 to 5.0 |
| Format | Dec 3.1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Temperature Annual Range |
| Variable name | TEMP_ANNUAL_RANGE |
| Description | The difference between the Max Temperature of Warmest Period and the Min Temperature of Coldest Period (°C). |
| Permitted values/range | 10.0 to 75.0 |
| Format | Dec 3.1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Mean Temperature of Wettest Quarter |
| Variable name | MEANTEMP_WETTEST_QTR |
| Description | The wettest quarter of the year is determined (to the nearest week), and the mean temperature of this period is calculated (°C). |
| Permitted values/range | -35.0 to 25.0 |
| Format | Dec 3.1 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Mean Temperature of Driest Quarter |
| Variable name | MEANTEMP_DRIEST_QTR |
| Description | The driest quarter of the year is determined (to the nearest week), and the mean temperature of this period is calculated (°C). |
| Permitted values/range | -40.0 to 25.0 |
| Format | Dec 3.1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Mean Temperature of Warmest Quarter |
| Variable name | MEANTEMP_WARMEST_QTR |
| Description | The warmest quarter of the year is determined (to the nearest week), and the mean temperature of this period is calculated (°C). |
| Permitted values/range | 0.0 to 25.0 |
| Format | Dec 3.1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Mean Temperature of Coldest Quarter |
| Variable name | MEANTEMP_COLDEST_QTR |
| Description | The coldest quarter of the year is determined (to the nearest week), and the mean temperature of this period is calculated (°C). |
| Permitted values/range | -40.0 to 10.0 |
| Format | Dec 3.1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Annual Precipitation |
| Variable name | ANNUAL_PRECIP |
| Description | The sum of all the monthly precipitation estimates (mm). |
| Permitted values/range | 0 to 5000 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Precipitation of Wettest Period |
| Variable name | PRECIP_WETTEST_PRD |
| Description | The precipitation of the wettest week or month, depending on the time step (mm). |
| Permitted values/range | 0 to 1500 |

| | |
|---------|-----------------|
| Format | Num 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Precipitation of Driest Period |
| Variable name | PRECIP_DRIEST_PRD |
| Description | The precipitation of the driest month (mm). |
| Permitted values/range | 0 to 250 |
| Format | Num 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Precipitation Seasonality(C of V) |
| Variable name | PRECIP_SEASONALITY |
| Description | The Coefficient of Variation (C of V) is the standard deviation of the monthly precipitation estimates expressed as a percentage of the mean of those estimates (i.e. the annual mean). |
| Permitted values/range | 0 to 250 |
| Format | Num 3 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Precipitation of Wettest Quarter |
| Variable name | PRECIP_WETTEST_QTR |
| Description | The wettest quarter of the year is determined (to the nearest week), and the total precipitation over this period is calculated (mm). |
| Permitted values/range | 0 to 2500 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Precipitation of Driest Quarter |
| Variable name | PRECIP_DRIEST_QTR |
| Description | The driest quarter of the year is determined (to the nearest week), and the total precipitation over this period is calculated (mm). |
| Permitted values/range | 0 to 1000 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Precipitation of Warmest Quarter |
| Variable name | PRECIP_WARMEST_QTR |
| Description | The warmest quarter of the year is determined (to the nearest week), and the total precipitation over this period is calculated (mm). |
| Permitted values/range | 0 to 1000 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Precipitation of Coldest Quarter |
| Variable name | PRECIP_COLDEST_QTR |
| Description | The coldest quarter of the year is determined (to the nearest week), and the total precipitation over this period is calculated (mm). |
| Permitted values/range | 0 to 2000 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Julian day number of start of growing season |
| Variable name | GROW_SEASON_START |
| Description | The growing season was defined as starting when the mean daily temperature was greater than or equal to 5°C for 5 consecutive days beginning March 1. |
| Permitted values/range | -9999 to 225 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Julian day number of end of growing season |
| Variable name | GROW_SEASON_END |
| Description | The growing season ended when the minimum temperature was less than -2°C beginning August 1. |
| Permitted values/range | -9999 to 364 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Number of days of growing season |
| Variable name | GROW_SEASON_LENGTH |
| Description | The number of days from the first day of the growing season to the last day of the growing season. |
| Permitted values/range | -9999 to 345 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Total precipitation for period 1 |
| Variable name | TOT_PRECIP_PRD1 |
| Description | The total precipitation in the three months prior to growing season (mm). |
| Permitted values/range | -9999 to 2000.0 |
| Format | Dec 5.1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Total precipitation for period 3 |
| Variable name | TOT_PRECIP_PRD3 |
| Description | The total precipitation in the entire growing season (mm). |
| Permitted values/range | -9999 to 3500.0 |
| Format | Dec 5.1 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | Growing degree-days above base_temp for period 3 |
| Variable name | GDD_PRD3 |
| Description | Growing degree days in the entire growing season (base temperature 5°C). |
| Permitted values/range | -9999 to 3000 |
| Format | Num 4 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Annual mean temperature |
| Variable name | ANNUAL_MEANTEMP |
| Description | The mean of the average monthly temperatures (C°) |
| Permitted values/range | -9999 to 15.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Annual minimum temperature |
| Variable name | ANNUAL_MINTEMP |
| Description | Average of the 12 monthly minimum temperatures (C°) |
| Permitted values/range | -9999 to 10.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Annual maximum temperature |
| Variable name | ANNUAL_MAXTEMP |
| Description | Average of the 12 monthly maximum temperatures (C°) |
| Permitted values/range | -9999 to 20.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|---------------|-------------------------------|
| Attribute | Mean temperature for period 3 |
| Variable name | MEANTEMP_PRD3 |

| | |
|------------------------|---|
| Description | Mean temperature for the entire growing season (C°) |
| Permitted values/range | -9999 to 20.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | Temperature range for period 3 |
| Variable name | TEMP_RANGE_PRD3 |
| Description | Temperature range for the entire growing season (C°). |
| Permitted values/range | -9999 to 40.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | January mean monthly minimum temperature |
| Variable name | MEAN_MINTEMP_JAN |
| Description | Mean of the minimum daily temperatures for January (C°). |
| Permitted values/range | -55.00 to 10.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | February mean monthly minimum temperature |
| Variable name | MEAN_MINTEMP_FEB |
| Description | Mean of the minimum daily temperatures for February (C°). |
| Permitted values/range | -55.00 to 10.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | March mean monthly minimum temperature |
| Variable name | MEAN_MINTEMP_MAR |
| Description | Mean of the minimum daily temperatures for March (C°). |
| Permitted values/range | -45.00 to 10.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | April mean monthly minimum temperature |
| Variable name | MEAN_MINTEMP_APR |
| Description | Mean of the minimum daily temperatures for April (C°). |
| Permitted values/range | -35.00 to 10.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | May mean monthly minimum temperature |
| Variable name | MEAN_MINTEMP_MAY |
| Description | Mean of the minimum daily temperatures for May (C°). |
| Permitted values/range | -20.00 to 15.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | June mean monthly minimum temperature |
| Variable name | MEAN_MINTEMP_JUN |
| Description | Mean of the minimum daily temperatures for June (C°). |
| Permitted values/range | -10.00 to 20.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | July mean monthly minimum temperature |
| Variable name | MEAN_MINTEMP_JUL |
| Description | Mean of the minimum daily temperatures for July (C°). |
| Permitted values/range | -5.00 to 25.00 |

| | |
|---------|-----------------|
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | August mean monthly minimum temperature |
| Variable name | MEAN_MINTEMP_AUG |
| Description | Mean of the minimum daily temperatures for August (C°). |
| Permitted values/range | -10.00 to 25.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | September mean monthly minimum temperature |
| Variable name | MEAN_MINTEMP_SEP |
| Description | Mean of the minimum daily temperatures for September (C°). |
| Permitted values/range | -15.00 to 20.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | October mean monthly minimum temperature |
| Variable name | MEAN_MINTEMP_OCT |
| Description | Mean of the minimum daily temperatures for October (C°). |
| Permitted values/range | -25.00 to 15.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | November mean monthly minimum temperature |
| Variable name | MEAN_MINTEMP_NOV |
| Description | Mean of the minimum daily temperatures for November (C°). |
| Permitted values/range | -40.00 to 10.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | December mean monthly minimum temperature |
| Variable name | MEAN_MINTEMP_DEC |
| Description | Mean of the minimum daily temperatures for December (C°). |
| Permitted values/range | -55.00 to 10.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | January mean monthly maximum temperature |
| Variable name | MEAN_MAXTEMP_JAN |
| Description | Mean of the maximum daily temperatures for January (C°). |
| Permitted values/range | -50.00 to 15.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | February mean monthly maximum temperature |
| Variable name | MEAN_MAXTEMP_FEB |
| Description | Mean of the maximum daily temperatures for February (C°). |
| Permitted values/range | -40.00 to 15.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | March mean monthly maximum temperature |
| Variable name | MEAN_MAXTEMP_MAR |
| Description | Mean of the maximum daily temperatures for March (C°). |
| Permitted values/range | -30.00 to 20.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | April mean monthly maximum temperature |
| Variable name | MEAN_MAXTEMP_APR |
| Description | Mean of the maximum daily temperatures for April (C°). |
| Permitted values/range | -20.00 to 25.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | May mean monthly maximum temperature |
| Variable name | MEAN_MAXTEMP_MAY |
| Description | Mean of the maximum daily temperatures for May (C°). |
| Permitted values/range | -5.00 to 30.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | June mean monthly maximum temperature |
| Variable name | MEAN_MAXTEMP_JUN |
| Description | Mean of the maximum daily temperatures for June (C°). |
| Permitted values/range | 0.00 to 35.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | July mean monthly maximum temperature |
| Variable name | MEAN_MAXTEMP_JUL |
| Description | Mean of the maximum daily temperatures for July (C°). |
| Permitted values/range | 0.00 to 40.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | August mean monthly maximum temperature |
| Variable name | MEAN_MAXTEMP_AUG |
| Description | Mean of the maximum daily temperatures for August (C°). |
| Permitted values/range | 0.00 to 40.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | September mean monthly maximum temperature |
| Variable name | MEAN_MAXTEMP_SEP |
| Description | Mean of the maximum daily temperatures for September (C°). |
| Permitted values/range | -5.00 to 35.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | October mean monthly maximum temperature |
| Variable name | MEAN_MAXTEMP_OCT |
| Description | Mean of the maximum daily temperatures for October (C°). |
| Permitted values/range | -15.00 to 25.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | November mean monthly maximum temperature |
| Variable name | MEAN_MAXTEMP_NOV |
| Description | Mean of the maximum daily temperatures for November (C°). |
| Permitted values/range | -35.00 to 15.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | December mean monthly maximum temperature |
| Variable name | MEAN_MAXTEMP_DEC |
| Description | Mean of the maximum daily temperatures for December (C°). |
| Permitted values/range | -45.00 to 15.00 |
| Format | Dec 4.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | January total monthly precipitation |
| Variable name | TOTAL_PRECIP_JAN |
| Description | Total monthly precipitation for January (mm). |
| Permitted values/range | 0.00 to 1000.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | February total monthly precipitation |
| Variable name | TOTAL_PRECIP_FEB |
| Description | Total monthly precipitation for February (mm). |
| Permitted values/range | 0.00 to 1000.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | March total monthly precipitation |
| Variable name | TOTAL_PRECIP_MAR |
| Description | Total monthly precipitation for March (mm). |
| Permitted values/range | 0.00 to 1000.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | April total monthly precipitation |
| Variable name | TOTAL_PRECIP_APR |
| Description | Total monthly precipitation for April (mm). |
| Permitted values/range | 0.00 to 1000.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | May total monthly precipitation |
| Variable name | TOTAL_PRECIP_MAY |
| Description | Total monthly precipitation for May (mm). |
| Permitted values/range | 0.00 to 1000.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | June total monthly precipitation |
| Variable name | TOTAL_PRECIP_JUN |
| Description | Total monthly precipitation for June (mm). |
| Permitted values/range | 0.00 to 1000.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | July total monthly precipitation |
| Variable name | TOTAL_PRECIP_JUL |
| Description | Total monthly precipitation for July (mm). |
| Permitted values/range | 0.00 to 1000.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|---------------|------------------------------------|
| Attribute | August total monthly precipitation |
| Variable name | TOTAL_PRECIP_AUG |

| | |
|------------------------|--|
| Description | Total monthly precipitation for August (mm). |
| Permitted values/range | 0.00 to 1000.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | September total monthly precipitation |
| Variable name | TOTAL_PRECIP_SEP |
| Description | Total monthly precipitation for September (mm). |
| Permitted values/range | 0.00 to 1000.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|---|
| Attribute | October total monthly precipitation |
| Variable name | TOTAL_PRECIP_OCT |
| Description | Total monthly precipitation for October (mm). |
| Permitted values/range | 0.00 to 1000.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | November total monthly precipitation |
| Variable name | TOTAL_PRECIP_NOV |
| Description | Total monthly precipitation for November (mm). |
| Permitted values/range | 0.00 to 1500.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

| | |
|------------------------|--|
| Attribute | December total monthly precipitation |
| Variable name | TOTAL_PRECIP_DEC |
| Description | Total monthly precipitation for December (mm). |
| Permitted values/range | 0.00 to 1500.00 |
| Format | Dec 6.2 |
| Rule(s) | Must have value |

References

- Agriculture Canada Expert Committee on Soil Survey. 1983. The Canada soil information system (CanSIS) manual for describing soils in the field. 1982 Revised. Agriculture Canada, Ottawa, Ontario. 164 pp.
- Kalra, Y.P.; Maynard, D.G. 1991. Methods manual for forest soil and plant analysis. For. Can., Northwest Reg., North. For. Cent., Edmonton, Alberta. Inf. Rep. NOR-X-319.
- Klinka, K.; Green, R.N.; Trowbridge, R.L.; and Lowe, L.E. 1981. Taxonomic Classification of Humus Forms in Ecosystems of British Columbia – First Approximation. Land Mgt. Report No. 8. Ministry of Forests. Victoria, B.C.
- Mackey, B.G.; McKenney, D.W.; Yang, Y.; McMahon, J.P.; and Hutchinson, M.F. Site regions revisited: a climatic analysis of Hills' site regions for the province of Ontario using a parametric method. Can. J. For. Res. 26: 333-354 (1996).
- Marshall, P.; Davis, G.; LeMay, V. 2000. Using line intersect sampling for coarse woody debris. Forest Research Technical Report, Vancouver Forest Region. 2100 Labieux Road, Nanaimo, B.C. Canada. TR-003 Ecology.
- National Wetlands Working Group. 1997. The Canadian Wetland Classification System. Second Edition. Edited by B.G. Warner and C.D.A. Rubec. Wetlands Research Centre, University of Waterloo. Waterloo, ON. 68 p.
- Siltanen, R.M.; Apps, M.J.; Zoltai, S.C.; Mair, R.M.; Strong, W.L. 1997. A soil profile and organic carbon data base for Canadian forest and tundra mineral soils. Nat. Resour. Can., Can. For. Serv., North. For. Cent., Edmonton, Alberta.