

**Sample Locations:**

The majority of sample locations were established using a grid system at the scale of the entire SFMA area. Additional samples have been established in specific stands or forest areas, also on area specific grids. All sample locations are given and recorded using UTM coordinates in meters for UTM Zone 19 with reference to the North American Datum for 1983 (NAD83). This location data is stored in the Inventory Database under the [CFI\_Sample] table as X,Y locations.

**Location Confirmation:**

\*If a sample location is substantially different (>30-50+ft) of the location given by the GPS unit (the catalogued location) the correct location should be recorded in the field. A minimum of 100 averaged readings must be taken. \*Record the **actual** (not as planned) GPS coordinates as UTM northing and easting on the data sheet.

**Plot Structure:**

**Primary:** 1/5 acre fixed radius circular plot, 52.7' radius.

**Secondary:** 1/100 acre fixed radius circular plot, 11.78' radius (roughly nested centers).

**Finding/Marking the Sample Center:**

When approaching the GPS location, look for bark-scribed trees and witness tree tags as well as tree ID numbers in blue paint. Look for the rebar/steel center pin, plastic flagging may be visible on the pin or trees around it, the witness tree azimuths and distances can help in finding an obscured pin. If the plot center pin cannot be found, consider returning with a metal detector to find the pin if it became buried. Otherwise re-establish the plot center, marked with a rebar pin driven partly into the ground, based on tree azimuths and distances. Hang a long-tailed flag as close to the plot center as possible.

**Plot Perimeter:**

Tree distance will be measured from plot center to the center side of the tree stump. Borderline "out" trees will be marked with an "X" at approximate DBH using blue tube paint.

**Data to Collect:**

---

**Sample Level**

- **Date:** Date of collection
- **Page Numbers:**
- **Cruiser Initials:**
- **Note Taker Name:**
- **Comments:**

**Primary Plot:**

Information will be taken of all live trees 4.6 inches DBH and greater. Trees will be numbered just above DBH facing plot center. Tree number 1 will be the first tree closest to true north of plot center and numbering will continue clockwise. DBH and tree numbers will be marked using Nelson blue tube marking paint.

The following information will be recorded for each live plot tree:

1. **[Species]:** Correct species assignment if necessary, see Code list be provided
2. **[TRUE Azimuth]:** Measured **FROM the sample CENTER to the TREE** to the nearest degree using a mirror sighting compass, compensating for declination. (Correct AZI assignment if necessary).
3. **[Horizontal Distance]:** From plot center at the ground line to center side of stump –Use Haglof or tape. (Correct DIST assignment if necessary)
4. **[Status]:** Assessment of current status regarding live/dead/ingrowth (see list below in RED)
5. **[Condition]:** Assessment of tree health (if tree has more than one condition choose first item encountered on RANKED list below. (see list below in GREEN)
6. **Quality:** Standard assessment of merchantability. (see list below in BLUE)
7. **[DBH]:** Measure immediately **ABOVE** the scribe mark to the nearest 1/10 of an inch all trees  $\geq 4.6''$ , (rounding down for trees at DBH class midpoint. (ie.  $4.55'' = 4.5''$ ,  $4.56'' = 4.6''$ ). **Collect using DBH Tape ONLY.**
8. **[Live Crown Ratio]:** Ocular estimate can be checked with haglof on stem heights.
9. **[Total Height]:** (Ground to tip) Heights will be taken of the 1st and every 10th consecutive tree using the Haglof. Measured in Feet.
10. **[Comments]:** If any comments are pertinent.

Status_Code	Status_Name	Status_Description	Live/Dead
1	Living	Most Common code used	L
2	Living Ingrowth	Tree Live and grew into measurement size since last measurement	L
3	Living Previously missed	It can be determined that tree was missed during previous measurement periods	L
4	Harvested	It can be determined that tree has been harvested	D
5	Dead brush failure	Tree has broken off somewhere in the main stem	D
6	Dead Standing	Tree is dead and majority of stem remains standing but branches are largely absent from stem	D
7	Dead Uprooted	Tree has been uprooted and rests at greater than 45 degree angle from vertical.	D
8	Dead on the Ground	Tree is dead and majority of stem remains standing and branches are largely present on stem	D
9	Dead Ingrowth	Tree DEAD and grew into measurement size since last measurement	D
10	Missing	Tree not located during measurement period	NA

Condition_Code	Condition_Name	Condition_Description
CLN	Clean	No significant defects present,
BTOP	Broken Top	Tree has broken top
DTOP	Dead Top	Tree has dead top
RBUT	Rotten Butt Log	Significant rot in the butt log.
DIEB	Crown Dieback	Crown Dieback visible
FTOP	Forked Top	Tree has forked top

Quality_Code	Quality_Description
AGS	Acceptable growing stock, tree capable of producing sawlog product now or in future.
AGS+	High quality tree potential veneer or clear sawlog now or in future.
UGS	Un-acceptable growing stock, tree not capable of producing sawlog product now or in future.
CULL	Live Tree not capable of producing commercial product now or in future.
NA	Quality code is not applicable, ie dead tree

### **\*\*Dead Trees:**

All dead trees should receive an updated status assignment even if it is the same as the previous years. Dead trees do not need to be re-numbered or otherwise painted.

### **Ingrowth:**

Trees that have grown to  $\geq 4.6$ " DBH since the prior measurement are considered ingrowth.

1. Scribe the tree at DBH (4.5 feet on the high side of the tree).
2. Record the measurements described below...
3. Number the tree with blue tube paint. Just below the scribe mark

Record the following information on the separate data form:

1. **[Tree ID]:** Record the new Tree ID in sequence with the other trees on the plot starting with the last Tree ID on the re-measurement data form.
2. **[Species]:** Correct species assignment if necessary, see Code list be provided
3. **[TRUE Azimuth]:** Measured **from the sample CENTER to the TREE** to the nearest degree using a mirror sighting compass, compensating for declination.
4. **[Horizontal Distance]:** From plot center at the ground line to center face of stump
5. **[Status]:** Assessment of current status regarding live/dead/ingrowth (see list above in RED)
6. **[Condition]:** Assessment of tree health (if tree has more than one condition choose first item encountered on RANKED list below. (see list below in GREEN)
7. **Quality:** Standard assessment of merchantability. (see list above in BLUE)
8. **[DBH]:** Measure immediately **ABOVE** the scribe mark to the nearest 1/10 of an inch, (rounding down for trees at DBH class midpoint. (ie. 4.55" = 4.5", 4.56" = 4.6"). **Collect using DBH Tape ONLY.**
9. **[Live Crown Ratio]:** Ocular estimate can be checked with haglof on stem heights.
10. **[Total Height]:** (Ground to tip) Heights will be taken of the 1st and every 10th consecutive tree using the Haglof Vertex. Measured in Feet.
11. **[Comments]:** If any comments are pertinent.

### **Secondary Plot:**

The sapling plot will be located at the same plot center. 1/100 acre fixed radius circular plot = 11.78' radius. The DBH and species of all live trees  $>0.5$ " inch and  $\leq 4.5$ " will be recorded starting from north and continuing clockwise. Trees will not be permanently marked. Plot radius can be measured with the Haglof Vertex, a 100' tape, or with a pre-measured plot cable.

Record the following information.

1. **[SID]:** Sample ID, same as given in the Ident field of the GPS and on the INV Sample List showing all the points in a given inventory project (PID).
2. **[Species]:** FVS code list (see attached list).
3. **[Quality]:** AGS; UGS. "AGS" = acceptable growing stock (tree must be capable of producing a sawlog product in the future when it reaches a larger diameter and not have major crown defects). UGS = unacceptable growing stock, tree does not meet the

qualifications of an AGS. **\*Dead Trees:** Dead trees “SNAGS” **will NOT BE** recorded as part of the sapling plot inventory.

4. **[DBH Class 1”]:** Stems with DBH  $\geq 0.6$ ” and  $\geq 1.5$ ”. To be recorded with calipers.
5. **[DBH Class 2”]:** Stems with DBH  $\geq 1.6$ ” and  $\geq 2.5$ ”. To be recorded with calipers.
6. **[DBH Class 3”]:** Stems with DBH  $\geq 2.6$ ” and  $\geq 3.5$ ”. To be recorded with calipers.
7. **[DBH Class 4”]:** Stems with DBH  $\geq 3.6$ ” and  $\geq 4.5$ ”. To be recorded with calipers.
8. **[Avg Total Hgt. by DBH Class (ft)]:** The measured height of a tree deemed to be of average height for the DBH class. The height to the highest live portion of the tree will be measure using a haglof hypsometer or suunto clinometer.

## Equipment list

1. Tally sheets
2. Garmin GPS unit with averaging capability: spare batteries
3. Clipboard with pencils: pocket knife or pencil sharpener
4. Blue Nel-spot paint and paintgun: spare nozzles, tip cleaning probe, and small pliers
5. Suunto compass or mirror type sighting compass set for azimuths
6. Haglof Vertex IV Hypsometer for tree height and distance: spare batteries
7. Haglof plot center pole and 360 degree mount
8. D-tape
9. 100' Loggers or fiberglass tape as back up for haglof to measure distances from center.
12. Nelson blue tree marking tube paint: knife to cut tips
13. Flat aluminum tags
14. Aluminum nails
15. Hammer (axe cannot pull bent nails and aluminum bends easily)w
16. Diameter Fork
18. Rag(s) for wiping paint off hands and equipment.
19. Extra center pins.