* 1. **Adults Tree Census**

Census data includes the DBH, Canopy Status, x and y coordinates, and any observed damage for every adult tree within the plot. Trees are classified as “adult” if greater than 5 cm diameter at DBH (defined as 1.4 meters above where the stem emerges from the soil). In other words, if a tree is not growing vertically, DBH is 1.4 meters along the length of the stem, starting from where the stem emerges from the ground. All census data is recorded on the “Adult” Data Sheet in Appendix A. Equipment and supplies required to census adult trees include:

### Supplies (expendables)

* Pre-numbered tags (Recommend bringing an entire box to ensure team has enough tags to complete task) (Be sure to have the correct tags for the Site and Plot)
* Aluminum write-on tags
* Aluminum nails
* Wire
* Spray Paint
* Flagging
* Sharpies
* Pens/pencils
* FIELD DATA SHEETS
* Logbook

**Tools**

* Hammer
* Tool belt
* Wire cutter(s)
* DBH tape(s)
* Clipboard
* 2m ruler
* 2-m tapes must be ≥20m
* Chaining pin
* Compass
* Camera

Perform the following to complete the Adult Census:

* Stretch the meter tapes from the bottom left (SW) corner post (record this plot coordinate [RefX, RefY] for all trees in this plot). One tape will be stretched “horizontally” (East-West) which will give the “x” coordinate and stretch the other “vertically” (North-South), which will give the “y” coordinate for the tree. For example, in Figure 1 (below), RefX and RefY coordinates are (0,0). The “x”-tape is stretched along the “y=0” line of the plot to the (10,0) post and the “y”-tape is stretched along the “x=0” line to the (0,10) post.
* Record the species by using the correct, 4-letter species code. Map (i.e. record the local “x” and local “y” to within 10cm), and tag all adults in the plot
* Tag the tree. Adults should be tagged at DBH (1.4m) so that the nail can be used to ensure re-measurement in the same location
  + Note: At Bartlett Experimental Forest, the FS requires trees be tagged at the root swell. DBH is indicated with spray paint. Stem 1 is tagged. Subsequent stems on the same tree receive additional paint stripes corresponding to stem #, but the topmost stripe is always at DBH.
  + Each additional stem branching out below breast height (1.4 m) and reaching a height of at least 2 m is measured individually, receiving its own stem number in the data but not a new tag. This is a general rule; in some cases expert judgment must be employed based on individual differences and species generalities. Stems branching out above breast height are not counted.
  + To ensure DBH is measured at a consistent height above ground, trees should be tagged and DBH’ed parallel to the slope, not when standing upslope or downslope from the tree
  + Tags should face the SW corner of the plot (the post from which RefX and RefY are determined).
* Measure diameter at breast height (**DBH** on data sheet) OR at existing nailed tag or paint mark if these vary from breast height. It is important to re-measure in the same spot as earlier crews!
* Record the canopy status (0,1,2), sex (if applicable/known), and any damage for each tree.
  + Evidence for reproduction may be fruits or flowers, or remnants of the same if they appear to be from this year. This assessment requires some prior knowledge of each tree species’ reproductive habits.
    - Dioecious trees (i.e. ACPE, ACRU, FRAM, JUVI) may be assigned “f” (female reproduction), “m” (male reproduction), “r” (reproductive; only use in cases where it is impossible to see enough detail to determine “m” or “f”), “un” (unknown because of size, season observed, etc.).
    - Monoecious trees (most species) receive “r” (reproductive) or “un” (unknown).
* Determine the location of the tree with in the plot (RefX and RefY, X and Y on data sheet). See Figure 4.1 below.
  + For our sites, X always increases to the east while Y always increases to the north.
  + RefX and RefY: These are the grid coordinates of the reference post used to locate the tree (the post to the SW). In the diagram below, the example coordinates are RefX = 0, RefY= 0. Each reference post is labeled with its grid coordinates on a write-on aluminum tag. Record these on the data sheet.
  + X and Y: These are the local coordinates relative to the reference grid post. In Figure 1, the tree is located at approximately X = 6.3, Y = 7.4.
  + Eventually these local coordinates will be used to generate GPS coordinates for each tree.

These data will be recorded on the “Adult” Field Data Sheet located in Appendix A.

Figure 1

**N**

**10 m**

**10 m**

Ref X = 0, Ref Y = 0

X = 6.3

Y = 7.4