**Instructions:**

You will be completing a sample of a forest located on campus by measuring plots. The plot centers will be located for you, and your task is to identify and measure several attributes of the plot (stand) and each tree located on the plot. You will work in groups of 4 students, and completing the measurements for **TWO** **PLOTS**. Make sure to trade responsibilities while collecting your data so that all group members gain experience with each skill to be used on the plots.

**Study design:**

Each plot consists of an *overstory plot* and a smaller *subplot.* The larger overstory plot is a circular 0.1 ha (1,000 m2), with a radius of 17.84 m. All trees over 1.37 m tall will be tallied and measured. The Subplot is 5 m in diameter and shares the same plot center as the larger plot.

**Data collection:**

Below are tables that will guide you through the data collection on each plot. Many of the attributes should be measured while on the plot, and others can be calculated at home (e.g, basal area per hectare). Make sure you collect all necessary data.

**Important reminders and equations:**

**Diameter at breast height** is measured perpendicular to the bole at 1.37 m from the ground on the uphill side of the tree. Trees with multiple stems (e.g., olive trees) should be measured such that ALL STEMS are measured for DBH, and the total DBH is the sum of each stem. Therefore, only one DBH value should be given for an olive tree.

**Tree height** is calculated from as (TAN(angle to the top) \* distance to the tree) + height to your eye. Alternatively you can add the percent angles to the top and bottom of the tree and multiply by your distance to the tree. IF the tree has a dead top, measure the tree height to the highest living section. IF the tree has a rounded or flat top, make sure you are getting the angle to the highest point of the tree and not to the nearest high branch.

**Live Crown Ratio** is the proportion of the tree’s total height that is covered by live crown. This is an ocular estimate to be taken while standing at some distance from the tree. If part of the crown is missing or dead on one side, shift the live branches from the other side around to fill out the crown and take that estimate.

**Basal Area** is calculated from the tree DBH as (DBH x 0.5)^2 x 3.1415 / 10,000. This equation will convert the units from cm to m2. Basal area per hectare is the sum of all tree BAs on the plot times 10 (the expansion factor for a 0.1 ha plot to equal 1 ha).

**Coverages** should be provided in increments of 5%. This goes for LCR, canopy cover, and ground cover. Anything that is present, but less than 5% (i.e. a trace amount) should be given the value of 1%.

**Data Worksheet**

PLOT NUMBER:

UTM Coordinates:

Elevation:

Slope %:

Aspect:

**Subplot Metrics** (5 m diameter plot)

% Canopy Cover:

% Shrubs:

% Grasses:

% Forbs:

% Bare ground

% Rock and pavement:

**Stand metrics** (Calculated from tree data)

Trees per hectare:

Basal area per hectare:

Average LCR:

Maximum tree height:

Average tree height:

**Trees Table**

PLOT NUMBER:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | Tree Height | | | |  |
| **Tree No.** | **Species** | **Azimuth**  **(deg.)** | **Distance**  **(.01 m)** | **DBH**  **(.1 cm)** | **BA**  **(m2)** | **Distance** | **%Top** | **%Bottom** | **Total HT (m)** | **LCR**  **(%)** |
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