

Tree and Shrub Density Measurements

Materials:

'Disto' or other height/distance laser

Pin flags (4 for setting up measurement plot)

DBH measuring tape (metric)

3m long PVC measurement pole marked with 10cm increments

Measurements:

1. Starting at either end of the transect (0m or 35m), use the 'Disto' meter to delineate the far edges of a 7m radius circular plot. Place 4 flags in a diamond pattern, this will help you to visualize the edges of the circle; half way between each flag the circle "bulges" out about 50cm or a 20in.
2. Stand at each point of the circle you have created and survey which trees and shrubs are in the plot.
 - a. Include trees and shrubs with at least 50% of the base inside the plot circle.
 - b. Exclude trees and shrubs below 5cm in height. Do not count or measure these.
2. For most plots, the Diameter at Root Collar (DRC) and the Height/Area measurements can be divided between two people, i.e. one person can take DRC while the other does Height/Area. Large trees generally require one person "spotting" measurements while the other holds the measuring stick.

DRC:

1. Using diameter tape, take a measure the circumference of the tree above the root collar. In some cases it may be more appropriate to measure Diameter at Breast Height (DBH), but measurements need to be consistent throughout the duration of the study. Record the DRC on a data sheet.

Height:

1. Measure the maximum height of the shrub or tree as the distance from the bottom of the stem (ground surface) to the highest point of the canopy using the PVC increment pole.
2. If a tree is too tall to measure, extend the pole from a known height from the ground (ex. 1m).
3. Record height data to the nearest 5cm increment.

Cross-sectional Area:

1. Measure the shrub or tree canopy area in two perpendicular directions. At the widest part of the canopy hold the PVC increment pole horizontally in front of tree and record canopy breadth.
2. Record canopy area data to the nearest 5cm increment.

Basic Rules:

Each tree within the plot should have its DRC, height, and cross-sectional area measured. Each shrub should have its height and cross-sectional area measured.

- a. For trees, if multiple stems are encountered while doing DRC, measure each stem separately and record each value separately. See Rangeland Health Manual p.66 for some examples.
- b. Any plant that is less than 80% alive is to be recorded as “dead” while all measurements are still taken. If the plant is uprooted, do not record.
- c. Do not take DRC measurements for shrubs.
- d. Tally seedlings (Diameter: 0-2.5cm) and saplings (Diameter: 2.5-4cm) as you go along.
- e. Trees that are not growing vertically, but horizontally due to disturbance are labeled as “POT” (Pulled Over Tree); if tree is dead, record as “POT (D)”.
- f. The DRC of “POT” trees are generally measured as the width of the trunk unless the measuring tape can be placed around the trunk (which is usually not the case).