

LAB F

Plant Community Survey

I. Objectives:

- A. Compare and contrast the plant community composition and structure along a continuum of closed-canopied forest, oak woodland, oak savanna and prairie ecosystems.
- B. Understand how restoration practices are informed by the plant community composition and structure of the ecosystem to be restored.

II. Procedures

- A. Each team will be assigned a plot location within the ecosystem continuum.
 1. Each team will be provided a plot rope, diameter tapes, densiometer, hand compass and a 1m sq. sampling quadrat.
 2. **NOTE: Each team member be ultimately responsible for recording their data and observations, and questions that arise, in their field notebook.**

Woody Species

- B. At the designated plot location determine a 1/10th ac. circular plot by fastening the looped end of a 37.2 ft length of rope to plot center post and extending it to its full length. The area within the circumference of this is 1/10th ac.
 1. For each live woody stem in this 1/10th ac plot that is **>5 cm or greater in diameter**, observe and record the following information in your field notebook:
 - a) *Species name*, or a proxy name that represents the common characteristics (e.g. leaf, bark pattern)
 - b) *Total # of stems (>5 cm diameter)*
 2. For each live woody stem in this 1/10th ac plot that is **<5 cm or greater in diameter, and >.9 m tall (use the back side of your diameter tape for metric length)** record the following information in your field notebook:
 - a) *Total number designated as “saplings”* (no species identification needed)
 3. For each live woody stem in this 1/10th ac plot that is **<5 cm or greater in diameter, and .9 m or shorter** record the following information in your field notebook:
 - b) *Total number designated as “seedlings”* (no species identification needed)
 4. Estimate the *total tree canopy coverage (%)* at the plot post location using your spherical densiometer, and also include that information in your field notebook.

Herbaceous Species

C. Using your hand compass, stretch your plot rope in the “north” direction from plot center post.

1. Place your 1-meter square sampling quadrat such that its lower left corner is placed along the rope at the blue knot (5-meter) point from the plot post. Observe and record, in your field notebook, the following found in the quadrat:
 - a) *Total number of forb species*, using a proxy name related to a physical characteristic.
 - b) *Total number of grass species*, using a proxy name related to a physical characteristic.
 - c) *Total number of sedge species*, using a proxy name related to a physical characteristic.
 - d) Of the species above, *note how many species are relatively tall as compared to the others*.
2. Repeat, #1 above, stretching your plot rope out in the remaining, “east”, “south” and “west” directions--- for a total of 4 samples.
3. For your plot aggregate the 4 samples to determine the total number of forb, grass and sedge “species”, and the total number “species” that are relatively tall compared to the others.

III. Reporting & Discussion (Prairie → Savanna → Woodland → Closed Canopy Forest)

A. Each team will share with the other teams the findings from their plot measurements.

1. Members from the other teams are expected to record a summary of those findings from each of the other plots in the Data section of their field notebooks.

B. Questions to ponder.....

Discuss in the field:

1. *Of the abiotic factors you have learned about (soils, light, fire, topography, etc.), what may have contributed to the differences and similarities between the plant community composition and structure represented by the plots along this continuum of closed-canopied forest, woodland, savanna and prairie ecosystems? What about biotic factors like herbivory?*
2. *What abiotic factor(s) might be manipulated when restoring landscapes to represent the ecosystems along this continuum?*