

Environmental Science Laboratory, Fall 2006

Laboratory #1: Overton – Vegetation Sampling

In this laboratory, we will be visiting Overton Park (across North Parkway from Rhodes College) to sample the vegetation in this urban forest. We will meet at 12:50 pm at the pavilion on East Parkway. You can drive or walk there. Please wear appropriate clothes. We recommend that you do not wear sandals or shorts, and that you bring insect repellent.

You will be split into four groups of five people each, and each group will be responsible for surveying one of the four already selected plots (see map). Each group will do the following:

- Determine the boundaries of the circular 0.04 hectare plot
- Use a DBH (diameter at breast height) meter to determine and then record the DBH of trees within the plot having a DBH greater than 10cm
- Utilize a caliper to measure the DBH of trees smaller than 10cm in DBH
- Employ a GPS unit to record the position of each tree for which measurements are taken
- Identify the species for each tree recorded

Everybody has to participate, so each of you will have to be assigned a different task to do in the field.

To help you out in these tasks, you will be given the following supplementary materials:

- A handout of common tree species in Overton Park (including pictures/details of each tree's characteristic leaves)
- A copy of a map showing the four plots which we will be studying

Next week, we will use the data which you collect to analyze the diversity of these plots and to estimate the amount of carbon which can be sequestered by these plots and by this urban forest as a whole.

Some useful vocabulary for leaf descriptions:

simple leaf: an “undivided” leaf (i.e., a leaf of only one piece)

compound leaf: a “divided” leaf, with two or more leaflets contributing to the whole

alternate arrangement: there is one leaf per node (i.e., leaves are not opposite each other – they just alternate on the two sides of the stem)

opposite arrangement: there are two leaves per node (i.e., the leaves are opposite each other at the same point)

pinnate venation: veins run perpendicular to a single axis

palmate venation: veins go out like the fingers of a hand

lobed margins: edges characterized by rounded projections

serrate margins: saw-toothed edges

serrulate margins: edges which are only slightly saw-toothed (i.e., not as defined as serrate margins)

Common Overton Park Trees

(Descriptions are based on <http://hort.ufl.edu/trees/comlist.htm#A> and Rhodes' "The Arboretum" pamphlet)

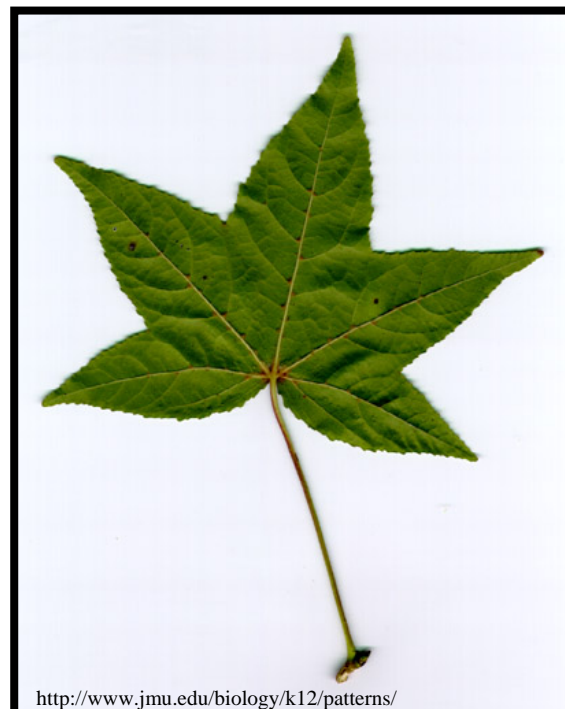
TULIP POPLAR

These trees are rather large (up to 55 meters tall). Their leaves are **simple**, with **lobed** margins (i.e., they typically possess 4-6 paired lobes) and **pinnate** veins. The leaves also show an **alternate** arrangement.



SWEETGUM

Its **simple** leaves are **star-shaped** with **serrate** edges and typically include 5-7 points. These leaves also show an **alternate** arrangement on twigs. However, they exhibit **palmate** venation.



ASH

These **compound** leaves have **smooth** leaf margins and show **pinnate** venation. They are arranged in an **opposite** fashion.



BOXELDER

Like the ash, these trees have **compound** leaves in an **opposite** arrangement.

These leaves also exhibit **pinnate** venation. However, boxelder leaves have **serrate** margins.



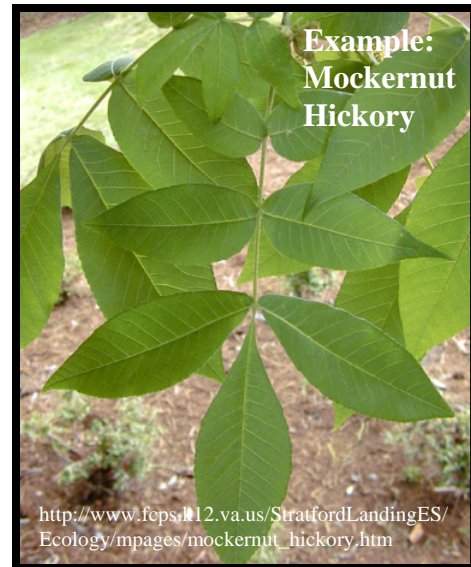
PERSIMMON

These trees have **simple** leaves with **pinnate** venation. They exhibit **alternate** arrangement and have **smooth** margins. They appear rather glossy and tropical.



HICKORY

This exhibits an **alternate** arrangement of **compound** leaves with 5-7 leaflets. This tree's leaves also exhibit **pinnate** venation. Its bark is quite identifying, with slight furrows forming a net-like pattern.



DOGWOOD

This tree has **simple** leaves with **pinnate** venation and an **opposite** arrangement. The leaves also have quite **smooth** margins.



SASSAFRAS

The **simple** leaves of this tree have **pinnate** venation and an **alternate** arrangement. Leaves on older trees are generally **unlobed**, but younger trees can have a **few lobes**.



REDBUD

This tree has **simple** leaves with an **alternate** arrangement. The venation varies, but these leaves always have **smooth** margins and are characterized by their unique **heart shape**.



CHERRY

These trees have **simple** leaves with an **alternate** arrangement and **pinnate** venation. Notably, they have **serrulate** margins.



ELM

The **simple** leaves of this tree are in an **alternate** arrangement with **pinnate** venation. Their margins are **doubly serrate**. Furthermore, these leaves are especially coarse.



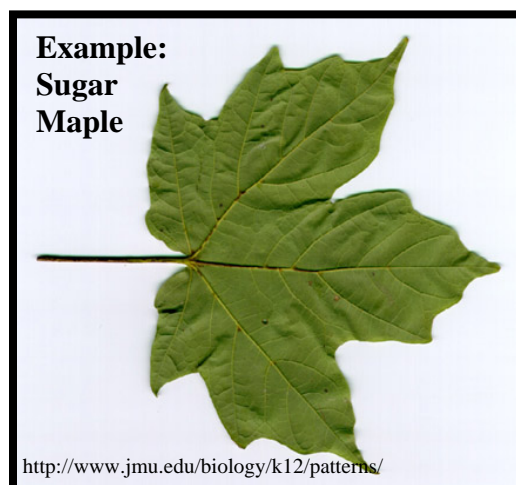
OAK

The **simple** leaves of this tree have a **pinnate** venation and can have rounded or pointed **lobes**. They exhibit an **alternate** arrangement.



MAPLE

With **palmate** venation, these **simple** leaves are **lobed** and exhibit an **opposite** arrangement.

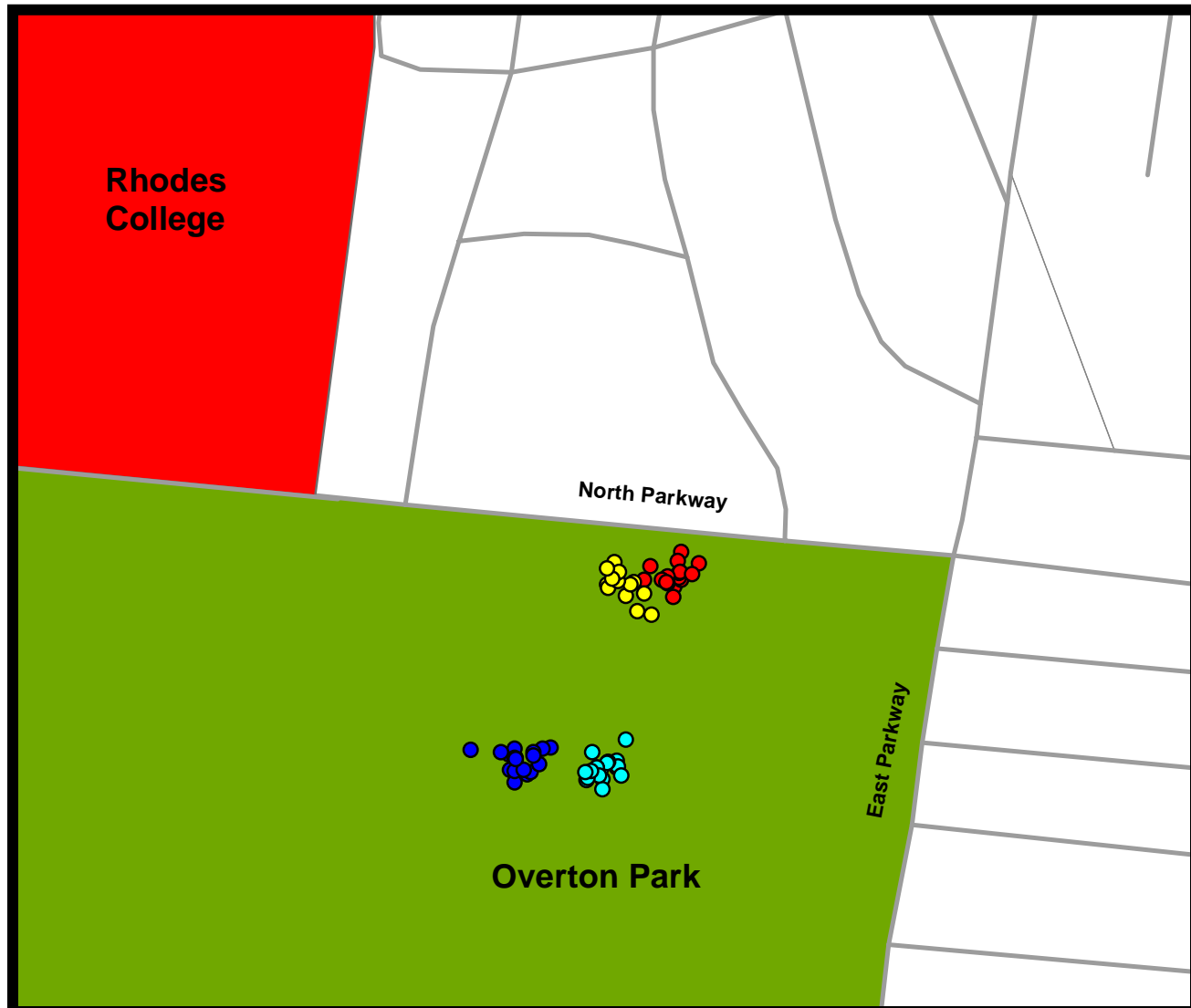


PAWPAW

These trees have fairly long **simple** leaves with **pinnate** venation and **smooth** margins. The leaves of the pawpaw show an **alternate** arrangement.



Map of the Four Plots in Overton Park



LEGEND

- Plot 1
- Plot 2
- Plot 3
- Plot 4