

Introductory Botany Lab 2.

Research lab: trees and flood

September 12th, 2011

Background

Minot historic flood (June–July, 2011) brought a great damage not only to property, but also to life things. Trees are probably most susceptible: they cannot move, they are not adapted to live underwater, their roots need oxygen, and leaves need carbon dioxide, but both gases were absent in a warm water.

It is possible that different species of trees responded differently. To test this hypothesis (“Are some species of trees more susceptible to flood than others?”) we will determine trees and their level of damage in the flooded part of city.

The definition of tree: *tree is a plant with one woody trunk.*

To determine species of trees, we will use a printed copy of Herman D.E. & Chaput L.J. “Trees and shrubs of North Dakota” (NDSU, Fargo, 2003)—available on-line at <http://www.ag.ndsu.edu/pubs/plantsci/trees/eb38-1.htm>

The damage will be determined visually. “Damaged” means dead (withered) branches and dead (not green and “normally” yellow or red) leaves. There are **scores of damage**:

- 0** No damage
- 1** Less than 25% of the tree is damaged
- 2** 25%–50% of damage
- 3** 50%–75% of damage
- 4** 75%–99% of damage
- 5** 100% of damage (dead tree)

Assignment

We will work in groups (2–3 people). Every group will be assigned with a territory (normally, a part of street, left or right). On the assigned territory, you need to:

- pick up 15 trees (randomly!)
- for each tree:
 - determine its species
 - estimate its height (visually, in meters)
 - estimate the damage score
- estimate the maximal level of water on the territory (e.g., by traces of damage on property), again in meters

(see the next page)

Report

1. Who was in a group (names):
2. Describe the assigned territory (addresses):
3. The maximal level of flood (in meters):
4. Which species of trees are more damaged by flood than others?
Why (fill and review the table below)?

#	Species name (scientific)	Height (meters)	Damage score
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			