

GLOBE
Environmental Studies
Forest Ecology Internship
Winter Term 2015



By:
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Introduction To GLOBE

The Global Learning and Observations to Benefit the Environment (GLOBE) Program is a worldwide hands-on, primary- and secondary-school-based science and education program focusing on the environment, now active in 112 countries worldwide. It works to promote the teaching and learning of science, enhance environmental literacy and stewardship, and promote scientific discovery. Students and teachers collect data and perform research in collaboration with scientists from numerous international agencies, and their work is made accessible through the GLOBE website.

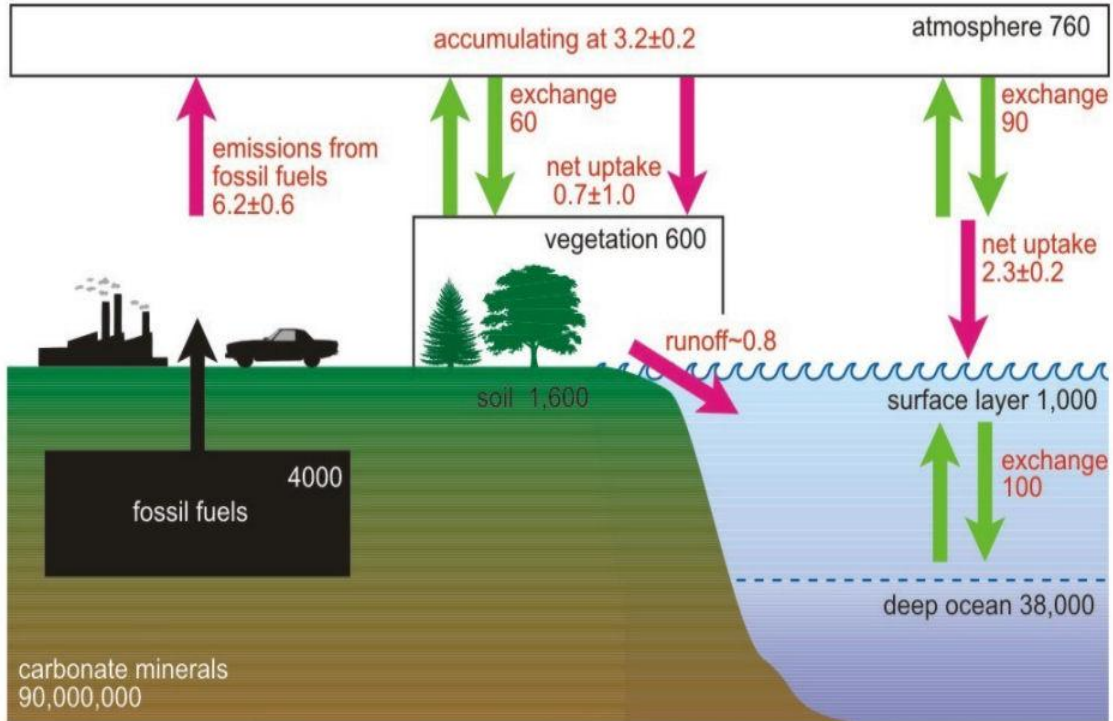


A landscape photograph showing a grassy field in the foreground, a line of trees in the middle ground, and a forested hillside in the background under a cloudy sky. The text 'The Purpose Of Our Project' is overlaid in the upper center, enclosed in a pink rectangular box. The text is green and underlined.

The Purpose Of Our Project

Global carbon cycle

gigatonnes carbon



figures in bold type show estimated size of pools
figures in italics show estimated average annual flows

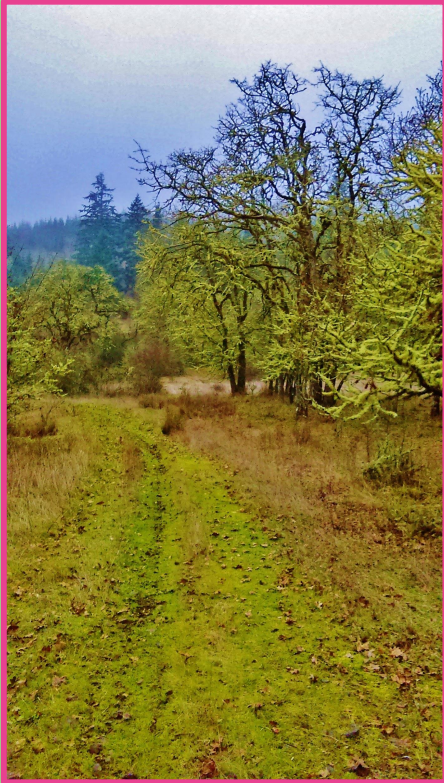
"Land cover affects many aspects of the Earth as a system. In order to understand our local environment, we need to look at the land cover."

The first step of this project was to go out into the forest and pick out a homogeneous place that is 90x90 meters, and then classify the area using the MUC classification system. Following GLOBE'S protocol, 30x30 meters within the 90x90 area will then be measured and marked. All the trees within the 30x30 area became the chosen trees to measure.

What Is MUC?

(pronounced muck)

-- The modified UNESCO classification system, a standard system for classifying land cover.



And The Journey Begins!!!

First day out in the field!



Above is a pic of the very first tree we tagged and measured; a White Oak tree (QUGA) which is part of the common species group known as Maple Oaks.

Using the GLOBE biometry protocols which had us measure the biomass, tree circumference, tree DBH, ground cover, azimuth, and distance of the center point to each tree within the 30x30 meter land area. We used several different tools to collect these measurements.



DBH Measurements:

GLOBE's protocol states that the DBH of a tree must be measured at breast height, which is about 1.4 meters above ground level (4 ½ ft). The tree only qualifies to be measured if it has a 15 cm. circumference or larger. If the tree's circumference is less than 15 cm. than it doesn't get included in our data.

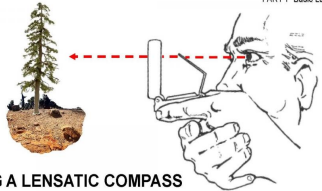


Azimuth Measurements:

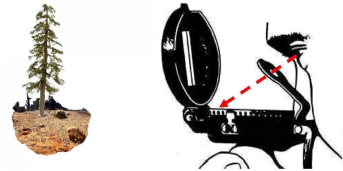


Azimuth Compass

PART 1 Basic Land Navigation



SIGHTING A LENSATIC COMPASS



Azimuth and distance measurements had to be collected for all the trees within our 30x30 meter area. These measurements are used to create a tree map of our worksite. To get the azimuth of a tree, you must take a compass and stand directly in front of the tree with your back leaning against the tree. You want to make sure you are as perpendicular to the tree as much as possible. Then, you hold the compass up and point it towards the direct center of the 30x30 meter area. The center point should already be marked so it is easy to find and see when needed. Line the red arrow up with the white arrow inside the compass. Read the number the arrows point to, and then look on the opposite side from where they are pointing. The number located directly opposite to the number the arrows point to is the azimuth of that particular tree that you are standing against.

Distance Measurements:



Using the tape shown above, measure the distance between each tree and the center point.



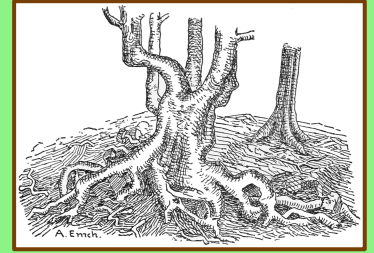
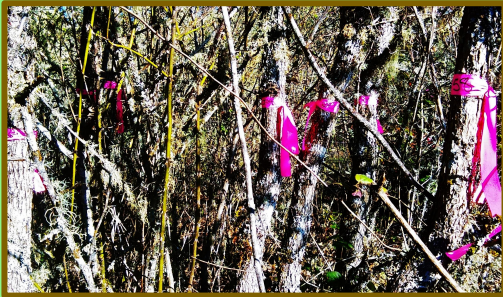


Tree Types

Found Within The Deciduous Woodland Chosen For This Project:

1) White Oaks (QUGA)

Within the 30x30 area of land that was chosen to use for this project, the most abundant type of tree found was the White Oak trees. Often times this particular type grew in small clusters of trees, all of which shared a common base or root. These clusters ranged anywhere from 2 up to 5 trees that all were really one tree due to the fact that they are all connected as part of one unit at the base of the tree. The two pictures to the right illustrates the most common way these clusters of White Oaks looked.



Tree Types
Found Within The Deciduous Woodland
Chosen For This Project:

2) Black Oaks (QUKE)



The second most common tree found within our worksite was Black Oaks, which are very similar to white oak trees except for a couple slightly different identifying characteristics. These differences include the shape of their leaves (more pointy rather than round), and the tree bark tends to be darker in color compared to the lighter bark that's found on a white oak tree.





Tree Types
Found Within The Deciduous Woodland
Chosen For This Project:



3) Douglas Firs (PSME)



There was only three Douglas Fir trees within our 30x30 meter worksite, compared to literally hundreds of white and black oaks! This is due to the fact that we were working within a Deciduous Woodland area and not a Coniferous area. Although this is true, it is common for a few to be mixed in with other kinds, especially if there is a Coniferous forest near by our worksite, which I have discovered there is.



Tree Types
Found Within The Deciduous Woodland Chosen
For This Project:

4) Hawthornes (CRMO)



Final Results:

Measured a total of 110 trees on our 30x30 meter plot.





Conclusion & Final Thoughts





INTO THE HEART OF THE EARTH

and the Ways of the Wild

