

## INS Field Trip October 9, 2007

### Goals:

- Learn to use keys and how to identify some common local trees and shrubs.
- Collect samples to estimate the diversity of soil invertebrates
- Collect data about your sample site that we can use for later analysis of biomass and plant species. This would allow testing of hypotheses about the relationships between plant coverage and soil invertebrates.
- Work on skills in scientific note taking and mathematical estimation.

### Work Directions:

1. At McClane Creek there will be a general orientation and some workshops on plant identification.
2. Form into your assigned groups. We will help you in clarifying what your instructions for your collection site mean.

### At your site:

There are two important considerations in choosing the exact location of your site. The first is that it should be representative of its area. To help avoid sampling bias, you should introduce some aspect of randomness into the exact site. For example, one student could choose the direction and another could choose the number of steps in that direction independently. Also, you should consider edge effects. The forest near roads, clearings, and trails may not be representative of the whole area. Your notes should include the selection method you used.

We are using a method called fixed plot sampling. To describe the plant coverage in your area select a central point. Your sample plot is an 8 m radius around that site, which gives an area of 0.05 acre, or 202 m<sup>2</sup>. This is the smallest standard size plot typically used in fixed plots. You will collect your soil sample in the center of this area. Within the fixed plot, you will measure each tree (DBH and estimated height) and its identity to species. DBH is diameter at breast height, fixed at about 4 ½ feet above the ground. You can also record circumference at DBH and convert that into diameter. If all of the overstory trees in your plot are about the same height you can measure only one. You should also estimate canopy cover and understory vegetation.

Typically there are five different layers in the forest community that you will assess.

1. Tree. This is the tallest layer, consisting of the dominant trees. For example, in our site this could be big leaf maple or Douglas fir.
2. Sapling/tall shrub. Any woody plants greater than 8 ft tall but not reaching into the tree canopy. This can include younger overstory trees as well as plants adapted to growing under the tree canopy. An example is vine maple.
3. Shrub. Woody plants less than 8 ft tall. Examples include salal, Oregon grape, huckleberry.
4. Herbaceous. Non-woody plants such as ferns and grasses. You may wish to record general type of herbs.
5. Moss

Not every plot will have every layer. If a layer is missing, make note of it. For each layer, estimate the amount of your plot covered by that layer in percent. A reasonable scale here may be estimation to the nearest 10-25 %. For trees and saplings, record their species and DBH. For the understory layers, note the abundance of the last three areas using the following scale:

Dominant  
Abundant  
Common  
Occasional  
Rare

The first two terms can be modified by the use of “locally”. For example, salal or sword fern might cover one corner of your plot (“dominant in NE corner but occasional in rest of plot.”)

For each of the layers, identify as many of the plants as possible and their relative abundance. Don’t worry if you cannot complete these identifications. Even if you cannot identify each plant, you can still record general types. For example, you could refer to moss A and moss B, or general grass types. In your notes you can record features of the plants that can be used for later identification work. Note that organizing this material into tables will make later data entry and analysis much easier.

**When you have completed your site work.**

After completion of your site work we have prepared some envelopes with some field Fermi problems. Take an envelope and in your group try to come up with an estimate of your assigned problem.