Collecting field soils for wet sieving carbon fractionation

Supplies needed in the field

- Ziploc bags
- Compact scale (minimum capacity of 200 g)
- Augers and extensions
- Sharpies
- Meter tapes
- ~4 5-gallon buckets
- Soil knives
- Flags

Procedure

In lab

1. Use UC Davis SoilWeb to identify the soil series of where soil is collected.
2. Record or print the soil profile for each soil series that soil is collected from. This information will help, in the field, identify the horizons where soil is collected.
    a. If you are working in an ecosystem where separating by horizon does not make sense, then separate soil at depths you see appropriate.

In field

1. Use an auger appropriate for the soil and ecosystem to collect samples.
    a. Be sure to scrape off the very top of every soil core because there is soil from the previous horizon that you do not want to include.
2. Take enough "plugs" (cores) from each horizon or depth that the field moist soil weighs at least 200 g.
    a. You will weigh the field moist soil after homogenizing the sample
    b. *Recommendation*: Place a flag where the samples were taken in the field
3. Lightly homogenize each horizon in a bucket.
4. Pour homogenized soil into a labeled Ziploc bag.
5. Place Ziploc on the compact scale to ensure there is at least 200 g of soil in the bag.
6. It is very important to not place bags of soil on ice. Freezing and then thawing samples will change aggregate formation so it is not recommended!
7. Transport soil samples back to the greenhouse and dry for about 3 days in Ziplocs.
8. Follow protocol for aggregate size carbon fractionation.

Common issues

- Samples from ditches and marshes are incredibly moist – add about 400 g of field moist soil so the dry soil weight will be more than 100 g.
- While augering, the depths from the soil series do not match what is seen in the field – separate horizons based on what is seen in the field. Label bags based on the depths soil is separated by in the field.