**Plant Traits to Measure**

**I can measure:** (should be able to get multiple measurements from the same leaf)

* Leaf water content (see Cornellison)
  + Weight water-saturated leaf
  + Dry and re-weigh
* Leaf Area
  + Mark and Scan leaf area in lab from a water-saturated leaf
* Specific Leaf Area (see Cornellison)
  + Mark Scan leaf area in lab from a water-saturated leaf
  + Weigh dried leaf
* Leaf toughness (ask Elizabeth if I can use this)
* Trichome density
  + Initial thoughts: Take 3 haphazard hole punches of the leaf (or maybe just one) and count the number of trichomes under a dissecting scope.
    - Found one reference that counted the number of trichomes crossing a 2 mm line (I think we can do better than this).
* Tree growth form
  + # of basal stems at a particular height from the ground
* Tree Height and width
  + Maximum height and maximum width
* Tree biomass
  + Need to determine an allometric equation for biomass that is specific to each genotype
  + Want to only have to measure the circumference and number of basal stems.
* Others…
  + Look for extrafloral nectories (EFNs)
  + # of flowers (possible indicator of phenology)

**Need collaborators to help measure: (need to make sure I have the appropriate preservation techniques)**

* Leaf C:N ratio
  + Air dry samples (after leaf water content) and then store at -20 C. What about drying them in a mill before or what if I have to send them to a lab?
* Leaf oxidative capacity (OC) at high pH (see Salminen & Karonen, 2011, Functional Ecology for methods. Method works for *Salix*)
  + Total phenolic content
  + Proportion of easily oxidized phenolics
  + Total content of oxidized phenolics
* Condensed Tannin content
  + Spectrophotometic HCL-butanol assay which is highly specific to condensed tannins
* Total tannin content
  + Measure protein preciptiation capacity (PPC) of plant extracts
  + Need exact method
  + Didn’t appear to be recommended by Salminen & Karonen, likely because it is not specific to the chemical involved. However, quantifying this may give complementary information as to whether PPC or OC are correlated with insect preference/performance (two most likely mechanisms of tannins effects on herbivores).