Biol 432 Group Project Outline -- Lustrous Loosestrifes
Members: Claire Smith, Zoe Clarke, Jamie MacKay, and Nestor Al Grandal

Our dataset

- Data from the Wisconsin Aspen ("WisAsp") common garden located at the Arlington Agricultural Research Station
- Established in 2010 with 328 genotypes
- Aspen replicates surveyed for tree traits and insect communities in 2014 and 2015; numbers were standardized by the amount of time surveying the tree canopy
- Dataset includes all common insects (ie. species or families that were present on > 5% of surveyed trees)
- Variables:
    - Tree block location: **BLK**
    - Tree row: **ROW**
    - Tree position: **POS**
    - Tree genotype - 1 of 328 genotypes: **GENO**
    - Individual tree ID - BLK ROW POS: **ID**
    - Total time (minutes) spent surveying tree canopy for insects: **Total.time**
    - Insect functional groups: **4 variables**
    - Common insect families: **16 variables**
    - Common insect species: **20 variables**
    - Tree phenotypic traits: **19 variables**
        - For trait abbreviations and explanations see Dryad file

Potential Questions

- Does a tree's phenotype affect what kind of bug community it has?
    - Which phenotypic traits have the most impact?
    - Are certain bug species or functional groups associated with certain genotypes
        - Could make a clustering tree and see if genotypes cluster by bug groups
- What's more important in determining a plant's bug community - genotype or phenotype?
    - Could do a clustering NMDS sort of analysis like we did with the garlic mustard data and see what makes more clear clusters
    - But this might also be hard because phenotype is measured by a bunch of different traits so we could focus on a few or maybe somehow combine them

Original publication: Barker HL, Holeski LM, Lindroth RL (2018) Genotypic variation in plant traits shapes herbivorous insect and ant communities on a foundation tree species. PLOS ONE 13(7): e0200954. https://doi.org/10.1371/journal.pone.0200954

DataDryad package: Barker HL, Holeski LM, Lindroth RL (2018) Data from: Genotypic variation in plant traits shapes herbivorous insect and ant communities on a foundation tree species. Dryad Digital Repository. https://doi.org/10.5061/dryad.st463