Final Project Outline

* **Data Source**: <https://portal.edirepository.org/nis/metadataviewer?packageid=knb-lter-sev.186.208430>
* **Data Description**: Begun in spring 2004, this long-term study at the Sevilleta LTER examines how fertilization affects above-ground biomass production (ANPP) in a mixed desert-grassland. Net primary production is a fundamental ecological variable that quantifies rates of carbon consumption and fixation. Estimates of NPP are important in understanding energy flow at a community level as well as spatial and temporal responses to a range of ecological processes. While measures of both below- and above-ground biomass are important in estimating total NPP, this study focuses on above-ground net primary production (ANPP). Above-ground net primary production is the change in plant biomass, including loss to death and decomposition, over a given period of time. Volumetric measurements are made using vegetation data from permanent plots (SEV155, "Nitrogen Fertilization Experiment (NFert): Net Primary Production Quadrat Data") and regressions correlating species biomass and volume constructed using seasonal harvest weights from SEV157, "Net Primary Productivity (NPP) Weight Data." This site was burned by a prescribed fire in 2003.
* **Questions and Hypothesis:**
  + What is the impact of N addition on biomass/cover of c4 vs c3 species over time?
    - Or looking at it by functional group, family, annual vs. perennial
    - Look into which of the predictors had the strongest impact on biomass/cover
  + Response variable: Biomass or Cover
  + Predictor variables: PhotoPath, LifeHistory, Treatment
  + Random effects: site, plot, species, rainfall,
* **Proposed Methods:**
  + Want to use an ANOVA to analyze the differences of mean for functional group, photopath, ann+penn per treatment year
  + Need to deal with 0s in data set due to both cover and biomass being zero skewed
    - Think log transform but still getting pretty wonky residual structure

Chart, line chart, histogram

Description automatically generated**Preliminary visualizations:**

* This is looking at average %cover by a given year for C3 vs. C4 species. No model has been fit.
* Chart, line chart

  Description automatically generatedSame thing but for average biomass broken down by photosynthetic pathway.