Description of Your Data Set (Due Monday, September 30, 2024)

FW 599: Multivariate Analysis of Ecological Data

Jasmine Williamson

1. **Data Structure**: Describe the overall structure of the dataset. What are the descriptors (columns) and objects (rows)? How many are there of each?

My data currently consists of three excel sheets. The first is salamander data; the objects are individual salamander captures, where each animal has a unique ID, and there are twenty rows explaining where it was found and morphometrics. The second is subplot level data, with rows for each subplot, and columns with location and habitat data. The third is site level data, with rows for each site and columns for location and climate/weather information.

1. **Methods**: How, where, and when were the data collected? Who collected them? For what purpose?

This data was collected by myself and my field crew in the Western Oregon Cascades in spring of 2023 and 2024. The main purpose is to assess salamander occupancy across disturbance types, using habitat variables to explain the occupancy results.

1. **Study Questions** What hypothesis(es) and/or study questions are you planning to answer using these data? Are there any key uncertainties that need to be addressed?

We are doing occupancy analyses to figure out where the animals are located across different disturbance treatments, and using habitat data to investigate what habitat differences are linked to those treatments to help understand how the disturbances change the landscape and how those habitat features impact salamander occupancy.

1. **Analysis**: Will you prioritize *structural* or *functional* methods of analysis? Are you interested in describing relationships among *objects* (usually sites) or *descriptors* (usually environmental variables or species) to answer your study questions (see Legendre & Legendre 2.1 and Figure 2.1)?

I think both, but I’m struggling a bit to understand these concepts. My project is set up so that Chapter 1 is occupancy analysis, and Chapter 2 is habitat analysis. So chapter 1 would use structural methods to see how animals are distributed across habitats/treatments. We could look at the organization of our habitat data across sites that are designated to different treatment classes, and potentially characterize those sites/treatments. We can look at how the environmental conditions or species presence differ spatially. Whereas functional analyses would help us to directly assess something like the amount of downed wood on a plot to the occupancy, and look for trends in how that variable influences the presence of salamanders.