Stella Dee

Week 4 Questions

I did not work with any other students.

Q1. For abundance, the predictor variable is the extent of late successional forest measured as a percentage (a). This is ordinal, continuous data on a ratio scale (b). For presence/absence, the predictor variable is total basal area (a). This is continuous ordinal data on a ratio scale (b).

Q2. For abundance, the response variable is abundance (a). It is ordinal, discrete data on a ratio scale (b). For presence/absence, the response variable is presence or absence (a). This is discrete binary data on a ratio scale (b).

Q3. For the abundance data, the data types suggested the use of linear model. This is because the many possible counts of abundance in the response combined with the binned yet continuous predictor variable meant that the resulting relationship had to be some kind of line. Looking at the data, a linear model appeared to fit better than some kind of exponential relationship. This means of determining a model means that the model is phenomenological. For the presence/absence data, a logistic model was used. This is because the model needed to work within the 0-1 limits of the response variable. It is not clear whether this model is phenomenological or mechanistic.

Q4. The advantage of the Ricker function is that it is a mechanistic model, so it requires a clear theory prior to use, which may not always exist for all situations. The advantage is that if one does exist, it is easier to extrapolate to other phenomena or situations. The quadratic model is a phenomenological model, and the advantage is that there does not need to be a clear explanatory theory prior to modeling. The downside is that without a clear explanatory theory, it may be harder to extrapolate the model to other situations.