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Worked alone

* 1. The predictor variable in the first model is extent of late-successional forest and in the second model is basal area.
  2. The scale of late-successional forest is a continuous ratio, out of 100%, which categorizes the forest into different ages. Compared to the second example, basal area is a measurement of tree diameter, taken at a specific heigh (4 feet), which does not have the same discrepancies as forest age. They both show the age of the forest, using different types of measurements and aging techniques.
  3. The response variable in both examples is brown creeper abundance.
  4. The type is also a ratio out of 1.0 instead of percentage. The first example has multiple values it can be between 0 and 1, but the second example only records the data as present or absent. It has a more binary look at brown creeper presence.

1. In the first example, there are more models to choose from that could represent the data. The least-squares model used is common and easy to interpret and see where outliers occur. The second example instead uses a logistic model because the data collected is binary. This causes the spread to be massive and the least-squares model would not be able to represent creeper abundance. Using the logistic model, you can see where the majority of brown creepers are found, relative to basal area, and it is able to include the data points at the higher end of basal area. The models cannot be interchangeably used between these two examples because the type of data collected was different and this restricts the analysis.
2. The Ricker model is a mechanistic model used to describe data that starts at a zero point, has a peak, and then returns back to zero or a baseline. The major advantage is the ability to return to zero forming an arc shape. Compared to a quadratic function model, which would typically continue increasing because the independent variable (x) is not included in the exponent. The quadratic model can also be used phenomenologically if the mechanism is not understood or part of the experiment. Seeing the results of a mechanism, might be more important than understanding why it is occurring.