Elizabeth Perkin
Willamette University, Small Liberal Arts College
General Ecology, 2nd Year Course, Lecture & Lab
Exploring the population dynamics of wintering bald eagles through long-term data
Linking biotic and abiotic factors to changing populations of bald eagles

1. The learning objectives for this assignment were:
   a. Analyze how one specific factor might influence a population of bald eagles.
   b. Gain experience with and understand the importance of long-term data.
   c. Apply some of the statistical tests they had been learning about earlier in the course to a hypothesis of their own design.
2. Students worked together in small groups to develop a hypothesis and method for testing their hypothesis. They also had experience in previous labs with basic statistical analysis (t-test, ANOVA, linear regression).
3. I used the open-ended version of this lab, but otherwise did very little modification from the original.
4. We spend a couple of weeks in the general ecology course discussing how various abiotic and biotic factors can influence population growth/decline. This lab tied in nicely with those themes, however, this lab came a bit later in the semester so I had to remind students in a short lab lecture about population ecology. Previous labs had emphasized quantitative analysis/statistical analysis in a much more guided way. This lab provided the students with a chance to apply some of those skills they learned in an open-ended way.
5. Students turned in a lab report that was basically an abbreviated scientific manuscript (see lab instructions).
6. I plan on using this module in my class again next year, but I plan on adapting it to be a bit more guided; to use it earlier in the course so that this lab takes place around the same time we are discussing population ecology, and to use this lab to introduce linear regression, multiple regression, and even mixed effects models.
7. I used this module after they had already done the TIEE module on climate change and phenology (Calinger 2014), which the students found very challenging and engaging. As a result, I think this module fell a little bit flat. To remedy this, I plan on using this module first next year as a way to more easily introduce them to larger data analysis. However, the students still enjoyed this module and felt like it helped them understand real-world population ecology.