BIOL 310 – Assignment 3

Due: February 23, 2022

Total: *20 points*

**Instructions**

Please respond to each question in complete sentences. Paste corresponding graphs and values from your R script under your response to each question. Submit the completed document on myCourses as “yourstudentID\_Assignment3.docx”. This assignment is 10% of your final mark. The Tutorial 3 instructions also list these questions and related examples.

**Questions**

1. Based on this example and previous topics discussed in class, how does scale affect the way we perceive occurrence data?
2. Plot another histogram using unlogged occurrence data and compare the two histograms. How does the visualization of the data change? Explain why.
3. Looking at the species-occurrence ranking plots of Canada, Ontario, Quebec and Alberta, what pattern can you infer? What could explain this pattern? How does sample bias correction help us deal with uncertainty in this case? Hint: you can look at the required reading for lecture 4 “What is biodiversity?” (Loreau 2010).
4. What is the trend of change of occurrences of Speyeria atlantis through time? Is there a difference between different time scales?
5. Now, run the same analysis (plots and model summary) for the Monarch butterfly and discuss the trends in frequency of occurrences across different time scales (1 year, 2 years, 3 years resolutions).