

Plant Diversity in the Big Thicket: Species-Area Curve Summary Paper

**This assignment is a brief write-up that summarizes the purpose and location of the study as well as a more detailed account of the results and discussion. Your write up (excluding graphs) will be ~ 2 pages.

Analysis:

1. Create TWO figures showing the species-area curve and a log transformation of the curve.

Figure 1 - a graph of the species-area data for both data sets. The x-axis should represent cumulative area and the y-axis should represent cumulative number of species. Use an X-Y scatter plot to graph your data. Be sure to add a **power** trendline and the **power** equation on the graph. Don't forget to notice the slope (z) of the equation!

Figure 2 - a graph of the log-transformed species-area curve for both data sets. To transform the data, in the spreadsheet, take the log (=log(VALUE)) of the cumulative number of species and the log of the cumulative area. The x-axis should represent the log of the cumulative area and the y-axis should represent the log of the cumulative number of species. Be sure to add a **linear** trendline and include the **linear** equation. Don't forget to notice the slope (z)!

*****Please remember to format your figures/tables.*****

Introductory paragraph:

Discuss the species area curve. Mention its uses and applications for studying plant populations that do NOT occur on an island. (However, remember that we are studying plants that are living in an isolated reserve –so it is a bit like an island – but NOT an island).

Questions to address in your Results and Discussion paragraphs:

1. What is the meaning of c and z values? How are they useful in the context of conservation biology? (You might consult Wilson (1992) and Rosensweig (1995) and references therein when considering these questions. Also most general Ecology texts or Conservation biology texts will help.)
2. What are the total number of species (species richness) found in each plot? _____
3. What are the slopes of the species-area curve in this forest habitat? _____
Are both data sets similar, and therefore are you able to confidently interpret the patterns of diversity?
4. How do graphs of power curves differ when plotted on linear axes versus when they are plotted on logarithmic axes?
5. Does your species-area graphs reach a plateau or do they continue to rise? What does it mean for a S-A curve to plateau? What does it mean if it does not reach a plateau?
6. Are most species found at smaller or larger quadrat sizes? _____
7. Can you suggest a quadrat size that is appropriate to use IF you wanted to sample 90% of the species in a similar area? Do you think this quadrat size will vary in different habitats? Or, with different taxa?