

PATTERNS OF DISPERSION IN TREE POPULATIONS IN THE BIG THICKET

ABSTRACT

Summarize your report

INTRODUCTION

General background about patterns of diversity in space and how we describe them. Why it is important to document these patterns. Also perhaps mention reasons that these patterns arise. (Its not all random.)

Discuss the 3 patterns of spatial dispersion and implications or assumptions of these patterns What are the biological or abiotic mechanisms that create these types of dispersion. You may discuss how patterns of dispersion change over space and time. Consider including a figure that shows the 3 patterns.

**Remember to think of the report as a story. Set it up with the Introduction, but save interesting results and insights for the discussion.

METHODS

Study Site

Paragraph about the study site and habitat and the types of tree species that dominate or characterize this location. If there are any obvious environmental gradients in or near to your plot, mention this here.

Data Collection

Mention that you haphazardly selected a site to place a 20 x 20 m plot and that you mapped the position of all trees the a DBH greater than __cm. Also mention that you recorded species identity and DBH for all trees. It would even be appropriate to include your scatter plot of plant locations here (see below), but save the bubble chart (which has the DBH information) for the Results section.

Statistical Analysis

Discuss all statistical and analytical methods. Mention your analysis for the different spatial scales (5m, 2.5m, 1m) as well as at two temporal scales (*young* and *old*, which is based on the size (DBH) of the trees).

*** It will help you to divide the Methods, Results and Discussion into subsections that first discuss the influence of spatial scale (5m, 2.5m, 1m) then the Influence of temporal scale (young, old).

RESULTS

The first paragraph of the results should include general information about the study system, such as the number of species included in the plot or the density of each tree species – or at least the most dominant species. Also include information that tells the reader about the general age of the trees (i.e., the DBH information).

Now, consider how you will present the results – IF you used subheadings for the Methods section, then use those same subheadings for the Results and Discussion sections. For example, you might first present results for the pattern of dispersion for all tree species under the subheading *Dispersion of Trees at Three Spatial Scales*. Under this subheading, first present the results for the 20x20m scale, then present each smaller scale. Then under the subheading *Dispersion of Young and Old Trees*, present your data on dispersion in the two size classes.

***You must describe your results for the reader, but you will refer to your figures and tables to illustrate your point. You should NOT include figures or tables that you do NOT refer to in the text.

***You will include 2 tables and 2 maps. You may choose to include more, but this is the minimum expectation.

Table 1. The density of tree species in a 20 x 20 m plot in the Big Thicket.

Include a table that shows all tree species, their density on our 20x20m plot and the average dbh of each species. In the last row of the table, include information about all trees and their average dbh.

Figure 1. Plot of tree location for all species found within a 20 x 20 m plot in the Big Thicket.

Include a scatter plot of tree positions (without relative size included). You may enter the data for each species as its own series. This takes a bit more work, but may provide you with more information to explain the pattern of dispersion in your study plot. For both maps, place x- and y- major gridlines at 5m intervals.

Figure 2. Plot of the location and area of land taken (as measured by the DBH) by all species in a 20 x 20 m plot in the Big Thicket.

Include a bubble plot (which includes measures of dbh). Disregarding species identity, enter the data in 2 series: a series of tree data for those LESS than the average DBH of all trees on the plot and a series of tree data for those with greater than average DBH. Your bubble chart will have 2 colors. For example, a dark-colored series will represent all trees with DBH > average and a light-colored series will represent all trees with DBH < average.

Table 2. Summary results for analysis of dispersion patterns for tree species in a 20 x 20 m plot in the Big Thicket.

Scale of Measurement	p-value	V/M ratio	Pattern of Dispersion
5m x 5m subplots			
2.5m x 2.5m subplots			
1m x 1m subplots			
"young" trees (5 x 5m)			
"old" trees (5 x 5m)			

**If you do NOT reject the null hypothesis of randomness (Meaning that the trees ARE distributed RANDOMLY), then you do NOT have to calculate the V/M ratio. If you do NOT calculate the V/M ratio, then write N/A in the corresponding cell. Of course, you may go ahead and calculate the V/M ratio, but remember that even if your data show a trend toward uniformity or aggregation... if you do not reject the null hypothesis then you must accept that the data is random.

OPTIONAL: You may choose to include a histogram of the frequency of dbh for all trees on this plot. You may think of other helpful figures to include. If you think it helps the reader to understand your study, then do so!

DISCUSSION

Restate main hypothesis or goal of the study and mention the general characteristic of the study plot.

Organize your Discussion as you did the Results section. (For example, use the same subheadings, such as *Dispersion of Trees at Three Spatial Scales* and *Dispersion of Young and Old Trees*.)

For *Dispersion of Trees at Three Spatial Scales* subsection, address the following:

Reject null hypothesis or not? Interpretation of data and analysis.

Is there a difference in the pattern of dispersion at different spatial scales? If so, Why? What are possible causes of the pattern that you see? Is there one or more species driving the pattern?

For *Dispersion of Young and Old Trees* subsection, address the following:

Reject null hypothesis or not? Interpretation of data and analysis.

What is the pattern of dispersion for *all* tree species *less than* the average dbh at 5m?

What is the pattern of dispersion for *all* tree species *greater than* the average dbh at 5m?

Is there a difference in the pattern of dispersion for trees of different size?

The final paragraph or two should address the overall results of your study and how it is or is not consistent with other studies of plant dispersion in forested habitats. What are the greater implications of your study? What can you conclude about this forest habitat based on the pattern of tree dispersion and the size of trees. (Is it a young, regenerating forest or maybe an older forest?) What is your prediction for how this pattern will change over time?

LITERATURE CITED -- at least 3 references (not web sites).

NOTE: Basic introductory college textbooks on Ecology will give you a good set of background information on these subjects.