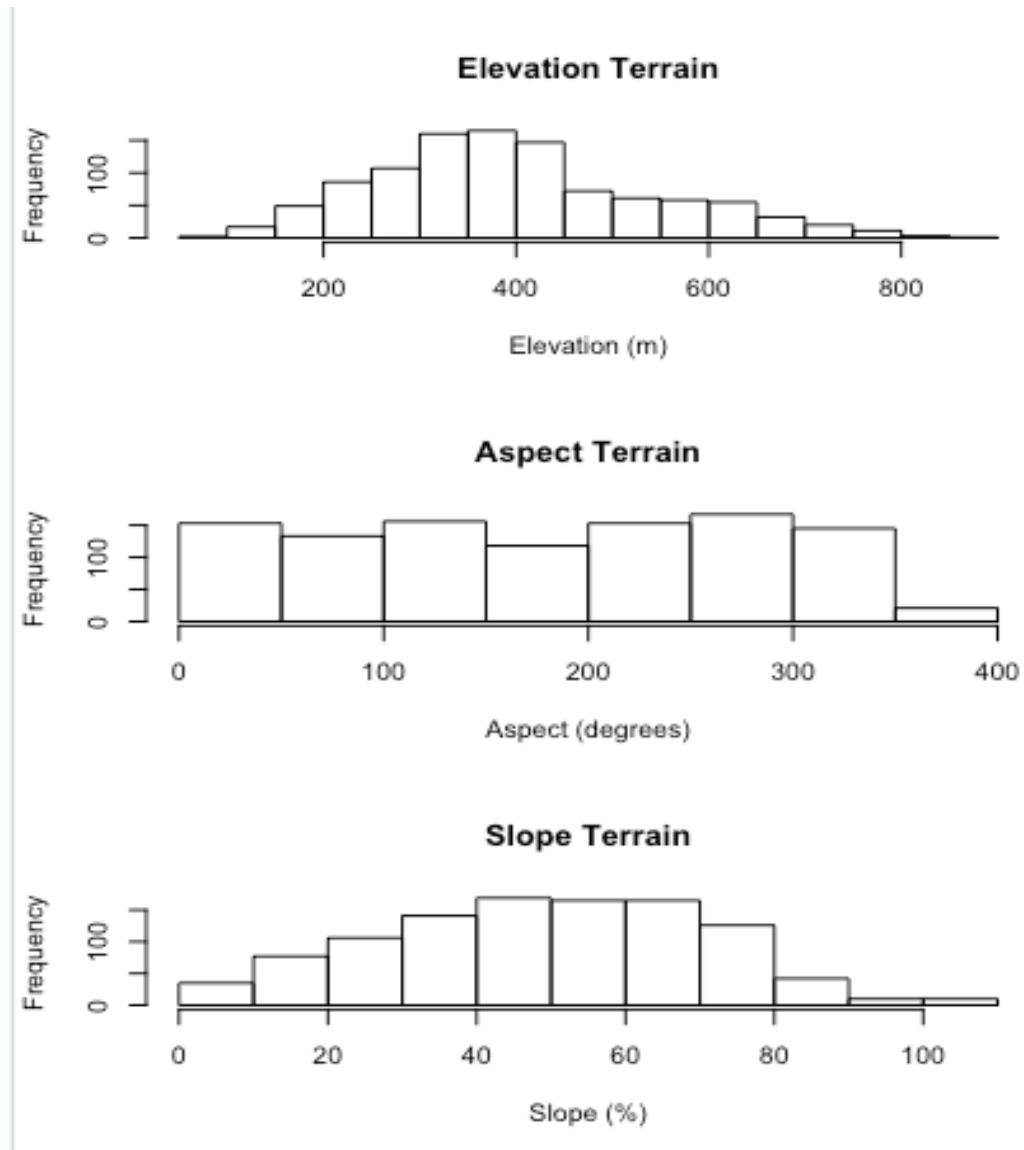


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Data exploration and deterministic functions

1.

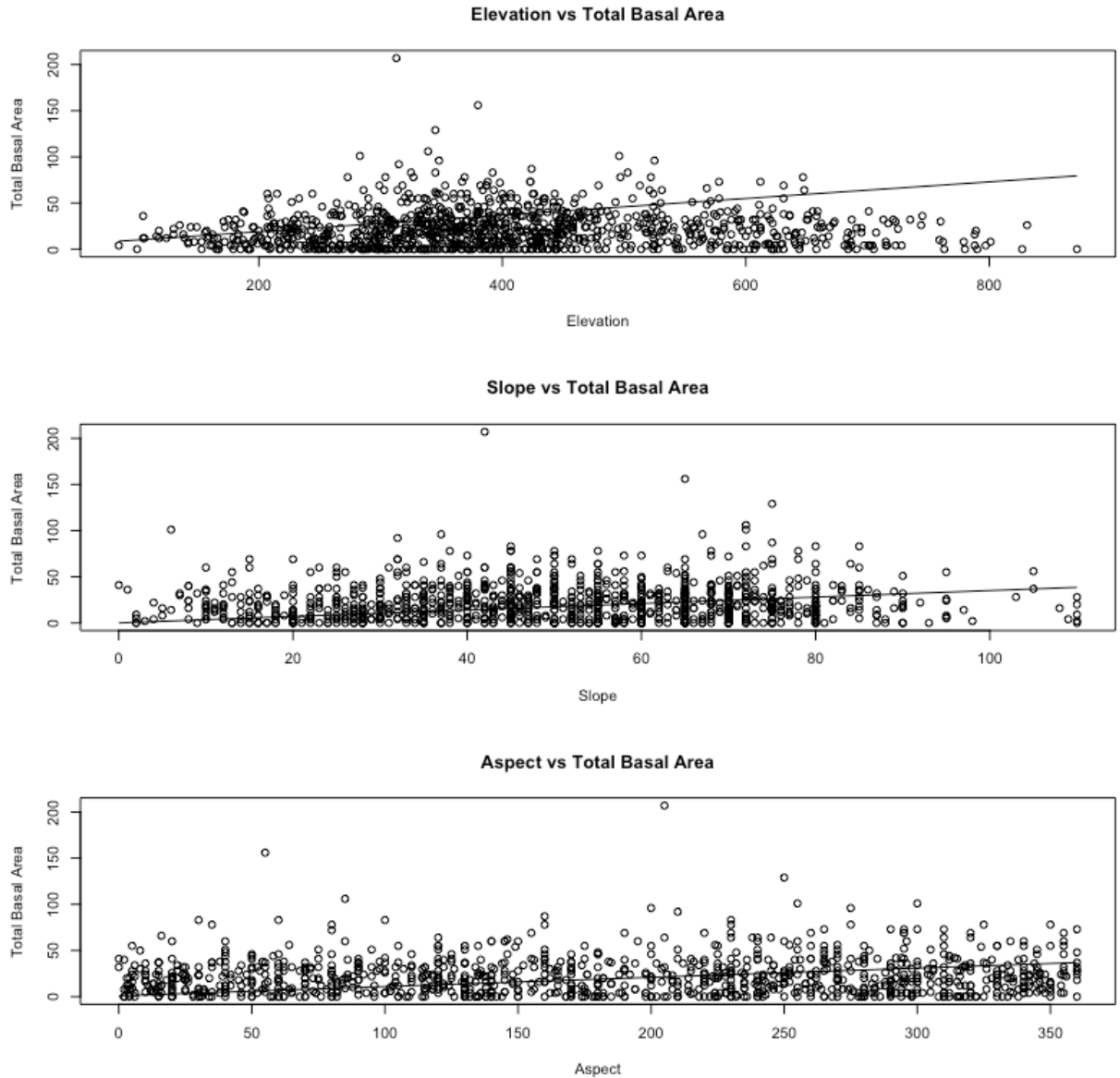


2. The histogram titled “Elevation Terrain” shows the elevation of different bird sampling stations. The shape of this plot displays how the data points (sampling stations and elevation) are dispersed. The “Elevation Terrain” plot simulates a combination between “bell-shaped”(looks like a bell) and “left-skewed” distribution of data. I came to this

conclusion because the tallest columns are centered towards the left-middle of the plot and the shorter columns recede on both sides. A bell-shaped plot displays most of the data points evenly distributed and in the center of the plot as well. Even though my plot doesn't completely display this distribution and my data is more altered to the left rather than centered it still displays a distribution similar to "bell-shaped" and "left-skewed" plots combined. My "Elevation Terrain" plot shows that most bird sampling stations have an elevation of 300-400 meters (middle of plot) and the rest of the sample stations have elevations lower than 200 meters (left) or higher than 600 meters (right).

3. The units of slope are in percent slope (%). Slope ranges from 0-110%.
4. The histogram titled "Slope Terrain" shows the slope of different bird sampling stations. The shape of this plot is similar to the shape of the Elevation Terrain plot but for this plot the data is more centered or bell shaped instead of being altered to the left. The Slope Terrain histogram displays that most sampling stations are not flat even though there is a relatively even mixture of steep and shallow sampling stations. I came to this conclusion based on the length of the columns across different slopes, which represents the number of observations. The most bird observations at the sampling stations were between 40-50% slope, which is shown by the tallest column in the center of the plot.
5. Aspect is the direction that the landscape faces or in other words the cardinal direction. The unit of aspect is in degrees, which range from 0-360 degrees.
6. The histogram titled "Aspect Terrain" shows the number of bird sampling stations at different aspects. Aspect is measured from 0-360 degrees, and these values indicate the cardinal directions: north, east, south, or west facing aspect. The shape of this plot displays a uniform distribution of data points, which is a plot with similar column heights and the data is evenly distributed. The similar heights of the columns in this histogram indicate that the sample stations are pretty much evenly distributed by aspect. The "Aspect Terrain" plot displays that there are a little more sampling stations facing between north and east than the other directions, and a little less between east and south, but it is a minor difference.

7.



8. In the elevation scatterplot, data points are clustered to the left of the plot and there seems to be more data points associated with elevations between 200-500 meters. I do not believe that this plot is linear since my line fits okay on the left side of my plot but doesn't fit well at all on the right. In the slope scatterplot, datapoints are more evenly distributed but seem slightly shifted towards the right and more data points are associated with slopes between 60-80 %. In the slope plot the linear line seems to fit a little bit better since it's touching or near more points on the right side of the plot than in the previous plot. In the aspect scatterplot the data points are more uniformly distributed

and it seems like the linear model is a better fit for this plot because the line passes through most of the data points.