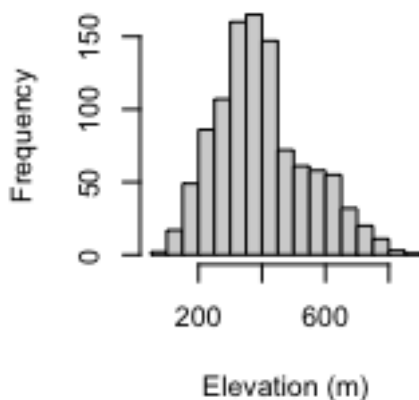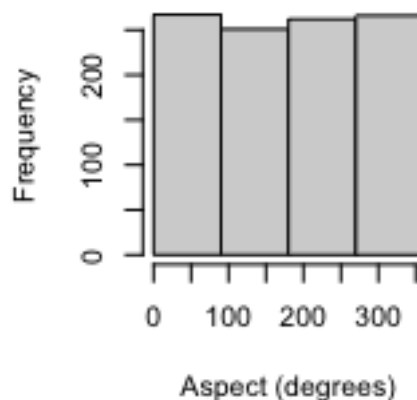Jessica Bonin
Analysis of Environmental Data
Data Exploration and Deterministic Functions
September 19, 2021
Worked with Juliana Berube

1. and 7.
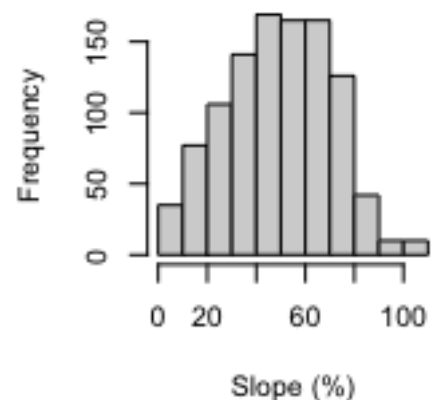
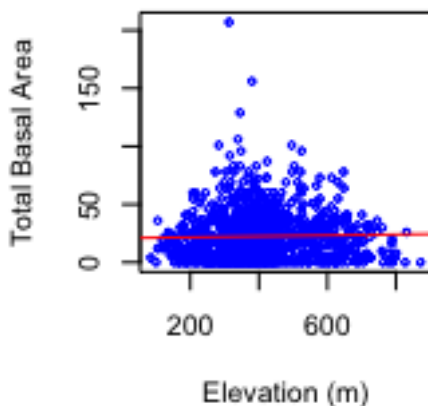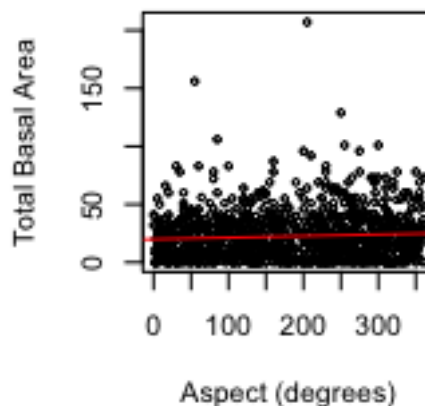**Histogram of Elevation**

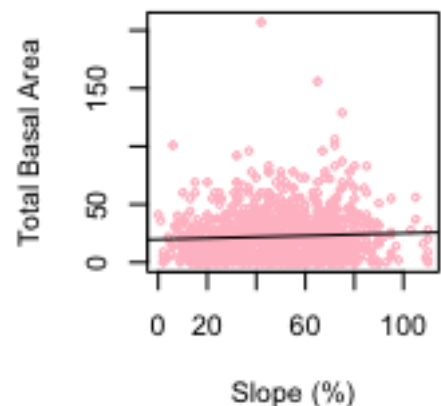**Histogram of Aspect**

Histogram of Slope

Basal Area and Eleveation

Basal Area and Aspect

Basal Area and Slope

2. The shape of the elevation histogram is roughly the shape of a bell curve. Another way to picture it is like the first part of a roller coaster: it starts off low and gradually increases and then changes directions at the top and decreases until the bottom of the hill. This means that the number of plots sampled at each elevation is not equal. The middle elevations have the greatest number of plots sampled and the really low and high elevations have a smaller number of plots sampled.

3.   The slope is in units of percentage. It is expressed as percent slope.

4.   The shape of the slope histogram is also roughly the shape of a bell curve. This means that most of the plots sampled were not flat. This is because the majority of the points occur with a percent slope greater than 0 or close to 0. The bell shape also means that there is not an even amount of steep and shallow sites. Plots sampled with percent slopes in the middle of the range are greatest in number and the plots sampled at really low and high percent slope occur less.

5.   Aspect refers to the location on a plane measured in degrees from 1-360. For example, when looking at a standard map, North is at 0 and 360 degrees, East is at 90 degrees, South is at 180 degrees, and West is at 270 degrees.

6.   The shape of the aspect histogram is roughly even with each of the 4 bars being about the same height. This means that the sample plots were most likely evenly distributed with about the same amount facing the North, South, East, and West.

8.   To assess the relationship between the terrain variables and total basal area, I ran a linear regression and added the line of best fit. There seems to be no distinguishable association between any of the terrain variables and total basal area. I can tell this because there is a roughly even distribution of points across the plot and each line of best fit has a slope close to 0. For this reason, I don't think a linear model is a good fit for this data.