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ECO-634 – Environmental Data Analysis Lab
9/16/2021
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Data Exploration and Deterministic Functions

Q1: Histogram graphs are shown in Figure 1.

Q2: When looking at the histogram show the number of sample sites along the elevation range of bird habitat, we are studying you can see that there are more sample sites at lower elevations than in higher elevations. More than 50% of the sampling sites are located below ~400m in elevation. The graph shows that the sites are not evenly distributed along the elevation gradient. Reasons for this may be that as you climber higher in elevation long a mountainside, suitable habitat might become less frequent. Higher elevations tend to be more difficult to access to survey compared to lower elevation sites.

Q3: The units for slope in the bird dataset is percent slope. The data is numeric from 0-110. A slope at 0% is flat and a slope at 100% is at a 45^{o} angle. Percent slope is the rise over run of the slope multiplied by 100.

Q4: The bird census samples sites are not evenly distributed along the slope range of the habitat used in this survey. Most of the sites are between 30-80% slope, with very few sites located on slopes with a percentage greater than 80%. The majority of the sites are not on flat ground or in locations that are extremely steep. The sites are more evenly distributed across the range of slope than they are across the range of elevation.

Q5: Aspect refers to the compass direction a slope or a hill is facing. The unit used for aspect in the bird dataset is degrees with a numeric value and a scale from 0-360.

Q6: Out of the three histograms, the number of samples sites is most evenly distributed along the range of aspect in the survey area. Because 0^{o} and 360^{o} are both north facing slopes and 180^{o} is south facing, by looking at the graph you can see there are a slightly more north facing sites than south facing.

Q7: Scatterplot graphs shown in Figure 1.

Q8: The three scatterplots do not show any linear relationship between total basal area of tree living or dead when plotted again elevation, aspect, or slope. Aspect seems to be the most evenly distributed, elevation the least, and slope in the middle. For elevation, the higher in elevation the less total basal area of trees there is. Scatterplots do not work well with this data.

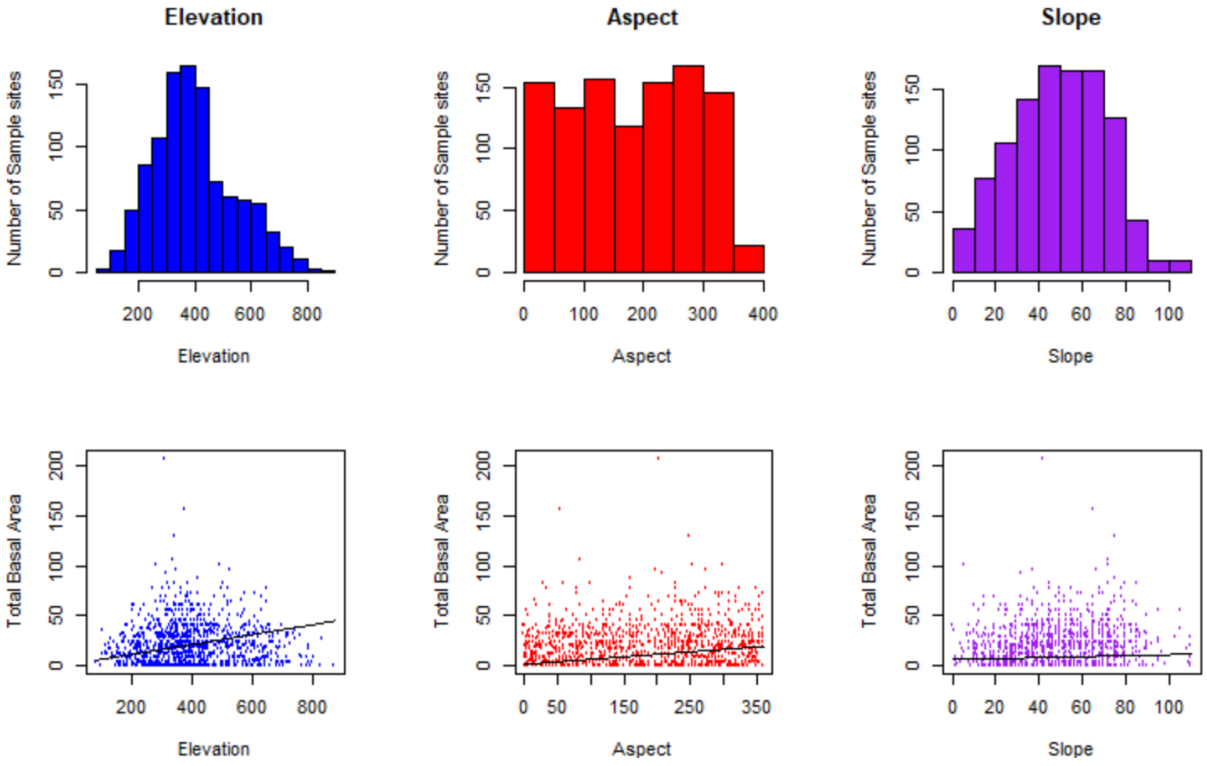

Figure 1: The three histograms on the top show the number of bird census sample plots along the range of elevation, aspect, and slope in the survey area. The three scatterplots on the bottom of the panel shows the total basal area of trees living or dead along the range of elevation, aspect, and slope within the bird census survey area.