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Data Exploration Assignment “1”

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#The following 2 lines imports the datasets (bird count data and habitat data) into R directly from
#the GitHub site
dat_birds =
read.csv("https://michaelfrancenelson.github.io/environmental_data/data/bird.sta.csv")

dat_habitat =
read.csv("https://michaelfrancenelson.github.io/environmental_data/data/hab.sta.csv")

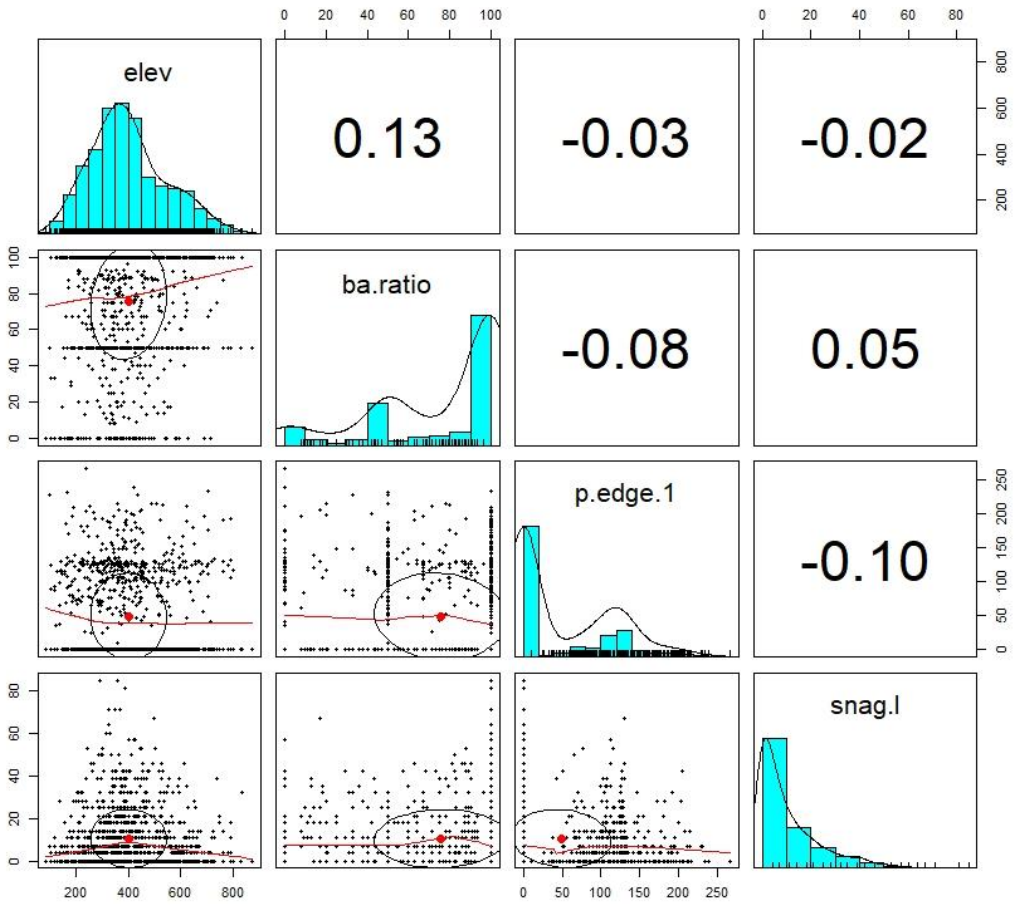

#colnames() is used to explore what columns are present in the habitat dataset to choose
#variables for the pair plot
colnames(dat_habitat)

#This line of code creates a vector of the numbers corresponding to our selected columns for
#the pair plot
terrain_col <- c(6,18,12,21)

#This line creates the pair plot using all rows and only selected columns that are specified in the
#“terrain_col” vector
pairs.panels(dat_habitat[,terrain_col])


#Head() function is used to explore options for bird species to choose for the histogram
head(dat_birds)

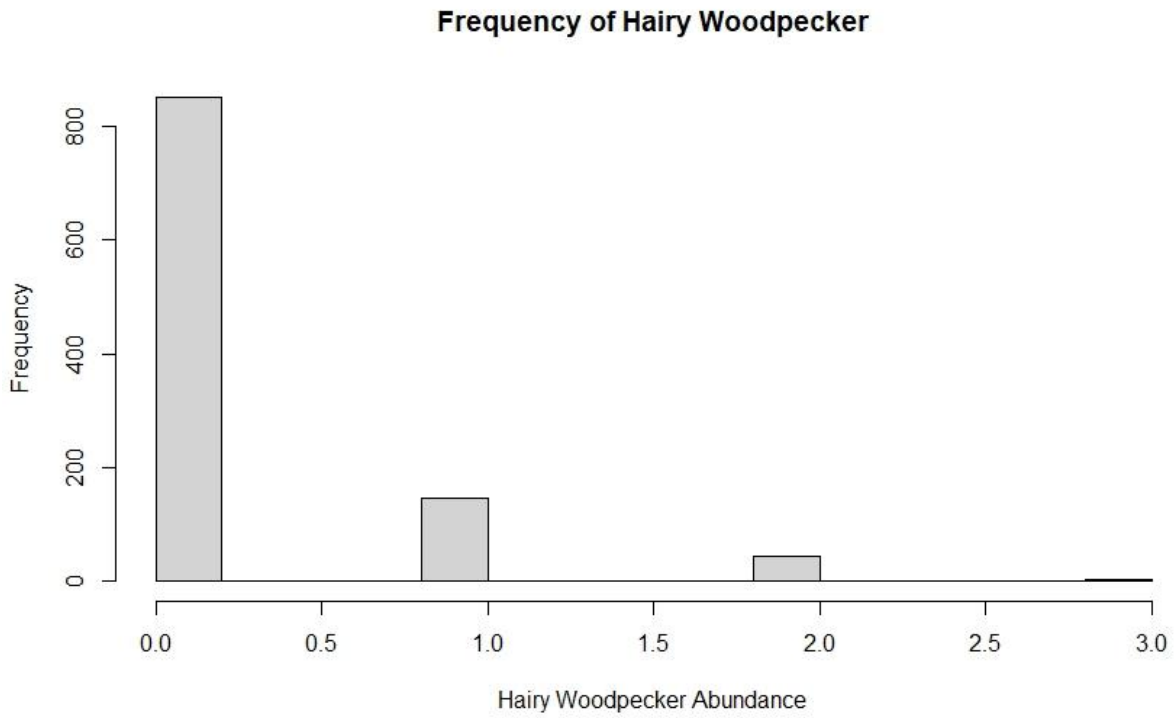
#This line creates a histogram using Hairy Woodpecker abundance and provides a title and #x-
axis labels
hist(dat_birds$HAWO,
    xlab = "Hairy Woodpecker Abundance",
    main = "Frequency of Hairy Woodpecker")
```



Describe what kinds of patterns you see in the pair plot panels.
From the pair plot panels shown, we can see the patterns in correlation coefficients for individual columns. Since there is a horizontal line for ba. ratio, the correlation constant would be zero. The columns p edge I and snag.I would be very close to zero as well.

Do any of the variables seem to be related?

There appears to be a correlation between snag.I and the elevation in the slope of the given histograms but not between much of the others.
snag. I= total number of dead trees
p edge 1 = length of patch edge (edge effects)
ba. ration = basal area ratio of conifers to hardwoods (0-10)



- What does the histogram show?
    - Are there lots of sites in which many birds were observed?
    - Are there more sites in which zero birds were observed?

The histogram is showing abundance of the hairy woodpecker bird species. We observe that the highest frequency of hairy woodpecker abundance was 0 birds. There are lots of sites in which no birds were observed.This count of birds occurred over 800 times at many sampling locations. A single hairy woodpecker bird was found at almost 200 sites, while the frequency of two hairy woodpeckers occurring at one site was observed only about 50 times. It also appears that there were one or several instances where 3 hairy woodpeckers were observed at a site. This seems like a much less frequent occurrence and there were never more than 3 hairy woodpeckers observed at a site.