Analysis of Environmental Data LAB 3
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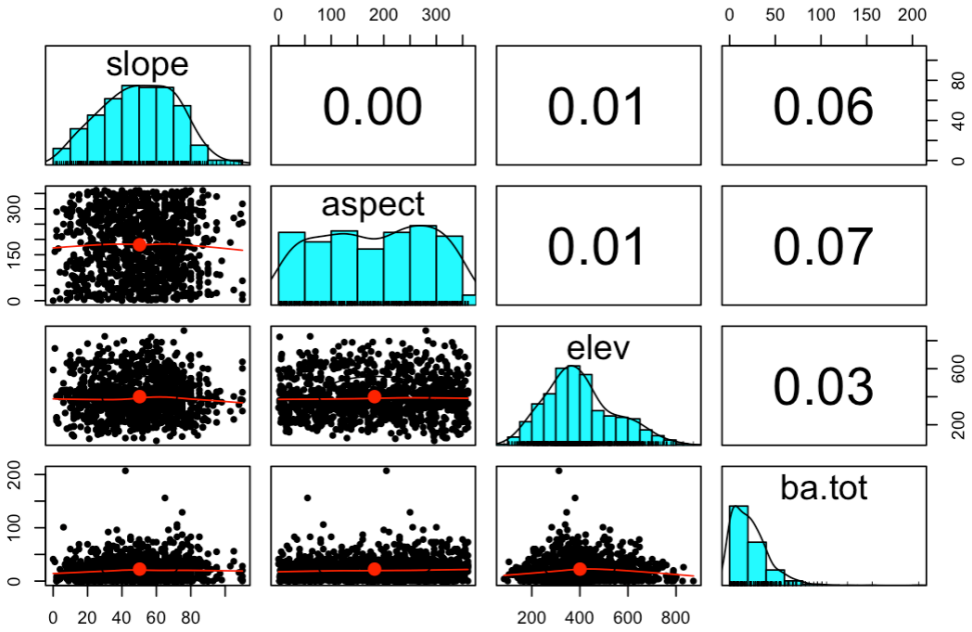
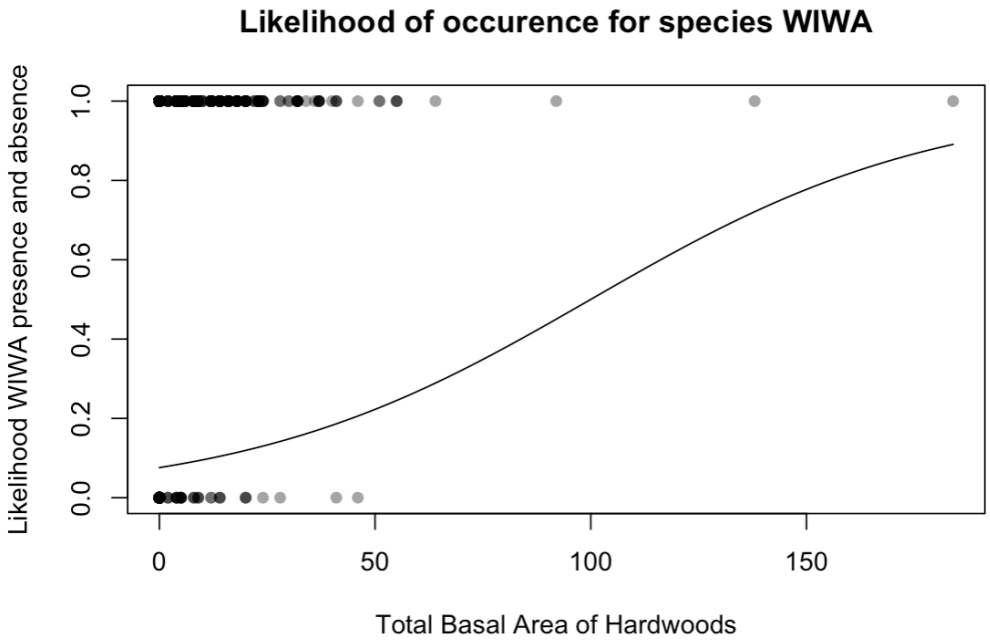
Q1 (1 pt.): What is basal area, and how is it measured?

The basal area is defined by the cross section of all trunks measured at breast-height in a specific area (in square feet per acre). It is a way to measure the tree cover of an area. With that, statements can be made on the habitat preferences of birds (e.g. more tree cover > more shade).

Q2 (2 pts.): Include a figure of your terrain/basal area pairplot.



Q3 (1 pt.): Include a figure of your logistic function plot. Your figure must include the name of the bird species, appropriate title, axes, etc.



Q4 (3 pts.): Qualitatively describe the bird's presence/absence patterns in terms of basal area (or your other chosen predictor). Your answer should make reference to your fitted logistic model plot. Some questions you might consider are:

- Does the bird species seem to prefer areas with high or low tree cover?

  When the basal area of hard wood tress is less than 50, there are more WIWA present.

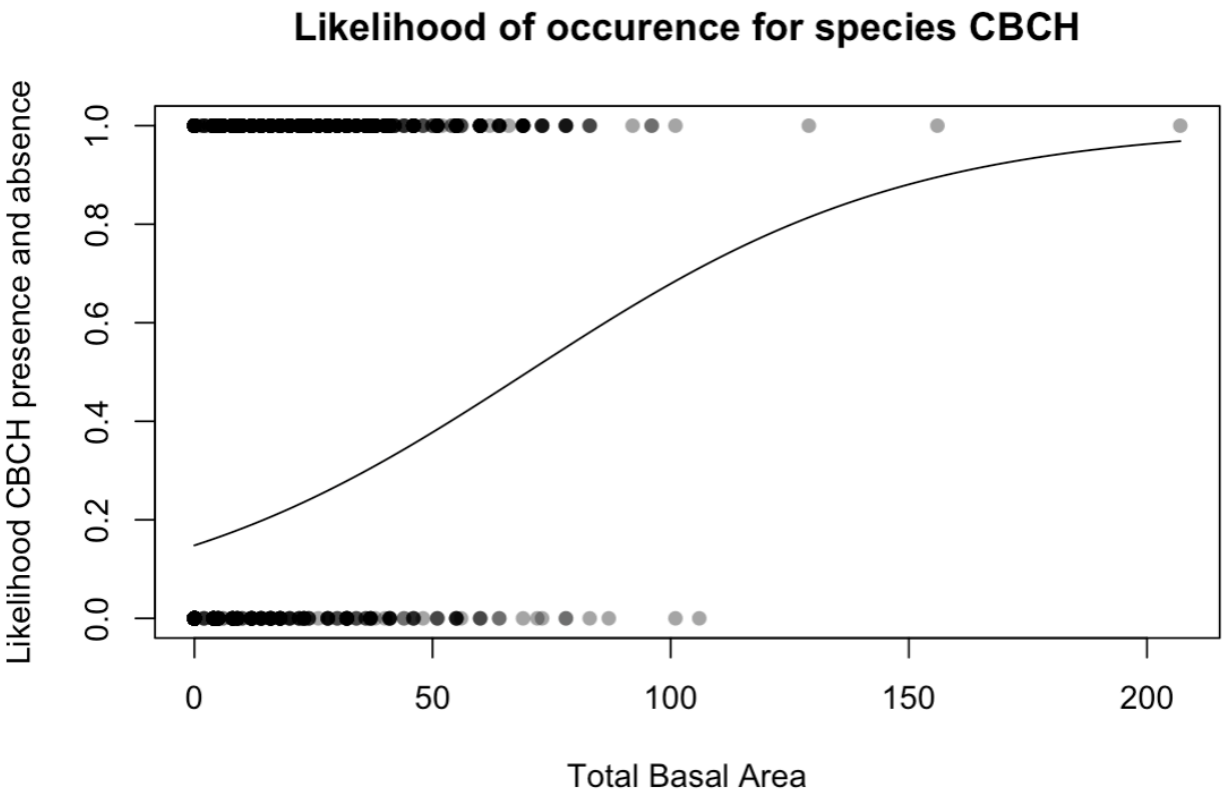
- Does the bird species prefer low or high elevations? (for example, if you used elevation instead of basal area)

  There are no differences in the occurrence of WIWA in high and low areas.

- Does a logistic model seem like a good fit

  It seems like a logistic model is a good fit, especially for presence/absence. If there are not many individuals discovered, „presence absence" modelling makes sense.

Q5 (1 pt.): Include a figure of your logistic function plot. Your figure must include the name of the bird species, appropriate title, axes, etc.



Q6 (3 pts.): Qualitatively describe the bird's presence/absence patterns in terms of basal area (or your other chosen predictor). Your answer should make reference to your fitted logistic model plot. Some questions you might consider are:

- Does the bird species seem to prefer areas with high or low tree cover?

  When the total basal area is less than 100, there are more CBCH present.

- Does the bird species prefer low or high elevations? (for example, if you used elevation instead of basal area)

  There are no differences in the occurrence of CBCH in high and low areas.

- Does a logistic model seem like a good fit

  It seems like a logistic model is a good fit, especially for presence/absence. If there are not many individuals discovered, „presence absence" makes sense.

Q7 (1 pt.): How many total number of Gray Jays were observed in all of the sampling sites.

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Q8 (2 pts.): Show the R code you used to perform the calculation.

```
sum(dat_all$GRJA)
```

Q9 (1 pt.): Calculate the total number of sampling sites in which Gray Jays were observed.
Hint: What happens when you use the sum() function on a vector of Boolean values?

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Q10 (2 pts.): Include the R code you used to perform the presence/absence calculation.

```
q <- dat_all$GRJA>=1
q
sum(q)
```