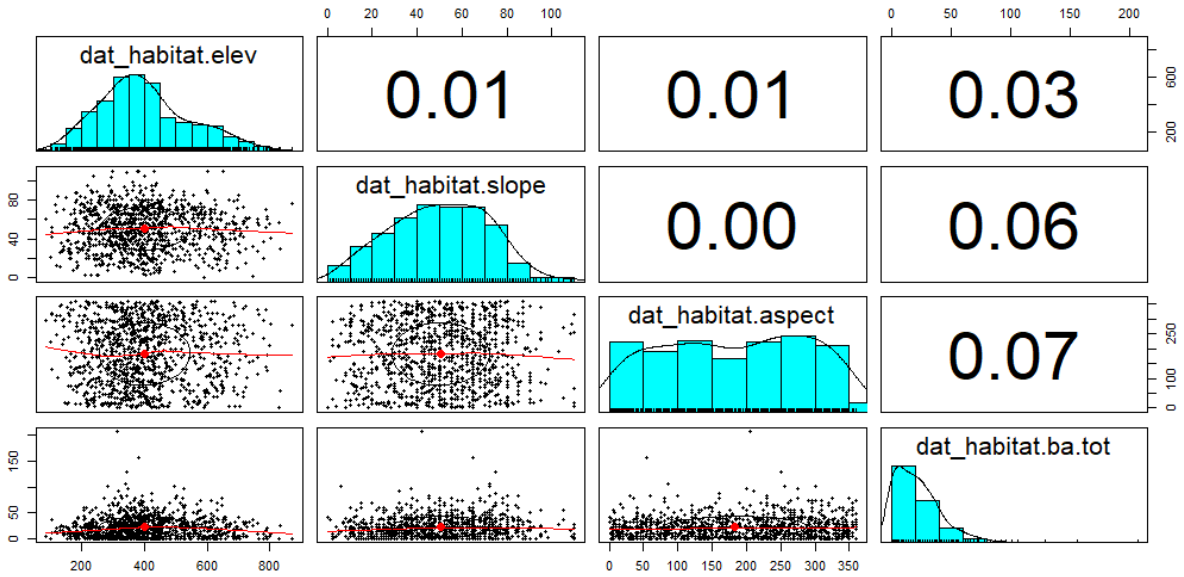
Julia Vineyard

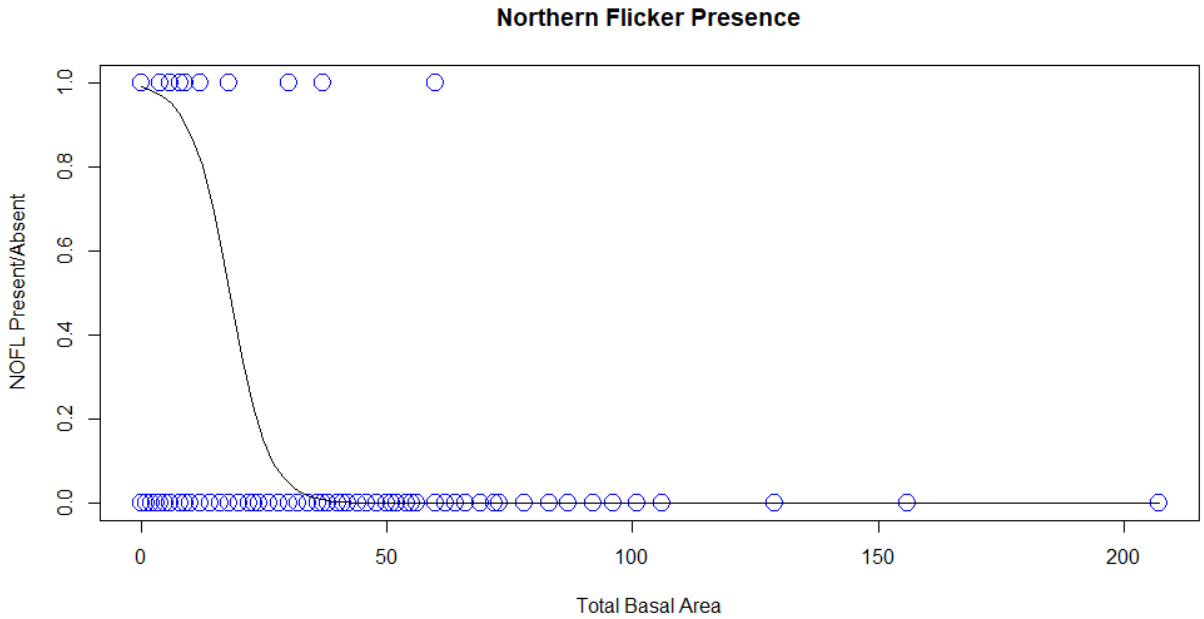
Worked with: Andrew Gordon

Lab 3 Data Exploration and Deterministic Functions

1. Basal area is the amount of an area that is covered in tree stems, measured at breast height.
2.

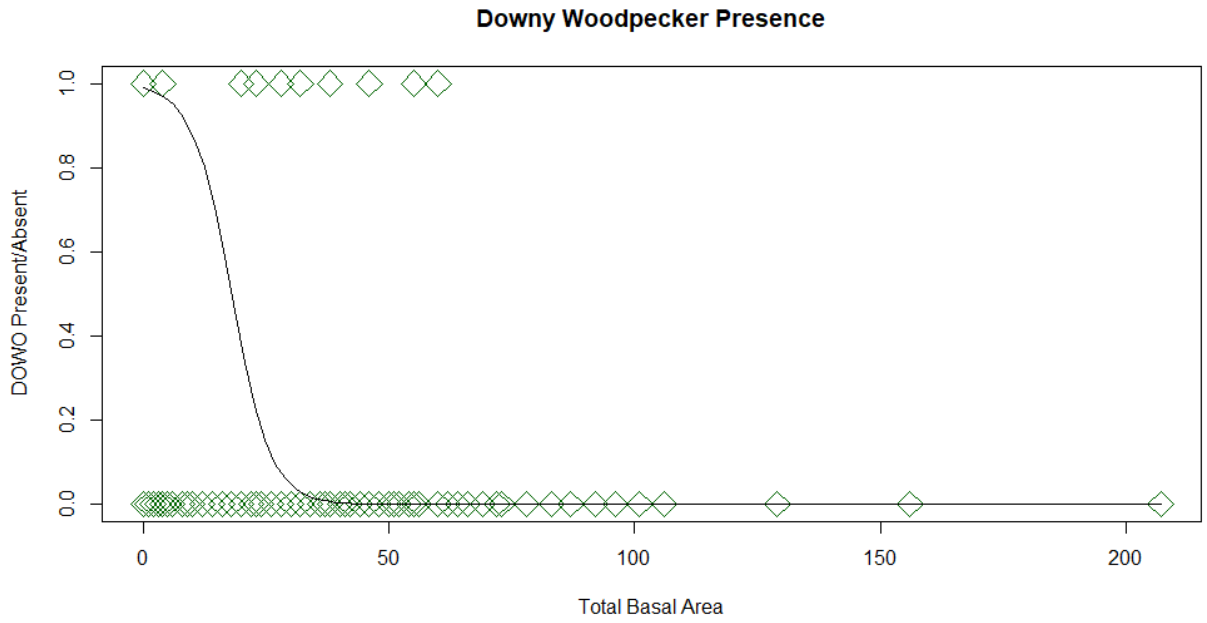


3.



4. While the majority of units had no Northern Flickers present, the scatterplot shows that the species is only present in units that have a total basal area of less than approximately 75 m^2/ha. The logistic curve is fitted to show that the majority of units with Northern Flicker present were below 50 m^2/ha and presence tapering from there in response to greater basal area. While based on a midpoint of the total basal area, this logistic curve seems to be a good fit for the data as the number of units with Northern Flickers present begins to drop after 25 m^2/ha as indicated by the model. Working with the data available, it can be inferred that Northern Flickers prefer areas with lower tree cover.

5.



6. While only 10 sites had Downy Woodpeckers present, the sites were all located in units of less than approximately 75 m^2/ha total basal area. The data ranges from 0-200 m^2/ha total basal areas so the small range of Downy Woodpeckers indicates that the species prefers areas with low tree cover. This logistic curve is based on the midpoint of the total basal area and does not fit well with the presence and absence of Downy Woodpeckers across the different sites. The curve shows that at approximately 25 m^2/ha the presence of woodpeckers will begin to decrease, which is not shown in the scatterplot. Adjusting the defined midpoint of the total basal area to include the spread of basal areas in which the Downy Woodpecker was found would allow the logistic curve to better fit the scatterplot.

7. 181 Gray Jays were found
8. sum(dat_all$GRJA)
9. 110 sampling sites
10. GRJA_vec = dat_all$GRJA
    sum(GRJA_vec >= 1)