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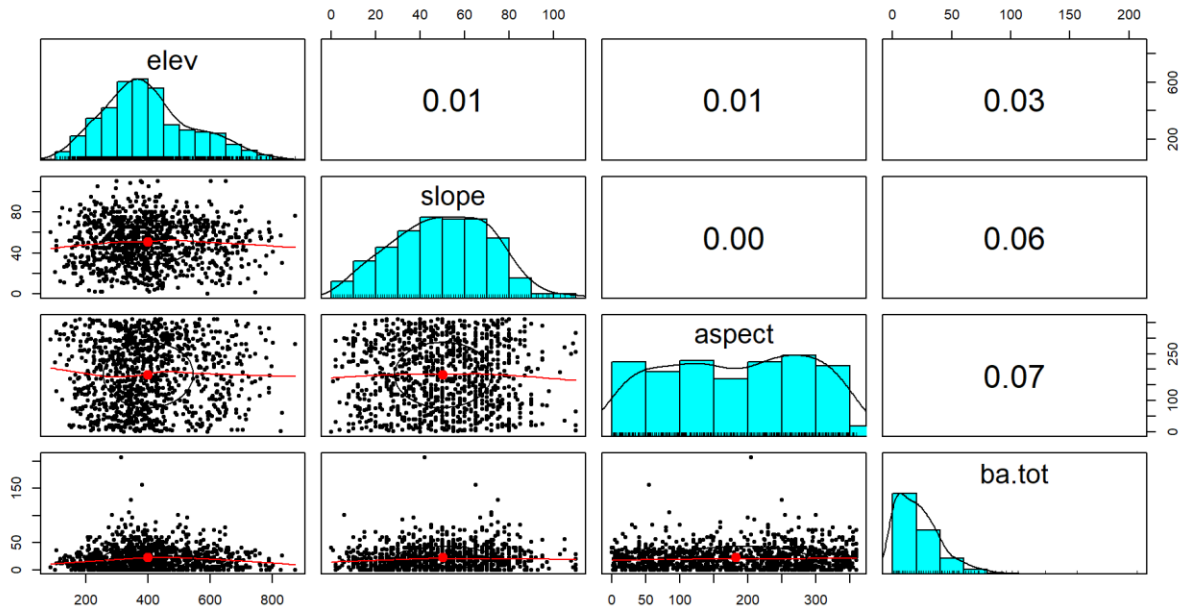
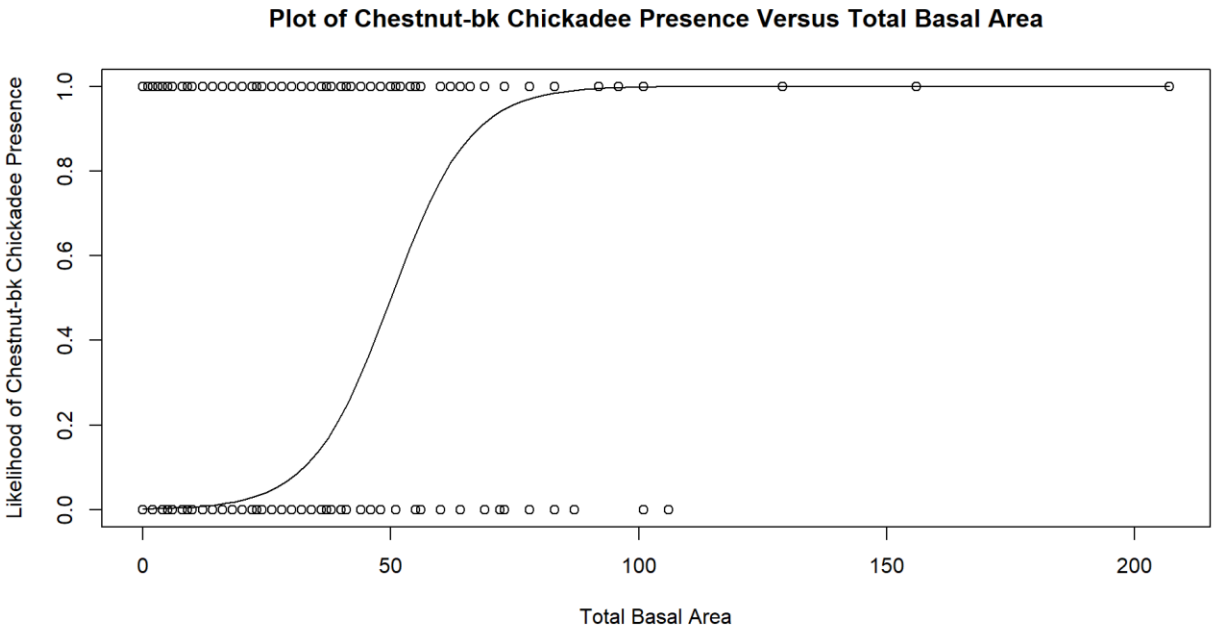
Analysis of Environmental Data

Lab 3

1. Basal area is a way to quantify tree stand density. It's the cumulative area of the base of trees at chest height (4.5 ft off the ground), measured in units of meters squared per hectare in this dataset.

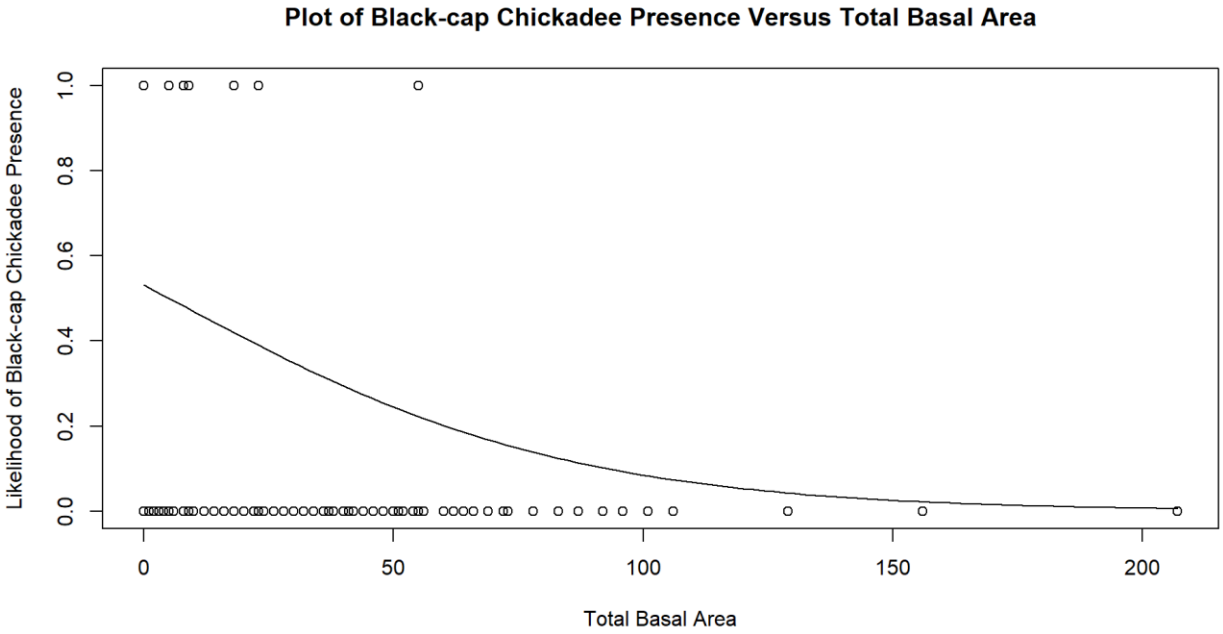


2.



3.

4. Chestnut-backed Chickadees seem to prefer habitat with low to moderate levels of tree cover, though there were a few sites with higher tree cover where they were present. That being said, the proportion of Chestnut-bk Chickadee presence increases with total basal area even though the total number of present observations decreases. The majority of the sites where Chestnut-backed Chickadees were present fall in the 0-60 square meter per hectare range.



5.

6. Black-cap Chickadees also seem to prefer habitats with lower tree coverage. As total basal area increases, the proportion of sites where Black-cap Chickadees are present decreases. All but one incidence of Black-cap Chickadee presence was observed in sites with 0-50 square meters per hectare of tree density. It seems that the logistic model is a fair fit for the data, where the likelihood of observing a Black-cap Chickadee is initially moderate when total basal area is low, but decreases rapidly with increasing tree coverage.

7. 181 Gray Jays.

8. dat_bird = read.csv(here("data", "bird.sta.csv"))

dat_habitat= read.csv(here(“data”, “hab.sta.csv”))

dat_all= merge(dat_bird, dat_habitat)

sum(dat_all$GRJA)

9. Gray Jays are present at 110 sites.

10. my_vec_grja= dat_all$GRJA

grja_present_absent= as.numeric(my_vec_grja>=1)

sum(grja_present_absent)