Julia Vineyard

Worked with: Andrew Gordon

Lab 9: Modeling 2

1. The null hypothesis is that the Brown Creeper presence/absence is the same for the edge and interior habitats.
2. The Brown Creepers showed preference for the interior habitat. The strong p-value (1.386e-06) indicates that you can reject the null and the comparison of the expected and actual contingency tables shows that there are more Brown Creepers present in the interior habitat than expected.

**Expected**

TRUE FALSE

E 56.72945 116.2706

I 286.27055 586.7294

**br\_creeper\_table**

TRUE FALSE

E 29 144

I 314 559

1. fit\_species= lm(formula=body\_mass\_g ~ species, data=penguins)

fit\_species

1. fit\_sex= lm(formula=body\_mass\_g ~ sex, data=penguins)

fit\_sex

1. fit\_both= lm(formula= body\_mass\_g ~ species \* sex, data=penguins)

fit\_both

1. Chart, box and whisker chart

   Description automatically generated
2. Chart, box and whisker chart

   Description automatically generated
3. Chart, box and whisker chart

   Description automatically generated
4. fit\_fl\_sp (body mass by species) and fit\_both (body mass by both species and sex) may both have problems fulfilling the homogeneity assumption.
5. A null Bartlett’s test states that there is no differences in the variance among the data, so you have homogeneity.
6. p-value = 0.0501
7. p-value = 0.0319
8. p-value = 0.1741
9. For the model of body mass by species and the model of body mass by species and sex, we have p-values that are not less than 0.05. Since we cannot reject the null hypothesis we do not anticipate any issues with heterogeneity in these 2 models. For the model of body mass by sex we can reject the null hypothesis (p-value= 0.0319) so we do expect to have issues with heterogeneity.