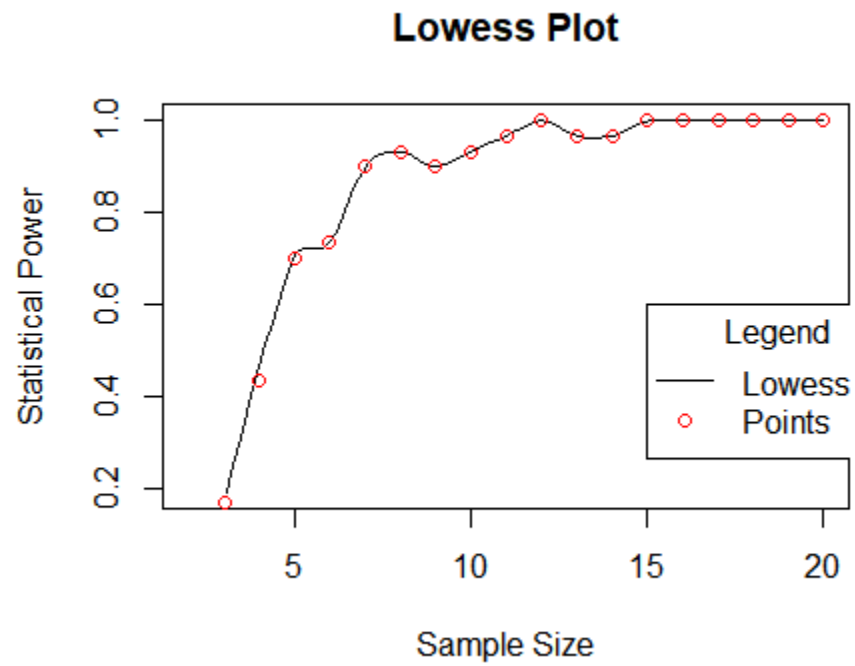Keegan Moynahan    *** worked with Caitie, Steph, and Abbie

Lab 12

1)

2)



**Marbled Salamander - first time breeders**
**Exponential model**
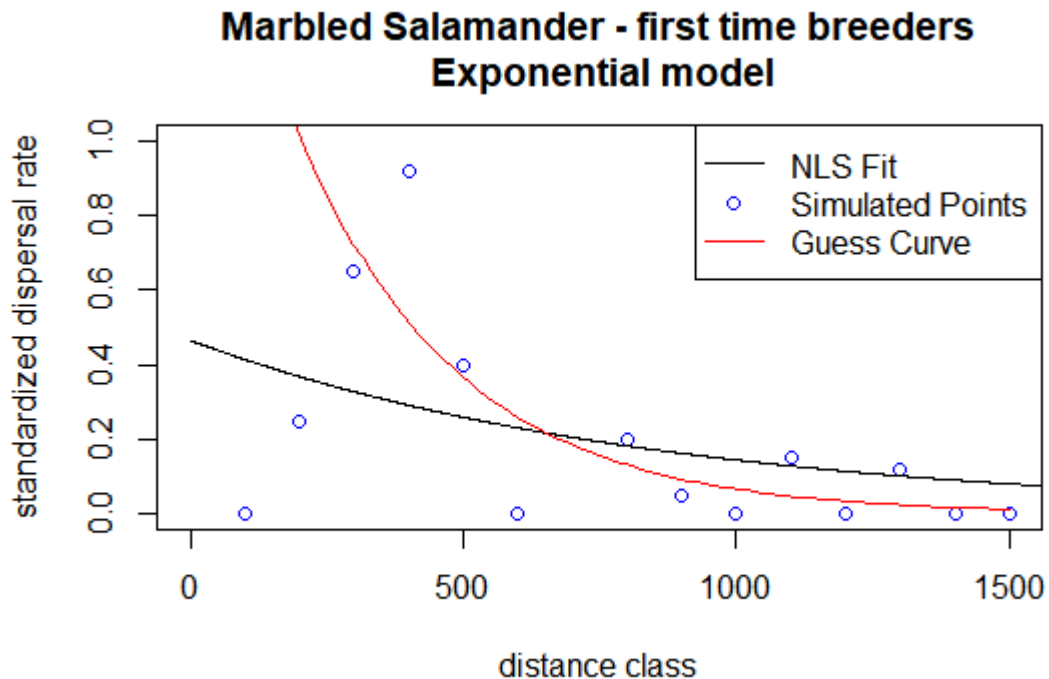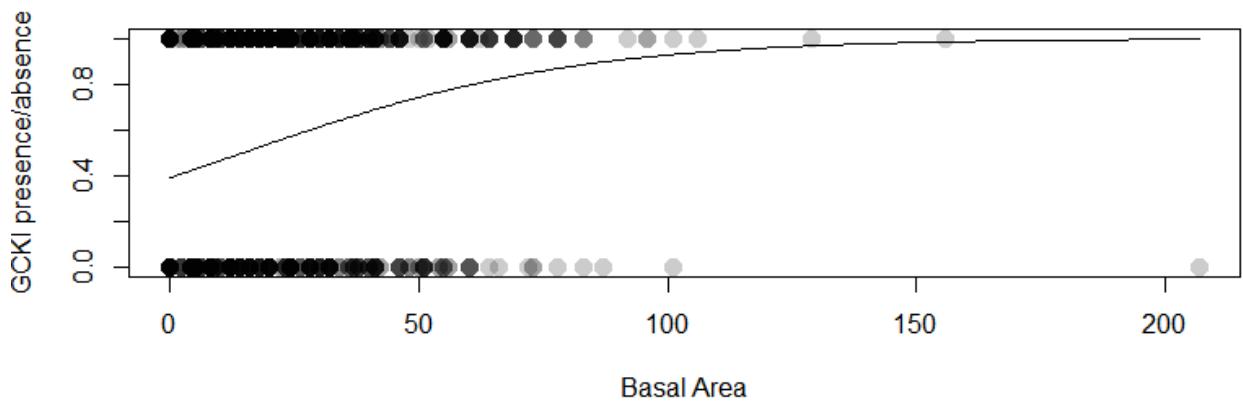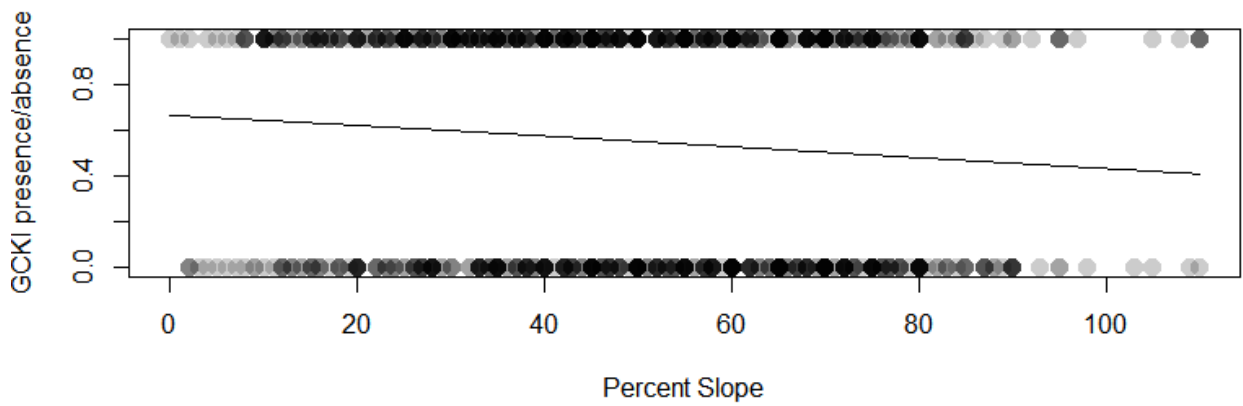
3)

```
> AIC(fit_gcki_slope)
[1] 1432.615
> AIC(fit_gcki_ba_tot)
[1] 1369.379
> AIC(fit_gcki_both_additive)
[1] 1355.951
> AIC(fit_gcki_both_interactive)
[1] 1353.007
> |
```

4) I would choose the interactive model because it has the lowest AIC score. I would also choose this model because its values are calculated based on how the two variables interact (basal area and slope). This would give the best insight into how these two variables interact. The tradeoff of choosing this model is the complexity of the data, it is not the easiest model to understand. In the end I think this model produces the best relationship between basal area and slope.

5) In the coefficient table for the interactive model I created, it provides a few different interactions. The predictor value has a value of -0.2643673040 and a p-value of 2.904161e-01 making it not significant. First it is clear that for every unit of slope added, the presence of the birds will decrease by -0.0040863155. This interaction isn't significant because the p-value is 3.674318e-01 which isn't significant. Next, for every unit of basal area added the presence of birds will increase by 0.0532973578, this interaction is significant because the p-value of this
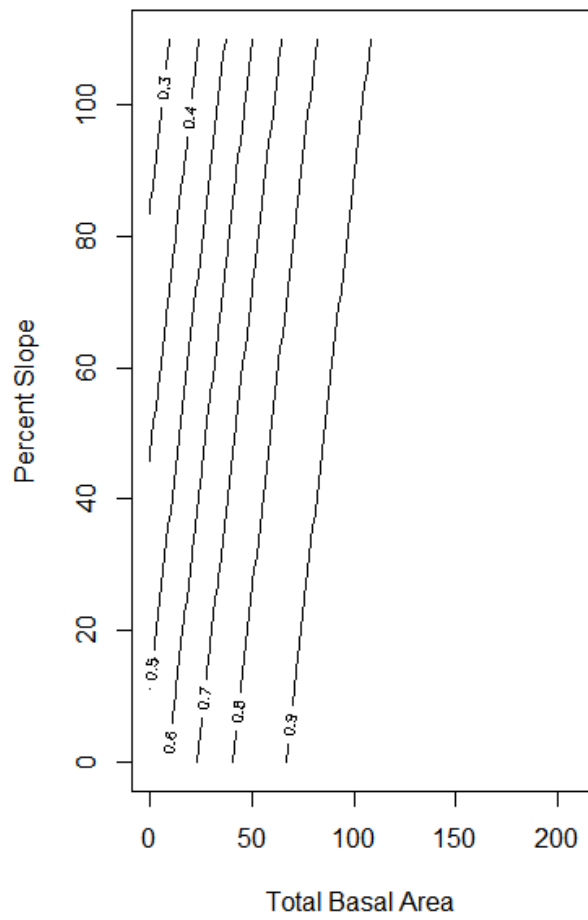
interaction is 1.203332e-06. Next the interactive variable for this model is also significant because of it having a p-value of 2.686105e-02. This interaction means for every unit of slope and basal area increased to the predictor variable there will be a negative interaction (-0.0004130721). There will be a decreased chance of seeing a bird presence with the interaction of slope and basal area.

6)

7)



**Additive**

Percent Slope

Total Basal Area

**Interactive**

Percent Slope

Total Basal Area