**Ecol 8990**

**Assignment # 3**

**Due Wed Oct 11, 5 pm**

Note: The work should be individual. Use R Markdown to complete the assignment. The Markdown (.Rmd) file itself is part of the assignment.

**1-** The ‘Infestation.csv’ file in the Assignment 3 folder contains data on bruchid beetle infestation of seeds collected across Serengeti National Park by Deus Rugemalila, a former Master’s student in my lab. Each row contains data for one tree. Seeds were collected for each tree and categorized as infested (INF) or not infested (NINF), based on the presence of larval exit hloes in the seed coat. The variables in the file are as follows:

|  |  |
| --- | --- |
| **Name** | **Description** |
| SEASON | Season of collection (2012-13 or 2013-14) |
| SITE | Site name |
| SPECIES | Species code |
| INF | Number of infested seeds |
| NINF | Number of non-infested seeds |
| ELEV | Site elevation in m |
| MAP | Site mean annual precipitation in mm |

Generate a set of plots that would allow you to visualize the relationship between some of the independent variables and infestation rate.

**2-** Ignoring the SITE effect (for now), use the variables SPECIES, SEASON, ELEV and MAP to construct a set of linear candidate models that would allow you to infer what drives seed infestation in this system. Include interaction effects if you think they are warranted or might seem biologically plausible. Fit the models with a binomial distribution using *glm*.

**3-** Use the AIC framework to draw some conclusions about what (if anything) influences infestation in this system

Please put a hard copy of the final Markdown .pdf or Word document in my mailbox, and email me the .Rmd file that generated the document.