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Eco 602 – Week 6 Reading Questions

10/05/2021

Q1. In a short paragraph, describe a baseline scenario regarding seed predation. At the end, state the null hypothesis for seed predation.

A baseline scenario in statistics refers to the elements being compared in a study must have the same baseline, or in other words, they must have the same environment characteristics or context. For example, you could not claim the side wall of a building is taller than the rear wall if you measure one from the floor and the other from the foundation. This comparison would be meaningless, as the elements are not of the same context. A baseline scenario then for the seed predation example would be that you are analyzing the difference between predation rate of two seed species in the same eco-region, with assumably the same types and number of predators existing. You could not start by comparing one seed species from the Arctic biome to a seed species in a tropical forest. For this example, we assume both seed species are found in Northeastern temperate forests of Massachusetts of similar climate and weather patterns and similar abundance of species. With this baseline, you are able to make comparisons in predation rates among two seed species. The null hypothesis for our baseline scenario is that there is not a difference in seed predation between the two species.

Q2. Seed predation R code to complete the table and calculate the rates of predation:

```
# Clear your R environment to make

# sure there are no stray variables.

rm(list = ls())

pol_n_predation = 26            #the number of 'pol' seeds taken

pol_n_no_predation = 184        #number of 'pol' seeds not taken

pol_n_total = 210               #total number of 'pol' seeds observed

pol_predation_rate = pol_n_predation/pol_n_total

psd_n_predation = 25

psd_n_no_predation = 706

psd_n_total = 731

psd_predation_rate = psd_n_predation/psd_n_total
```

#check with rates in Bolker

print(

  paste0(

    "The seed predation rate for Polyscias fulva is: ",

    round(pol_predation_rate, digits = 3)))

print(

  paste0(

    "The seed predation rate for Pseudospondias microcarpa is: ",

    round(psd_predation_rate, digits = 3)))

Q3. Seed predation table:

Species	Polyscias fulva (pol)	Pseudospondias microcarpa (psd)
Any taken	26	25
None taken	184	706
N	210	731
Predation rate	0.124	0.034

Q4. Seed predation ratios: Use the seed predation proportions you calculated to determine the ratios of seed proportions.

(I think this is what is being asked)

The ratio of seed proportions is 0.124/0.034 = 3.62. The calculated pol predation rate is in the numerator and the psd predation rate, with a larger N and lower predation rate, is in the denominator. By dividing the two we get a ratio equal to 3.62. Predation rate is higher for pol seeds than psd seeds, however there are significantly more psd seeds that were observed in general.

pol_predation_rate/psd_predation_rate = ratio_seed_prop

I did not work with any other students on these reading questions