Week 6 questions

Keith Allison

10/10/2021

Q1.Null Hypothesis

There are two species of seed, Polyscias fulva and Psuedospndias macrocarpa, that are preyed on at an observation station. Data is collected about whether or not any seeds are taken from either species. The ecological question asked in Bolker is "Is there differential predation on the seeds of these two species?". A baseline scenario could be that seed predation is equal for both species of seeds. The null hypothesis would then be:

pol_predation_rate = psd_predation_rate

or equivalently pol_predation_rate – psd_predation_rate = 0

Q2: Seed predation R-Code

```
rm(list = ls())

pol_n_predation = 26
pol_n_no_predation = 184
pol_n_total = pol_n_predation+pol_n_no_predation
pol_predation_rate = round(pol_n_predation/pol_n_total, 3)

psd_n_predation = 25
psd_n_no_predation = 706
psd_n_total = psd_n_predation + psd_n_no_predation
psd_predation_rate = round(psd_n_predation/psd_n_total, 3)


print(
  paste0(
    "The seed predation rate for Polyscias fulva is: ",
    round(pol_predation_rate, digits = 3)))
```

```
## [1] "The seed predation rate for Polyscias fulva is: 0.124"
```

```
print(
  paste0(
    "The seed predation rate for Pseudospondias microcarpa is: ",
    round(psd_predation_rate, digits = 3)))
```

```
## [1] "The seed predation rate for Pseudospondias microcarpa is: 0.034"
```

Q3: Seed Predation Table

```
tribble(~'species', ~'Polyscias fulva (pol)', ~'Polyscias fulva (pol)',
        'Any Taken', pol_n_predation, psd_n_predation,
        'None Taken', pol_n_no_predation, psd_n_no_predation,
        'N', pol_n_total, psd_n_total,
        'Predation rate', pol_predation_rate, psd_predation_rate)
```

```
## # A tibble: 4 x 3
##   species        `Polyscias fulva (pol)` `Polyscias fulva (pol)`
##   <chr>                            <dbl>                   <dbl>
## 1 Any Taken                         26                      25
## 2 None Taken                       184                     706
## 3 N                                210                     731
## 4 Predation rate                     0.124                   0.034
```

Q4: Seed Predation Ratio

```
predation_prop <- round(pol_predation_rate/psd_predation_rate,3)
predation_prop
```

```
## [1] 3.647
```