Biodiversity for the National Parks

Analysis by Edward Basch

Data Description

- The analysis that was preformed was based on the data set provided in the species_info.csv file.
- The data provided basic info on species including category, scientific name, common name, and conservation status.
- The categories included: Mammal, Bird, Reptile, Amphibian, Fish, Vascular Plant, Nonvascular Plant.
- By grouping based on conservation status we determined that 15 species are endangered, 4 are in recovery, 151 are species of concern, 10 are threatened, and 5363 require no intervention.

Pivot Table of Species by Category Protected vs. Not Protected

id	category	not_protected	protected	percent_protected
0	Amphibian	72	7	8.86%
1	Bird	413	75	15.37%
2	Fish	115	11	8.73%
3	Mammal	146	30	17.05%
4	Nonvascular Plant	328	5	1.50%
5	Reptile	73	5	6.41%
6	Vascular Plant	4216	46	1.08%

Tests for significance

- We ran Chi-Squared tests to see if one category of species is significantly more likely to be endangered than another.
- First we compared mammals to birds.
  - The p-value was 0.687 so we could not reject the null hypothesis (.687 >.05).
  - There is no significant difference in the likelihood that birds are endangered compared to mammals.
- Next we compared mammal to reptiles.
  - The p-value was .0383 so we could reject the null hypothesis (.0383 < .05).
  - There is a significant difference in the likelihood that reptiles are endangered compared to mammal.
- Based on these results we would recommend focusing resources on protecting mammals rather than reptiles.

Sample Size Determination

Foot and Mouth Disease Study

- The baseline percentage for this study was 15%, which is what scientists were able to record last year.
- The minimum detectable effect for this study was 33.33%.
- At a 90% significance level the sample size per variant was 870.
- It would take 1.7 weeks to collect enough samples in Yellow Stone National Park to meet the sample size requirement.
- It would take 3.48 week weeks to collect enough samples in Bryce National Park to meet the sample size requirement.

Graphs that illustrate findings