Biodiversity in National Parks

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Species Dataset

- The species dataframe contains information about-
  - The class the specimen is part of (mammal, arachnids, etc.)
  - The scientific name (Bos bison, Ovis aries, etc.)
  - The common names (Bison, Domestic Sheep, etc.)
  - Conservation status (Species of Concern, Endangered, In Recovery, etc.)

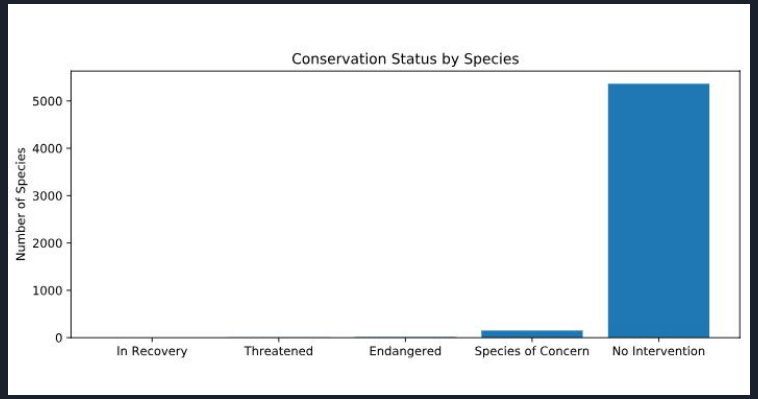
- Information about the dataset-
  - There are 5,543 total species accounted for
  - Only 3% of animals need intervention
  - Only 0.27% of animals are considered endangered
  - 96.75% of all the species require no intervention

Endangered Species

- Are certain types of species more likely to be endangered?
  - Yes, there is a significance between at least two types of species.
- P-value calculations-
  - Mammal vs. Bird (Insignificant)
    - ~0.69
  - Bird vs. Amphibian (Insignificant)
    - ~0.18
  - Reptile vs. Mammal (Significant)
    - ~0.038
  - Bird vs. Fish (Significant)
    - ~0.077

Conserving Endangered Species

Some species can be observed as being more likely to be endangered than others. However, the p-value calculation isn't the only factor to consider when answering the question, "are certain types of species more likely to be endangered?". There are many other factors that account for whether the species will be more likely to be endangered. Some examples may be the amount of predators that are present in the ecosystem at the time, what time of the year the species reproduces, whether humans are affecting the species, etc. Therefore, p-value is not a definitive answer for the question of whether some species are more likely to be endangered.



Foot and Mouth Disease

- At Bryce National Park 15% of sheep had foot and mouth disease (Baseline)
- Detect reductions of at least 5% (100*5/15 = 33.33% minimum detection rate)
- Default statistical significance of 90%
- A minimum sample size of 870 sheep
- Number of weeks per park to obtain minimum sample size-
    - Bryce National Park: 3.48
    - Yellowstone National Park: 1.71597633136
    - Great Smoky Mountains National Park: 5
    - Yosemite National Park: 3