Biodiversity for National Parks

A Brief Breakdown & Some Sheep

Christopher Tower - March 2018 for CodeAcademy Introduction to Data Analysis Course

Species Breakdowns

- 5824 different species across the national parks
- 191 of those have a protected status
- The parks are important for providing a protected environment for these

	Conservation Status	Number of Species
0	Endangered	16
1	In Recovery	4
2	No Intervention	5633
3	Species of Concern	161
4	Threatened	10

Protections across categories of Species

	category	not_protected	protected	percent_protected
0	Amphibian	72	7	8.860759
1	Bird	413	75	15.368852
2	Fish	115	11	8.730159
3	Mammal	146	30	17.045455
4	Nonvascular Plant	328	5	1.501502
5	Reptile	73	5	6.410256
6	Vascular Plant	4216	46	1.079305

Notice the largest percentages of mammals and birds are protected.

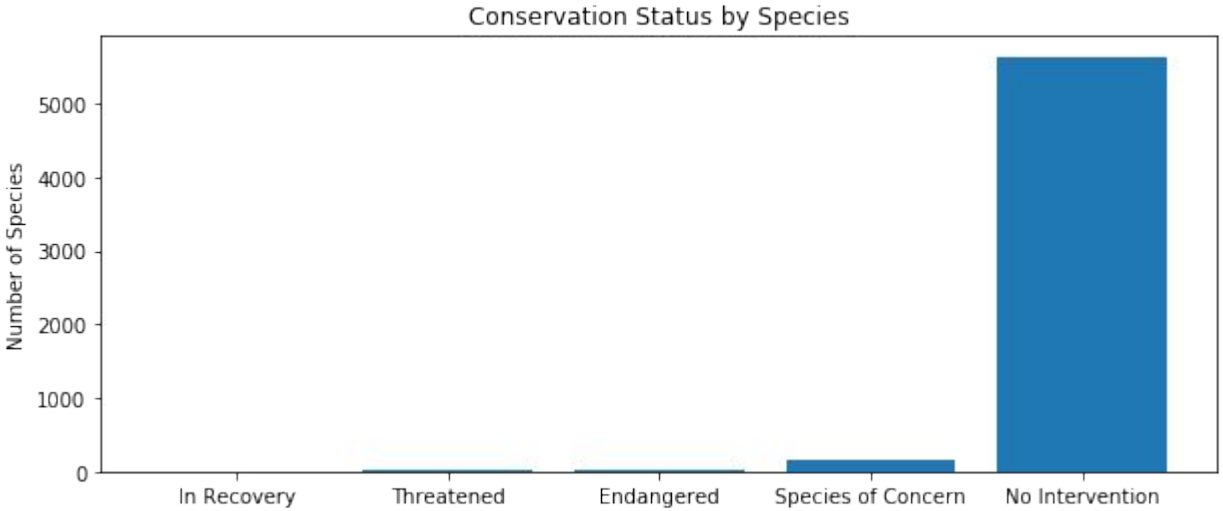
Significance Calculations

- Chi squared test used for difference between birds and mammals
  - Revealed no significant difference (0.69 P-Value)
- Chi squared test used for difference between reptiles and birds
  - Revealed no significant difference (0.053 P-Value)
- Chi squared test used for difference between reptiles and mammals
  - Significant Difference (0.04 P-Value) indicating mammals are more at risk
- Focusing effort on mammal protections should yield the best returns as they are the most at risk

Foot and Mouth Disease Study

- Bryce Park Sheep have a 15% infection rate for Foot and Mouth Disease
- Identify a 5 percentage point minimum change (33% difference)
- Confidence of 90%
- https://www.optimizely.com/sample-size-calculator/ was used
- Revealed an observation of 520 sheep would be required to determine infection rate at other parks
- Just over a week to observe at Yellowstone or two weeks at Bryce

Supplemental Graph of Conservation Status



Supplemental Graph of Sheep Sightings