

# Capstone Option 2: Biodiversity for the National Parks

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# Overview

- Species\_info.csv Data
- Significance calculations
- Recommendation for conservationists
- Foot and Mouth Disease study

# Species Data

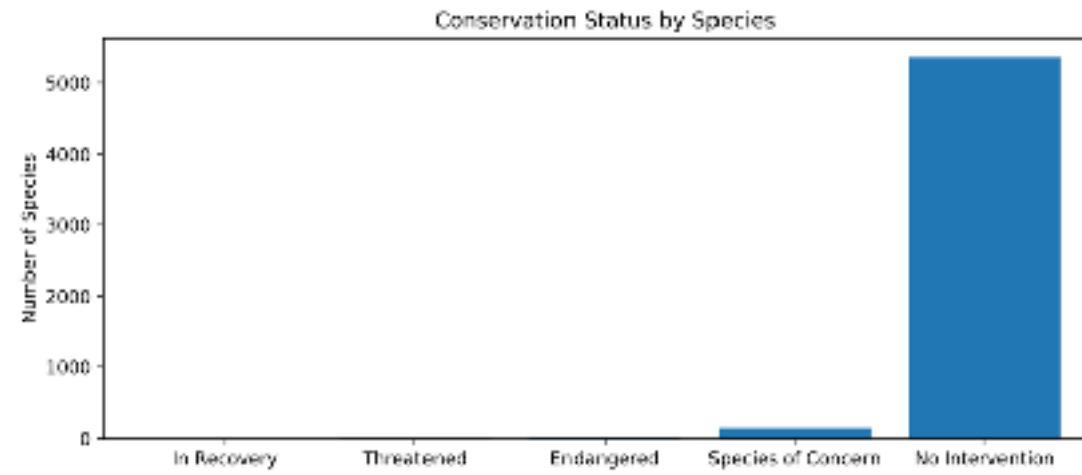
- Common and scientific names of many different species found in National Parks throughout the United States.
- 7 different species categories; Mammal, Bird, Reptile, Amphibian, Fish, Vascular Plant and Nonvascular Plant.
- 5541 Different species.

# Species Data

## 5 Conservation Status Categories:

- **Endangered** - Seriously at risk of extinction.
- **In Recovery** - Formerly endangered, but currently not in danger of extinction.
- **Species of Concern** - Declining population or appears to be in need of conservation.
- **Threatened** - Vulnerable to endangerment in the near future.
- **No Intervention** - Appear to need no assistance to maintain it's population.

# Species Data



Endangered - 15  
In Recovery - 4  
Species of Concern - 151  
Threatened - 10  
No Intervention - 5363

# Significance Calculations

- Almost 97% of all species listed in this study are categorized as needing no intervention to help prevent them from becoming endangered.
- Mammals and Birds are the only 2 species categories that have protection over 10%.
- Both vascular and non vascular plants are under 2% protected.
- The Chi Squared test comparing birds and mammals resulted in a p-value of 0.68 leading us to conclude that their protection percentages are just a coincidence, but when run on mammals and reptiles the p-value was 0.03.

# Significance Calculations

## Protection Percentages:

	category	not_protected	protected	percent_protected
0	Amphibian	73	7	0.087500
1	Bird	442	79	0.151631
2	Fish	116	11	0.086614
3	Mammal	176	38	0.177570
4	Nonvascular Plant	328	5	0.015015
5	Reptile	74	5	0.063291
6	Vascular Plant	4424	46	0.010291

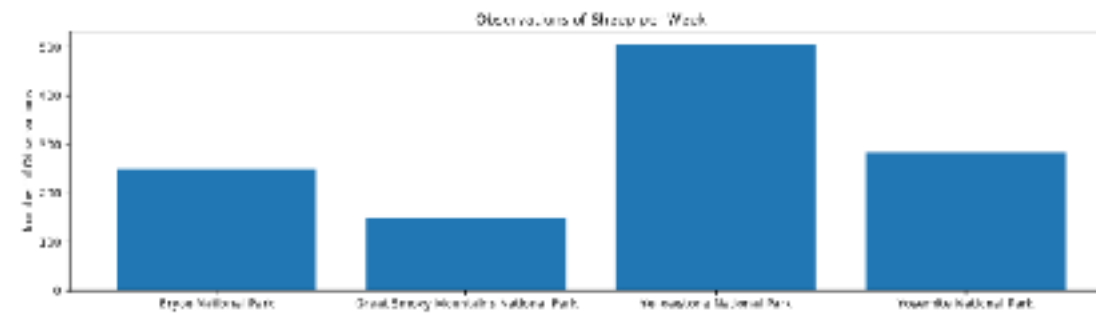
# Recommendations

- Conservationists should focus their efforts on Birds and Mammals as they are the two most endangered species.



# Foot and Mouth Disease

15% of Sheep at Bryce National Park have foot and mouth disease.



# Foot and Mouth Disease

- Scientists need to observe sheep at Yellowstone National Park for 1.71 weeks and Bryce National Park for 3.48 weeks to observe enough sheep for a large enough sample size.