CodeAcademy Capstone Project

Biodiversity

DATA OBSERVATIONS

5,541 species

7 categories of species: Mammal, Bird, Reptile, Amphibian Fish, Vascular Plant, and Nonvascular Plant

4 named conservation statuses: Species of Concern, Endangered, Threatened, In Recovery

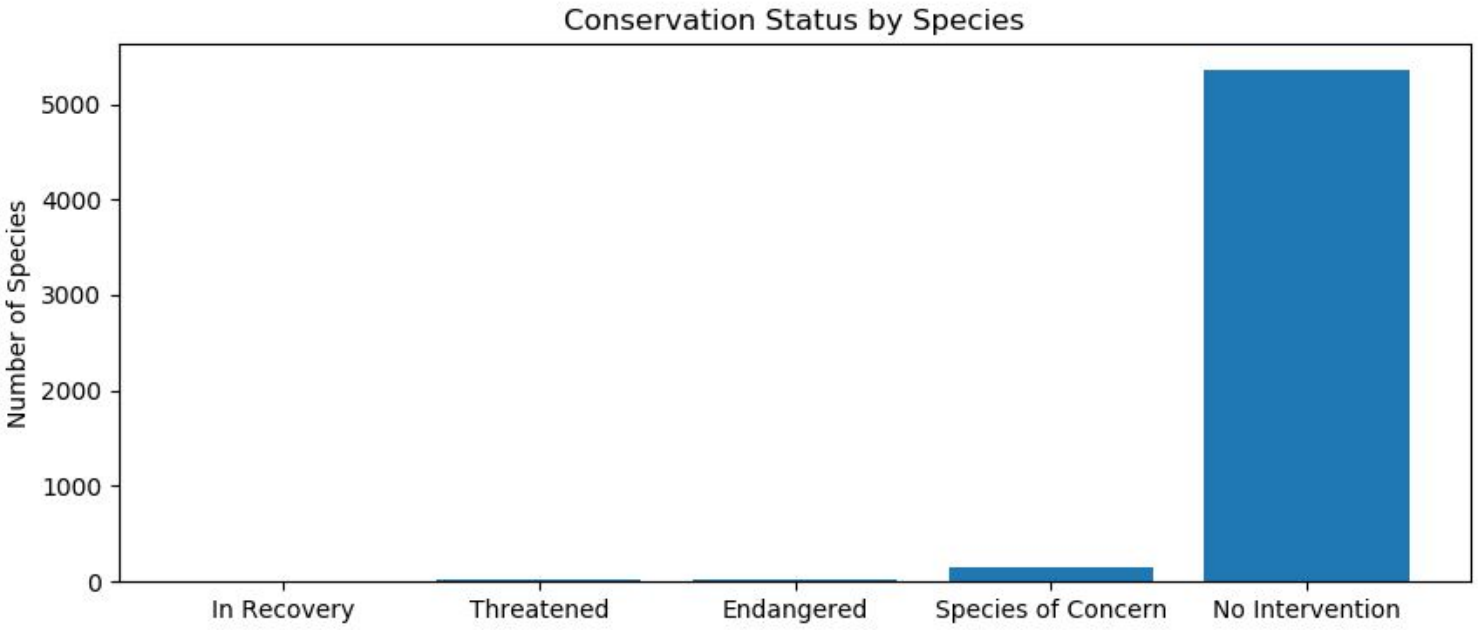
1 renamed conservation status: No Intervention

DATA OBSERVATIONS

of species listed in each conservation status:

Conservation Status	Scientific Name
Endangered	15
In Recovery	4
No Intervention	5363
Species of Concern	151
Threatened	10

DATA OBSERVATIONS



DATA OBSERVATIONS

Protected Species vs. Not Protected Species

category	*not_protected*	*protected*	*percent_protected*
Amphibian	72	7	0.088608
Bird	413	75	0.153689
Fish	115	11	0.087302
Mammal	146	30	0.170455
Nonvascular Plant	328	5	0.015015
Reptile	73	5	0.064103
Vascular Plant	4216	46	0.010793

SIGNIFICANCE CALCULATIONS

Chi-Squared Test:

Useful when we have two or more categorical datasets that we want to compare.

Categorical Data for Comparison:

Endangered status between 3 different categories of species (mammal, bird, reptile).

SIGNIFICANCE TEST RESULTS

Are certain types of species at more risk for being endangered?

Based on two chi-squared tests, here are the results:

	Chi-Squared Test	
	P-value	Significant
Mammal vs. Bird:	~0.688	No
Reptiles vs. Mammal:	~0.038	Yes

CONCLUSION

Based on the results from two chi-squared tests, certain species are more likely to be at risk of endangerment.

FOOT & MOUTH DISEASE

Sample Size Determination:

Baseline Conversion Rate - the percent of sheep at Bryce National Park that have foot and mouth disease. (15%)

Minimum Detectable Effect - the smallest difference (percentage reduction in foot and mouth disease) we want to measure. ((0.05 / .15) * 100 = 33.33%)

Statistical Significance - 90%

Sample Size - 870

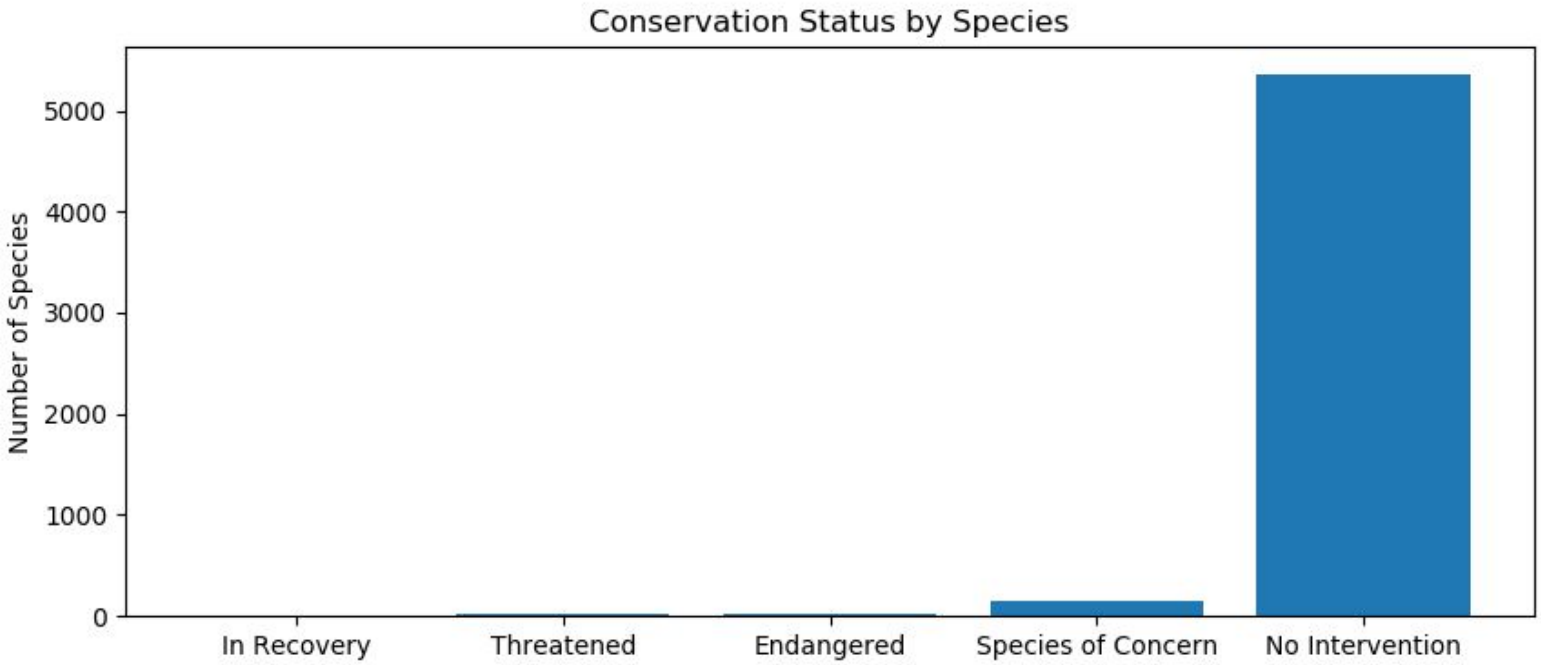
FOOT & MOUTH DISEASE

Sample Size Determination:

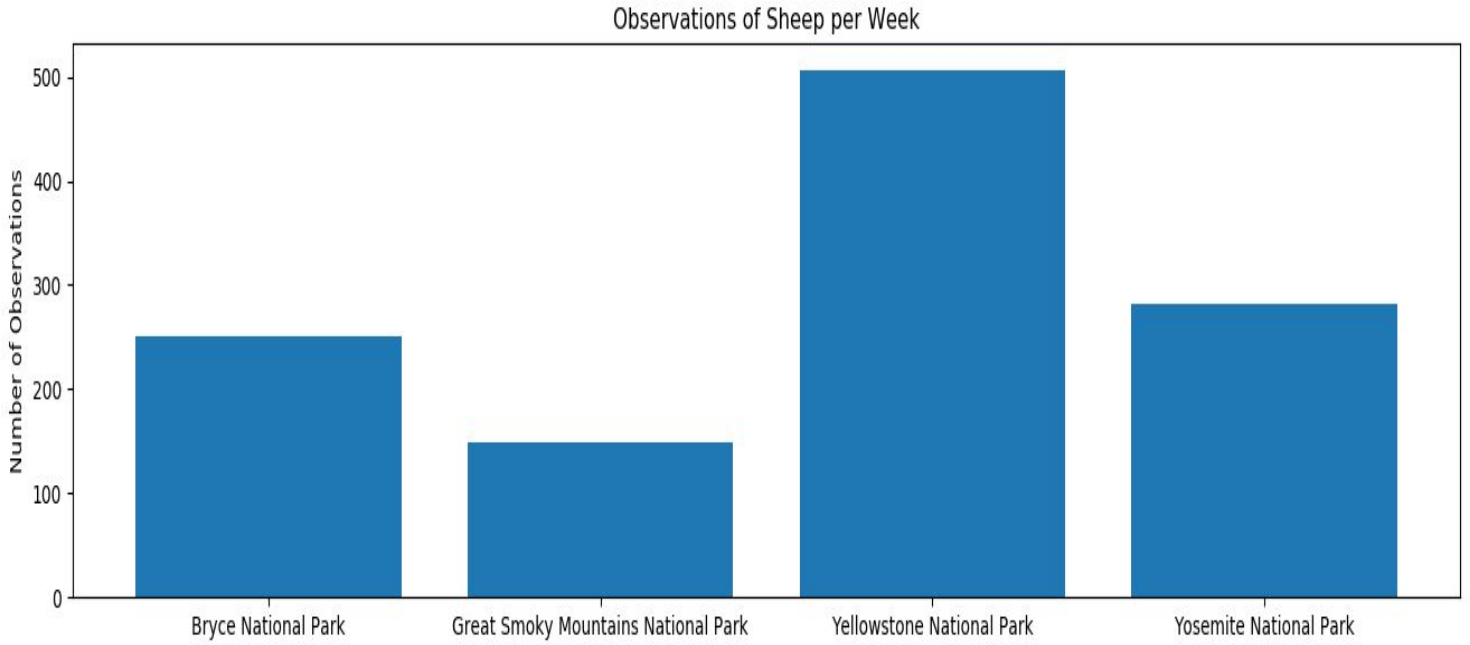
How many weeks are needed to observe sheep?

Park Name	**Weeks**
Yellowstone National Park	~ 1.72 weeks
Bryce National Park	~ 3.48 weeks

Graphs


Conservation Status by Species
Number of Species
5000
4000
3000
2000
1000
0
In Recovery
Threatened
Endangered
Species of Concern
No Intervention

Graphs


Observations of Sheep per Week
Number of Observations
0
100
200
300
400
500
Bryce National Park
Great Smoky Mountains National Park
Yellowstone National Park
Yosemite National Park