
Capstone Project: Biodiversity in National Parks

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Biodiversey in National Parks

During this project I was asked to review and analyze the data containing information on endangered species and observable data regarding these species.

The analysis included the following:

- Manipulation of data to find detailed endangered status
- Creating representative charts detailing endangered status
- Answering the question: Does species type tell us anything about endangered status?
- Tracking disease prevention for sheep and how to best track meaningful data

Endangered Status

How endangered status
relates to species type

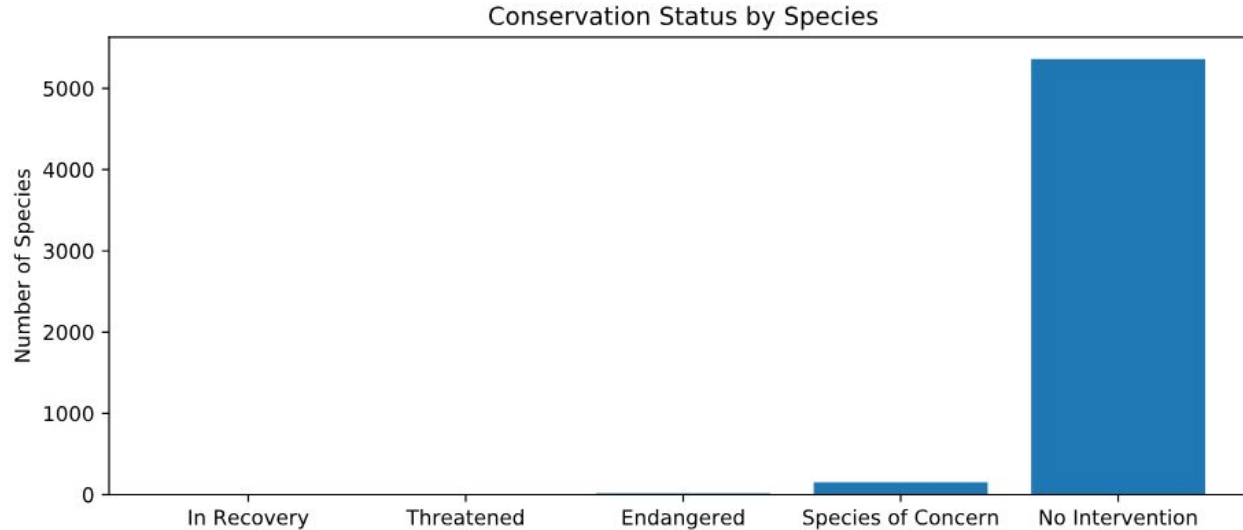
Endangered Status

I was able to manipulate the data in order to break the species data into different endangered statuses if the animal is being tracked.

	conservation_status	scientific_name
0	Endangered	15
1	In Recovery	4
2	Species of Concern	151
3	Threatened	10

Endangered Status Bar Chart

Ultimately it was better to represent our data broken out by total number of species into different statuses.



Endangered Status

Are certain species more likely to be endangered?

Protection by Category

Below is data to help us evaluate which categories of animals carry the protected status with their corresponding protection rate.

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

Protection by Category

This data led us to evaluate our findings to see if there were significant differences in protected status across animal category.

- Mammal vs. Bird
 - When performing a chi-squared test on the protected status of Mammals and Birds we found that the difference in data was not significant enough to dismiss the null hypothesis.
- Reptile vs. Mammal
 - When performing the same test with Reptiles vs. Mammals we found that there were significant differences in the data to conclude Mammals are more likely to have a protected status compared to Reptiles.

Protection Recommendation

Based on our significant findings I have a couple recommendations:

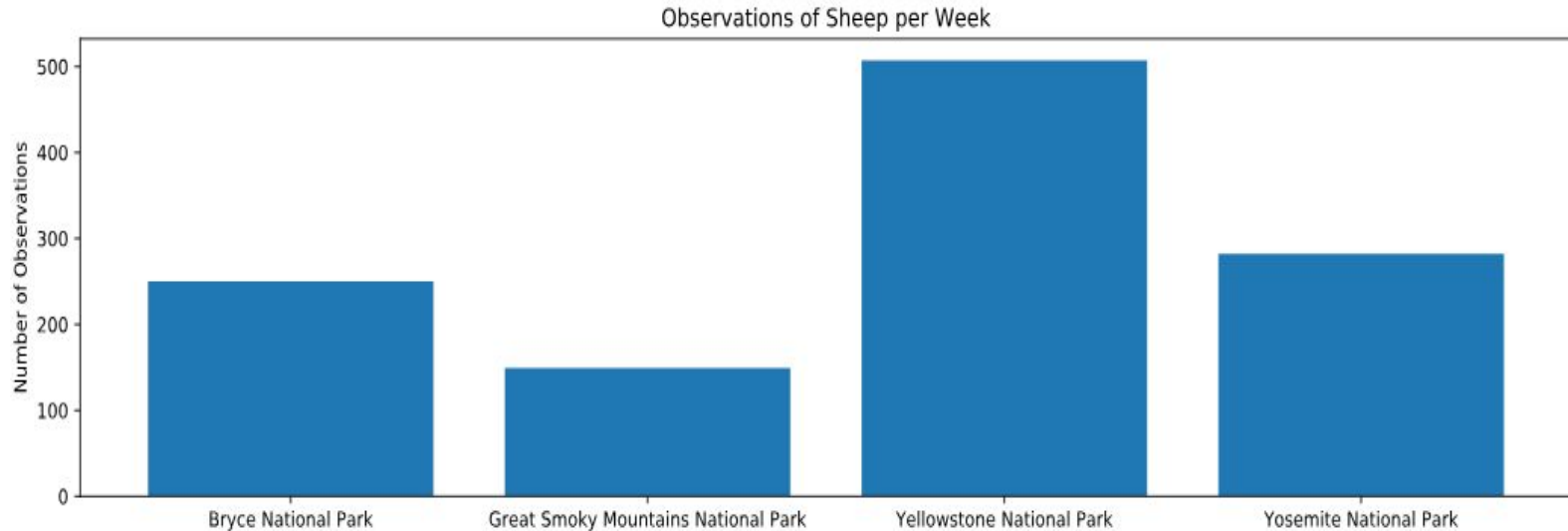
- Allocate your resources to protect Mammals and Birds
 - Clearly mammals and birds are the most endangered and they should be treated as such
- Scrutinize the data
 - Make sure the data gathering practices across species type are being given the same level of effort so that decisions can be made accurately
 - Having complete dataset is critical in these instances!

Observations of Species

Data on observing sheep and recording disease data

Observations by Park

We broke out our data on observations of sheep based on different national parks.



Observations of Sheep

Based on the observations data we were able to figure out details on how long it would take to observe enough sheep in Yellowstone to corroborate disease findings in Bryce National Park.

- Yellowstone National Park
 - In order to detect a 5% minimum detectable effect (with 90% confidence) on the recorded 15% of sheep with the disease we would have to observe 870 sheep
 - This will take between 1-2 weeks of observation at Yellowstone
- Bryce National Park
 - To repeat the same study at Bryce scientists will have to observe between 3-4 weeks due to the fact there are less weekly observations

