National Parks Biodiversity

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Species Information

- Data collected from the national parks service contained the following information:
  - Scientific names of species observed
  - Animal Category
  - Conservation status
- All data that was collected consisted of listing the species as:
  - Endangered
  - In Recovery
  - Species of Concern
  - Threatened
  - N/A (or No Intervention)

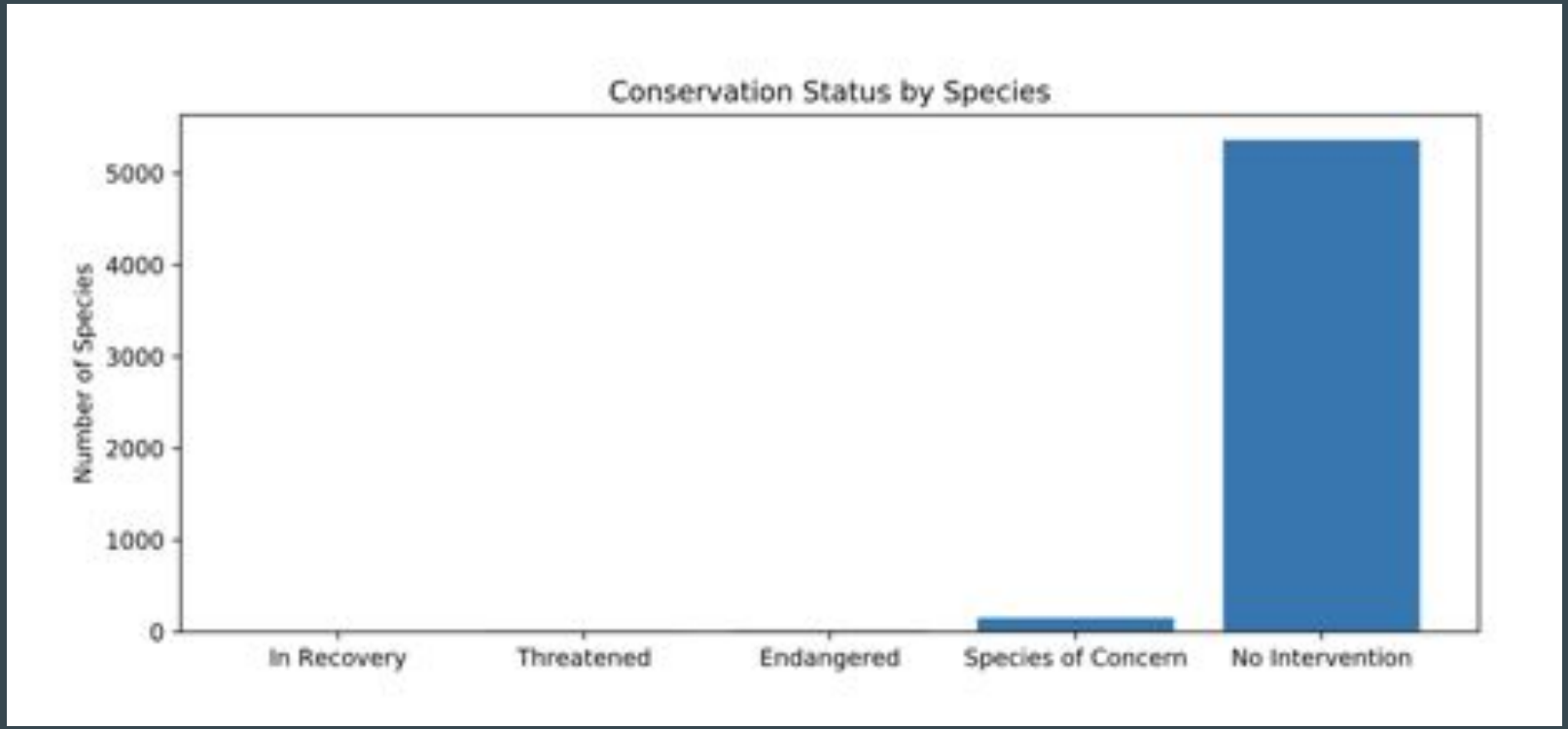
Data Analysis

Of the species that were in one of the first four categories:

Conservation Status	Scientific Name
Endangered	15
In Recovery	4
Species of Concern	151
Threatened	10

Data is a little bit deceptive as there are 5363 species that require No Intervention

CONSERVATION STATUS BY SPECIES



Species Data

Breakdown of the number of species in the National Parks:

Category	Number	Percentages	Animal Percentages Only
Amphibian	79	1.42573542681826	8.35095137420719
Bird	488	8.80707453528244	51.5856236786469
Fish	125	2.25591048547194	13.2135306553911
Mammal	176	3.17632196354449	18.6046511627907
Nonvascular Plant	333	6.00974553329724	
Reptile	78	1.40768814293449	8.24524312896406
Vascular Plant	4262	76.9175239126511	

Data Speculation Recovery

- 4 Species as in Recovery is a low percentage compared to the others and even lower when compared to the 5363 species that do not require intervention
- More information might need to be looked at to see what techniques have been successful with the 4 species in recovery.
    - 3 out of 4 species are Bird while 1 is a mammal. None are plants.
    - Birds only make up 38% of the Animal species but consist of about 75% of the recovery species why?
- Plants are not represented at all, why?

Plant data

Notice that the overall level of plants on the species are well below the 76% expected in each category.

conservation_status	Plant counts	Total Counts	Percentages
Endangered	1	15	7
No Intervention	4544	5363	85
Species of Concern	48	151	32
Threatened	2	10	20

Protected versus not protected by Category

Category	Not Protected	Protected	Percentage Protected
Amphibian	73	7	9.58904109589041
Bird	442	79	17.8733031674208
Mammal	176	38	21.5909090909091
Non Vascular Plant	328	5	1.52439024390244
Reptile	74	5	6.75675675675676
Vascular Plant	4424	46	1.03978300180832

Question: Are some species more likely to be endangered?

Chi Squared Test to Determine Species Likelihood versus Chance. P-Values < 0.05 show independence.

1. Bird versus mammals: 0.68759 (Cannot rule out Null hypothesis)
2. Mammals versus Reptiles: 0.03
3. Amphibian vs Mammal: 0.084 (Cannot rule out Null hypothesis)

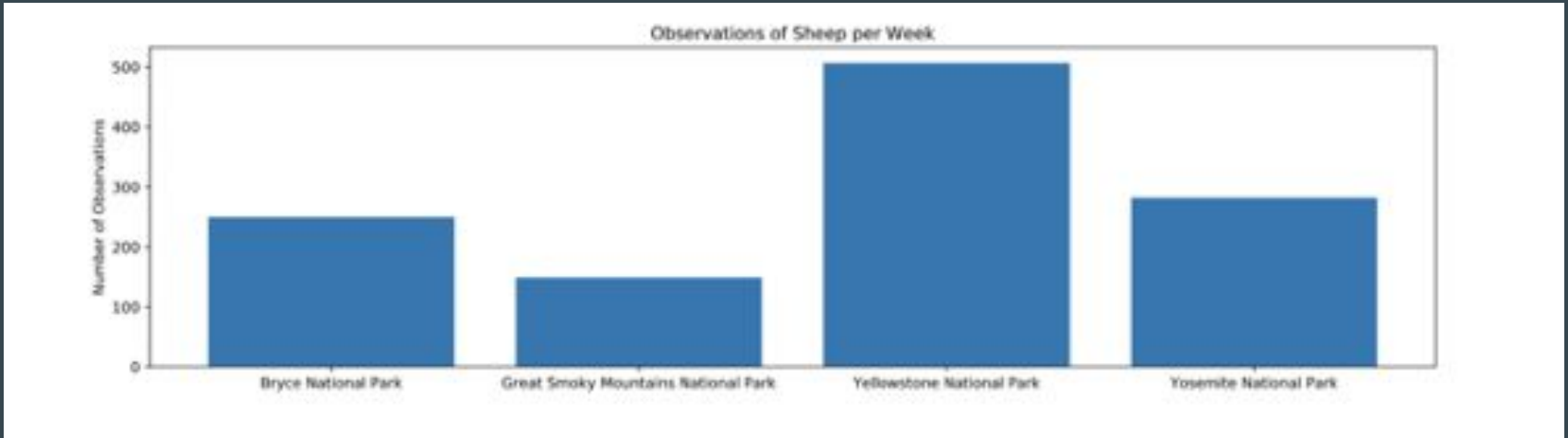
Mammals and reptiles showed that there was a likelihood that species are more likely to be endangered. Plants seem to be less likely to be endangered. We need to collect more data to look at this..

More questions

This data does bring up more questions and more data is needed to understand the impact of this data. This could have a bearing on multiple projects on conservation and species that are targeted for intervention and how those species are determined.

Sheep in the National Parks

- Observation data was collected on various species in the park and their observed numbers.
- Species data was then combined with the data from observations to look at various sheep movements within the national parks.



Foot and Mouth Delima

- Scientists want to observe sheep data and determine the set up for observations to reduce Foot and Mouth within the natural parks.
- Baseline was established of 15% of the heard has Foot and Mouth in Bryce National Park.
- If the minimum detectable effect is calculated at 33% and the sample size must be 890 sheep.
- This used with the sheep observation data gives about 3 and a half weeks of observing at Bryce National Park