Analysis of species at various national parks

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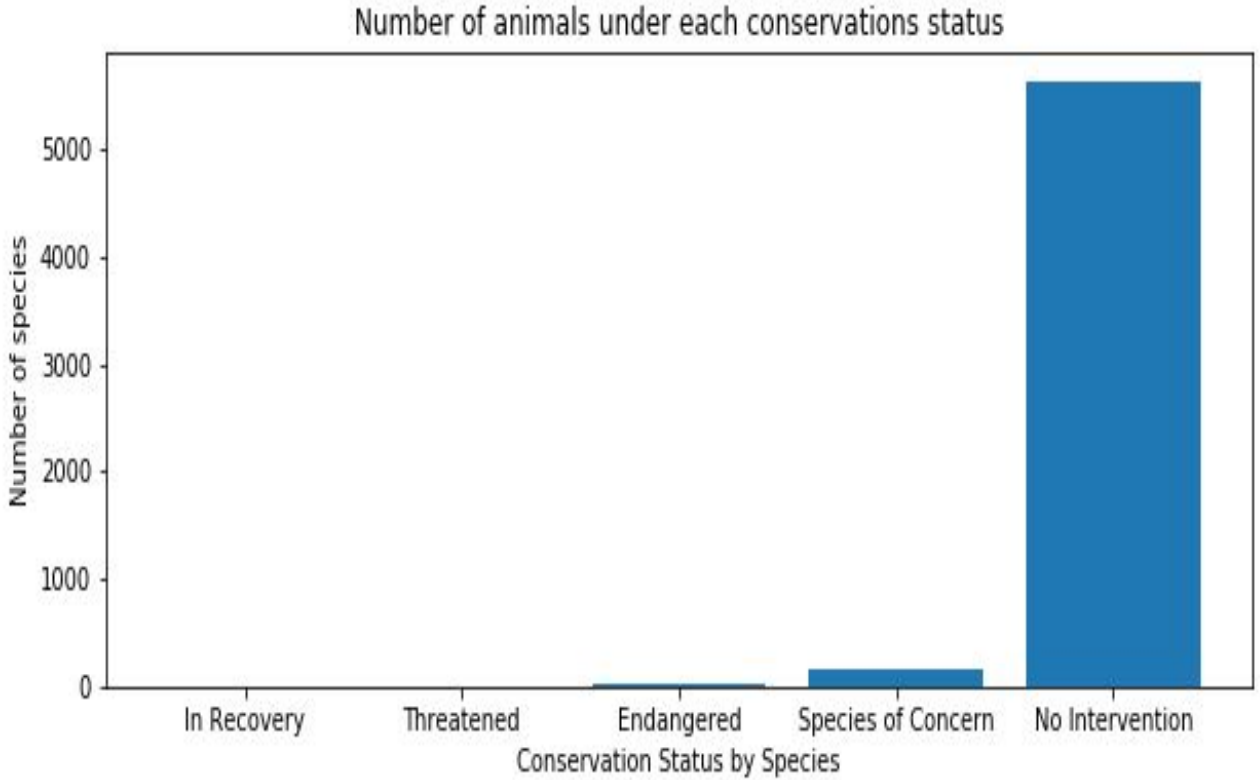
Data description

The dataset had the following details about species

- Type of species that specifies whether the species is one of the following
  - Mammal
  - Bird
  - Reptile
  - Amphibian
  - Fish
  - Vascular Plant
- Scientific name of the species
- Common names used for the species
- Conservation status denoting the risk of extinction that each species faces.

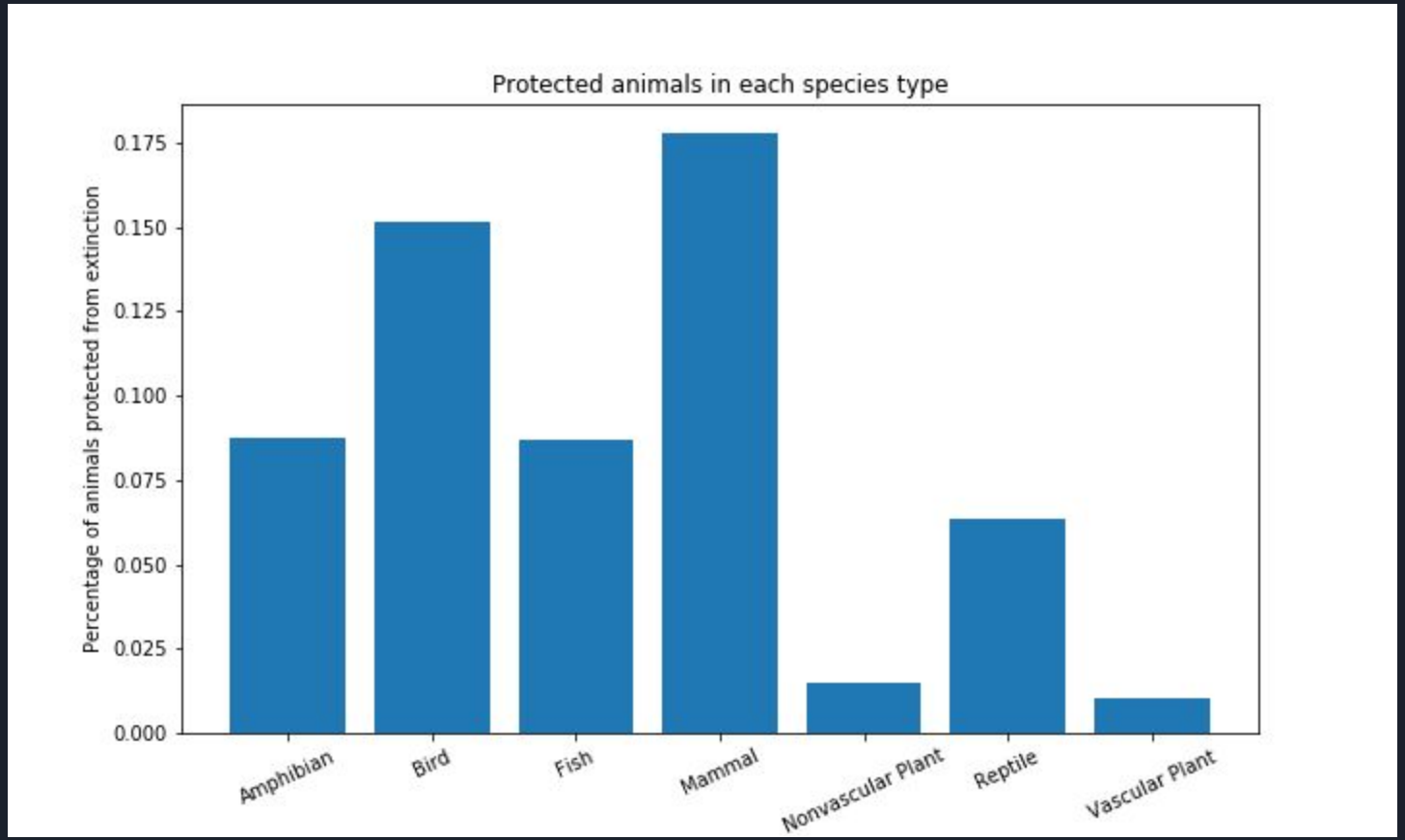
Endangered status calculations

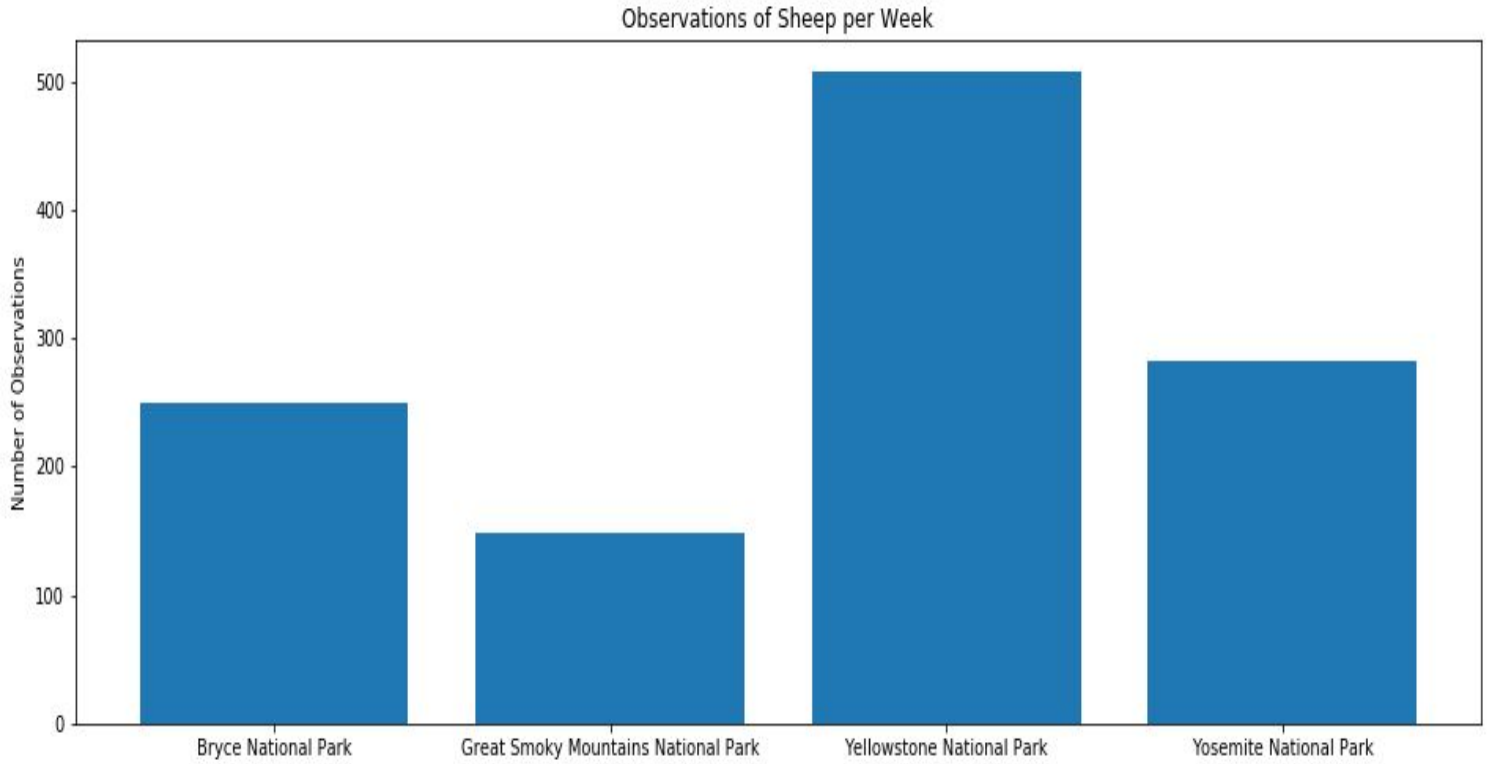
- The conservation status of each species provided details about their subjectment to extinction.
- There were four types of status used in this data set which are
  - Endangered
  - In Recovery
  - Species of Concern
  - Threatened
- However, the species that were not on the verge of extinction had null values which had to be filled with “No Intervention” values in order to determine the number of species in each conservation status groups
- This information can be better understood by the following bar chart.


Number of animals under each conservations status
Number of species
5000
4000
3000
2000
1000
0
In Recovery
Threatened
Endangered
Species of Concern
No Intervention
Conservation Status by Species

Recommendation for conservationists

- There are endangered species that need protection in each type of species.
- Number of animals that need protection in each species is described by the bar chart in the next slide.
- There seemed to be a lot of mammals that needed protection compared to reptiles.
- I conducted a chi square significance test to see if there is a significant difference between mammals and reptiles or if the obtained results were just by chance.
- From the results of test, it was evident that there was significant difference between them and hence mammals need attention towards protection.


Protected animals in each species type
Percentage of animals protected from extinction
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
Amphibian
Bird
Fish
Mammal
Nonvascular Plant
Reptile
Vascular Plant


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

Sample size determination

- The number of sheeps in each park is shown in the bar chart above.
- It was known that 15% of the sheeps in Bryce National park have foot and mouth disease.
- A new program was being run in Yellow stone national park to reduce the disease.
- Scientists wanted to determine if the program is working and in order to do this, the sample size of sheeps needed to be determined.
- The minimum detectable effect was calculated to be 33.33.
- WIth a significance level of 90%, the minimum sample size required to determine the result was found to be 870 in each park.