Biodiversity in National Parks - Analysis

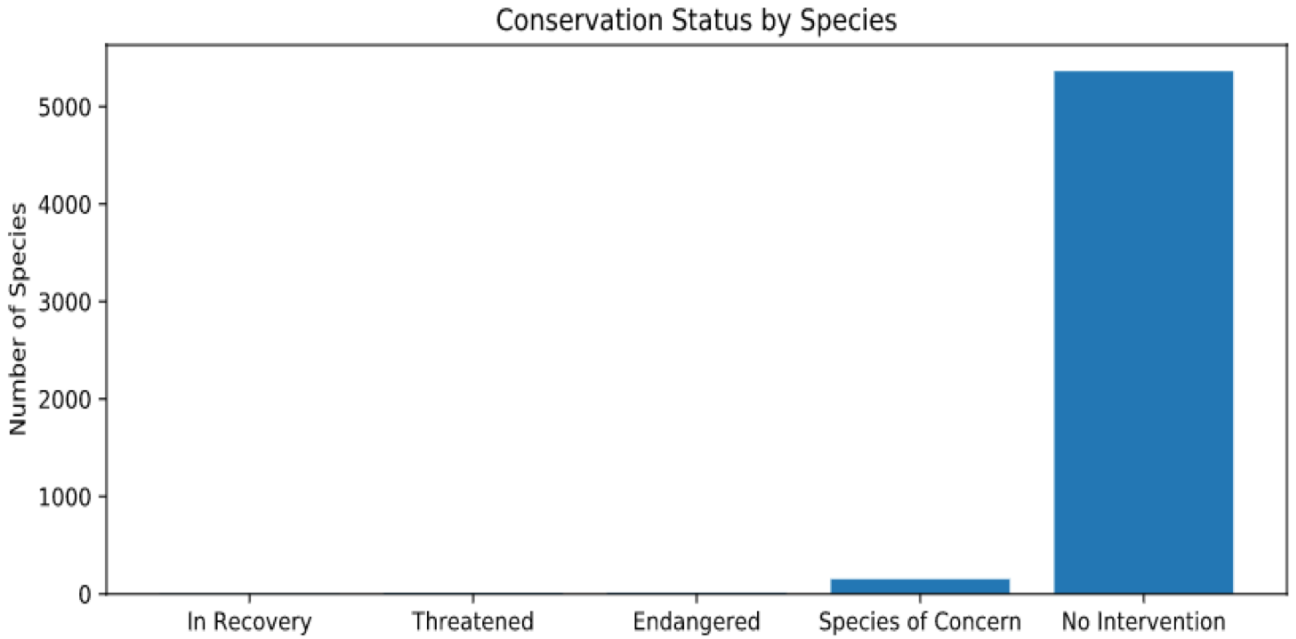
Data Summary

- This dataset includes information about bio-diversity in National parks
- Original dataset includes 5825 species and 4 specifics of the species
  - Category: Mammal, Bird, Reptile, Amphibian, Fish, Vascular Plant, Non-vascular Plant
  - Scientific Name of the species
  - Common Name of the species
  - Conservation Status: Species of Concern, Endangered, Threatened, In recovery, No information (n/a)

Analysis-I

- Initial analysis on the dataset shows that there are around 5543 unique species
- 96.75% (5363 species) of the species require no intervention and are considered being protected
- 3.25% (180 species) of the species need some sort of protection
- 14% of the species (25 species) that need protection are at the verge of extinction.

	conservation_status	scientific_name
0	Endangered	15
1	In Recovery	4
2	No Intervention	5363
3	Species of Concern	151
4	Threatened	10



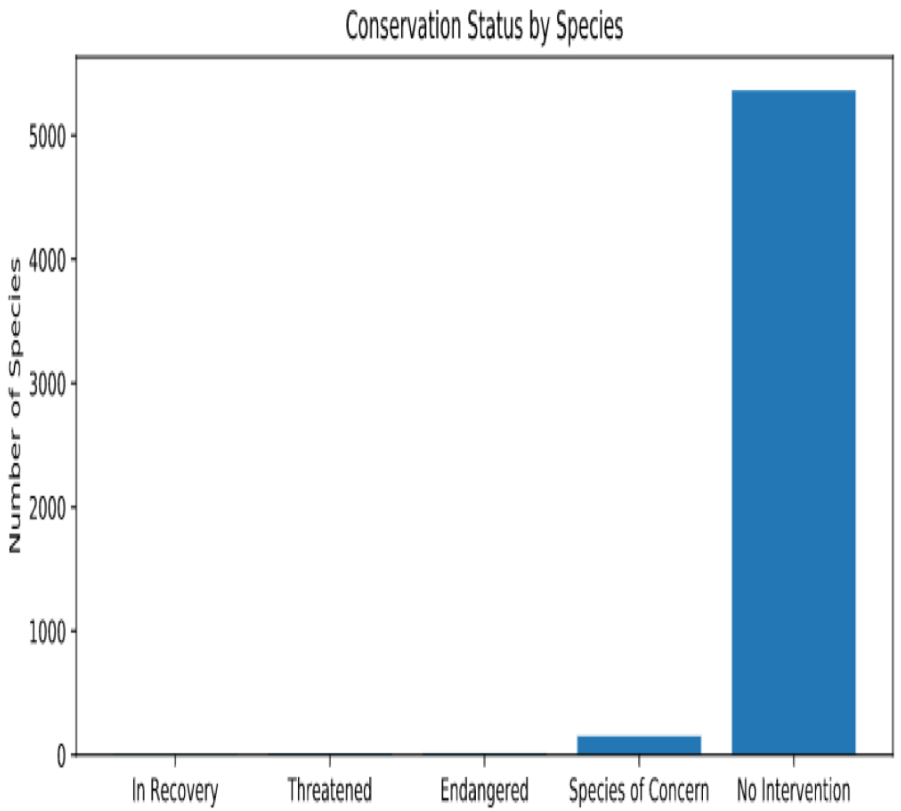
Analysis-II

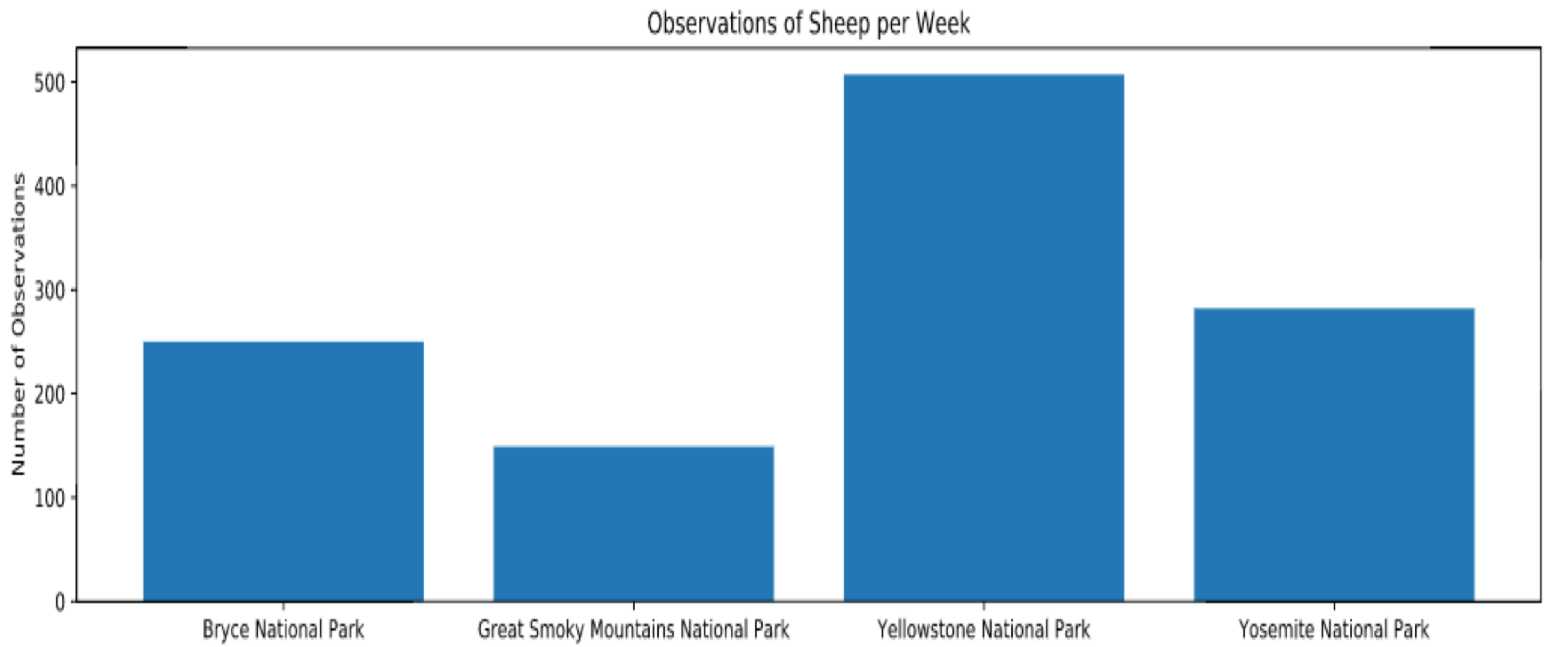
- The following observations are made from Chi Square tests,
  - Species in Mammal and Bird categories are more likely to be endangered than species in Amphibian, Reptile , Fish, Vascular and Non-vascular plant
  - Between species in Mammal and Bird, there is no significant difference in datasets and hence they both have equal probability to be endangered
  - There is a significant difference in Mammal and Reptile datasets – inferred from calculated p-value which is <0.05. This observation is also the same between Bird and Reptile datasets.
- Based on significance calculations, it would be ideal to focus on protecting species in categories Mammal and Bird.

Study on Foot and Mouth disease

- Baseline conversion rate: Calculated from historic data. Last year's data from Bryce National Park which is 15% of the sheep had foot and mouth disease is used as baseline percentage
- Minimum Detectable Effect: at least 5% drop in observed cases of foot and mouth disease in sheep is the requirement and hence minimum detectable effect is 33.33% ((100-5)/15)
- Significance level: 90%
- Sample Size: 870
- With sheep observations data in multiple national parks, number of weeks needed to observe enough sheep are,
  - YellowStone – 1 week and 5 days
  - Bryce – 3 weeks and 3 days
  - Great Smoky Mountains – 5 weeks and 5 days
  - Yosemite – 3 weeks

	park_name	observations
0	Bryce National Park	250
1	Great Smoky Mountains National Park	149
2	Yellowstone National Park	507
3	Yosemite National Park	282


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


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