



Biodiversity for the National Parks

Introduction to Data Analysis
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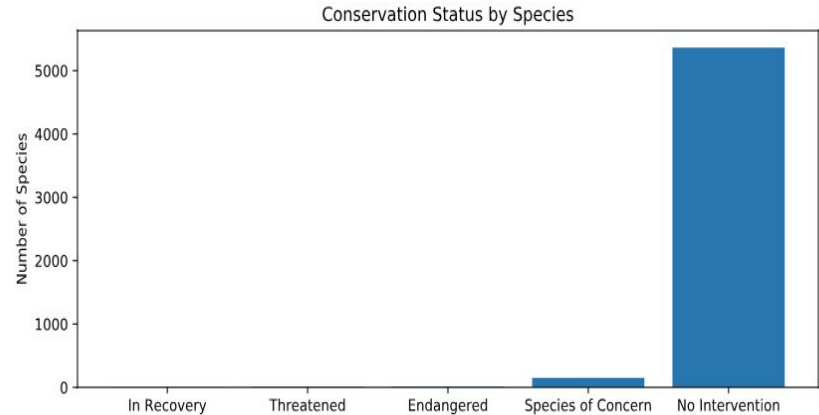
Species Info

- Data provides names and information for 5,543 species within 7 categories: Amphibian; Bird; Fish; Mammal; Nonvascular Plant; Reptile; Vascular Plant
- Majority of Species are Nonvascular Plants - most of which are not in a protected category.
- Protected categories are: Species of concern; Threatened; Endangered; and In Recovery

Conservation Status

Graph and Chart represents the number of species in each conversation status:

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



Calculations

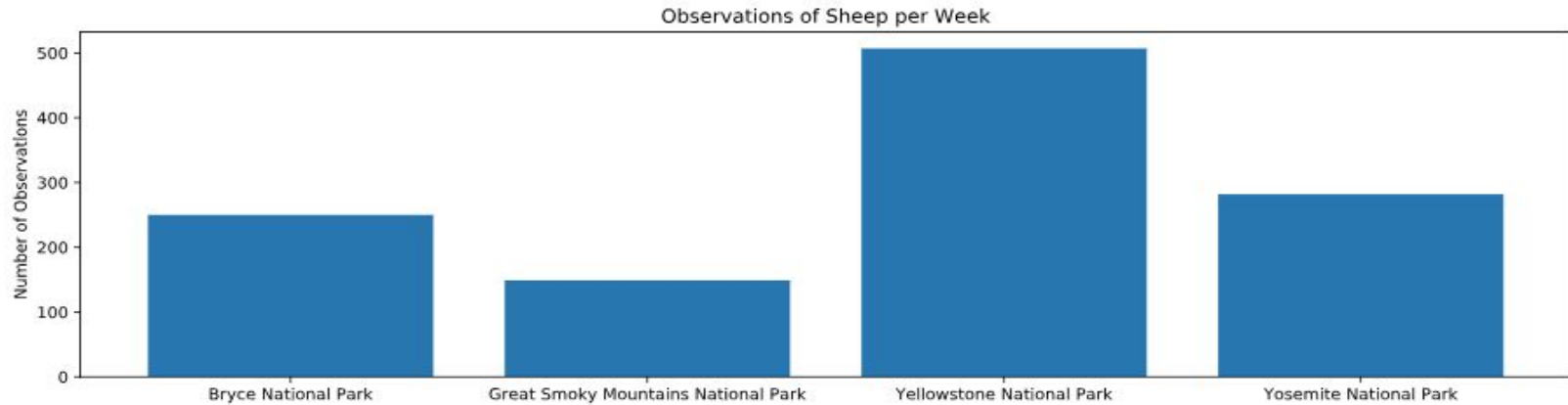
- Used chi-square test to determine whether certain types of species are more likely to be endangered:
 - Mammals are most likely to be endangered at a rate of 17%
 - Birds are the next most likely to be endangered at a rate of 15%
 - Based on the Chi Squared test, this is not a significant statistical difference and can be attributed to chance.
- Tested difference between reptiles (6%) and mammals (17%) using Chi Squared test, $P > 0.05$
Statistically Significant.



Foot and Mouth Disease in National Parks

Sample Size

Sample Size was determined by sheep population observation at four national parks:



Sample Size

Baseline was determined from data from the previous year showing thatt 15% of sheep at Bryce National Park had foot and mouth disease

- Minimum detectable effect = 33.3%
- Minimum sample size is 870 sheep per variant
- Based on weekly observation of each parks population:

	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

Length of Observation

YellowStone = 1.7 Weeks

Bryce National Park = 3.5 Weeks

Great Smoky Mountains = 5.8 Weeks

Yosemite = 3 Weeks

Recommendations

- Greatest area of concern are Mammals and Birds.
- There are 4 species in recovery - what was done and can the same techniques be applied to other at risk species?