



# Biodiversity in National Parks

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# Species Info

- Analysis was done using species information provided in 'species\_info.csv'
- Several categories are represented in the data with different quantities

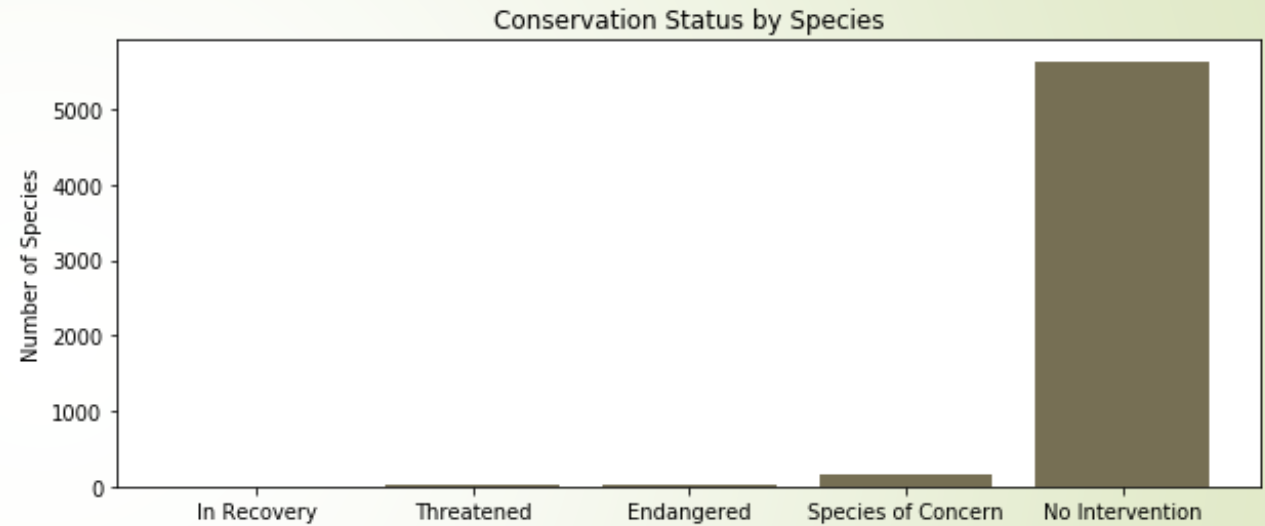
Category	Quantity
Amphibian	79
Bird	488
Fish	125
Mammal	176
Nonvascular Plant	333
Reptile	78
Vascular Plant	4262

- The vast majority of species are vascular plants
- Note: There are 283 duplicated scientific names in the list, these species were counted only once in the analysis

# Conservation Status

- There are 5 categories of conservation status

Status	Quantity
Endangered	15
In Recovery	4
Species of Concern	151
Threatened	10
No Intervention	5363



- Less than 3.5% of species have a conservation status

# Category Conservation Status

► Conservation status by category

Category	Not protected	Protected	Percent Protected
Amphibian	72	7	0.088608
Bird	413	75	0.153689
Fish	115	11	0.087302
Mammal	146	30	0.170455
Nonvascular Plant	328	5	0.015015
Reptile	73	5	0.064103
Vascular Plant	4216	46	0.010793

# Category Conservation Status

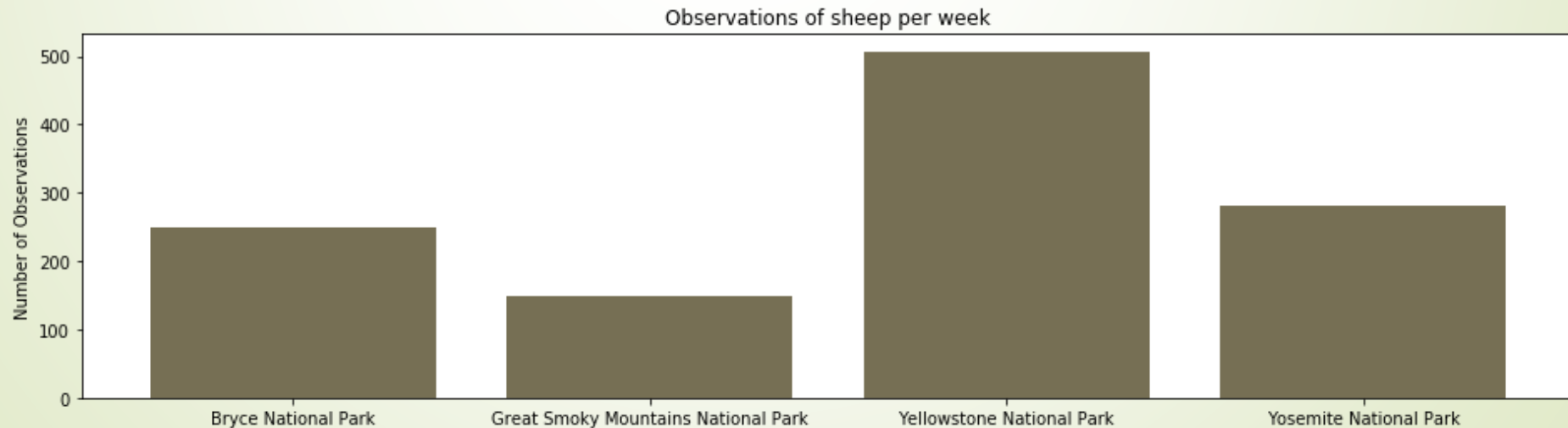
- This shows the results of a chi square test of each category against every other category.
- Plants and animals have differences between the percentage that are protected
- The only place where animals are significantly different is between Reptile and Mammal
- For conservationists - Mammals need more focus on conservation than Reptiles

Category	Amphibian	Bird	Fish	Mammal	Nonvascular Plant	Reptile	Vascular Plant
Amphibian	Similar	Similar	Similar	Similar	Difference	Similar	Difference
Bird	Similar	Similar	Similar	Similar	Difference	Similar	Difference
Fish	Similar	Similar	Similar	Similar	Difference	Similar	Difference
Mammal	Similar	Similar	Similar	Similar	Difference	Difference	Difference
Nonvascular Plant	Difference	Difference	Difference	Difference	Similar	Difference	Similar
Reptile	Similar	Similar	Similar	Difference	Difference	Similar	Difference
Vascular Plant	Difference	Difference	Difference	Difference	Similar	Difference	Similar

# Sheep Observations

- Using data in 'observations.csv' and the earlier data in 'species\_info.csv' the following observations of sheep were compiled over the past week

Park Name	observations
Bryce National Park	250
Great Smoky Mountains National Park	149
Yellowstone National Park	507
Yosemite National Park	282



# Sheep Observations

- It is known that 15% of sheep in Bryce National Park have foot and mouth disease.
- A program at Yellowstone National Park has been running to reduce foot and mouth disease.
- 520 observations need to be made per park
  - A 5% change of the 15% baseline would be a 0.33% reduction
  - 10% with the following sample size at a 90% significance level
- The following is observations per park per week and the # of weeks to reach 520 observations

Park Name	Observation per Week	Weeks of Observation
Bryce National Park	250	2.080000
Great Smoky Mountains National Park	149	3.489933
Yellowstone National Park	507	1.025641
Yosemite National Park	282	1.843972

- For Bryce National Park just over 2 weeks, for Yellowstone just over 1 week