

# Biodiversity Project

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# Data Summary

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This data frame contains information regarding the conservation statues of 5541 unique species in US National Parks.

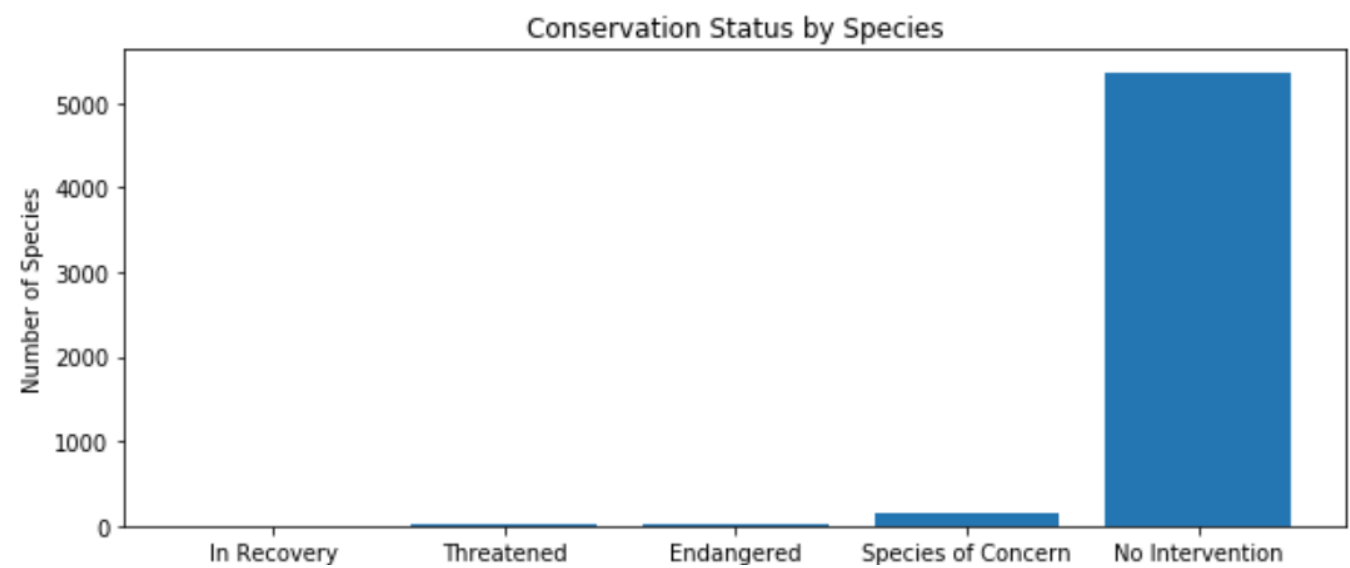
There are four conservation status and seven broad species categories.

Table below shows the description of the data-frame.

	category	Scientific name	Common names	Conservation status
count	5824	5824	5824	191
unique	7	5541	5504	4
top	Vascular Plant	Holcus lanatus	Brachythecium Moss	Species of Concern
freq	4470	3		161

# Data Analysis

Among 5,543 species, there are 180 ones that are either endangered or require some kind of attention. These species are considered unprotected species.



conservation status	Scientific name
Endangered	15
In Recovery	4
No Intervention	5363
Species of Concern	151
Threatened	10

# Protection percentage by categories

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Mammals received more protection relative to Birds showing the risk of extinction.

Chi squared test shows that, at 95% level of confidence, there is no significant statistical difference between protection percentages between these two categories.

- The p-value of the test is 0.68 not being able to reject null hypothesis.

When we test the difference between Mammal and Reptile, the p-value is 0.03 reflecting a statistical difference between the protection percentages.

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

# Recommendation for Endangered Species

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Based on the significance calculation, species in Reptile category receive less protection. It is being recommended that the National park adds more protections for the species in this category .



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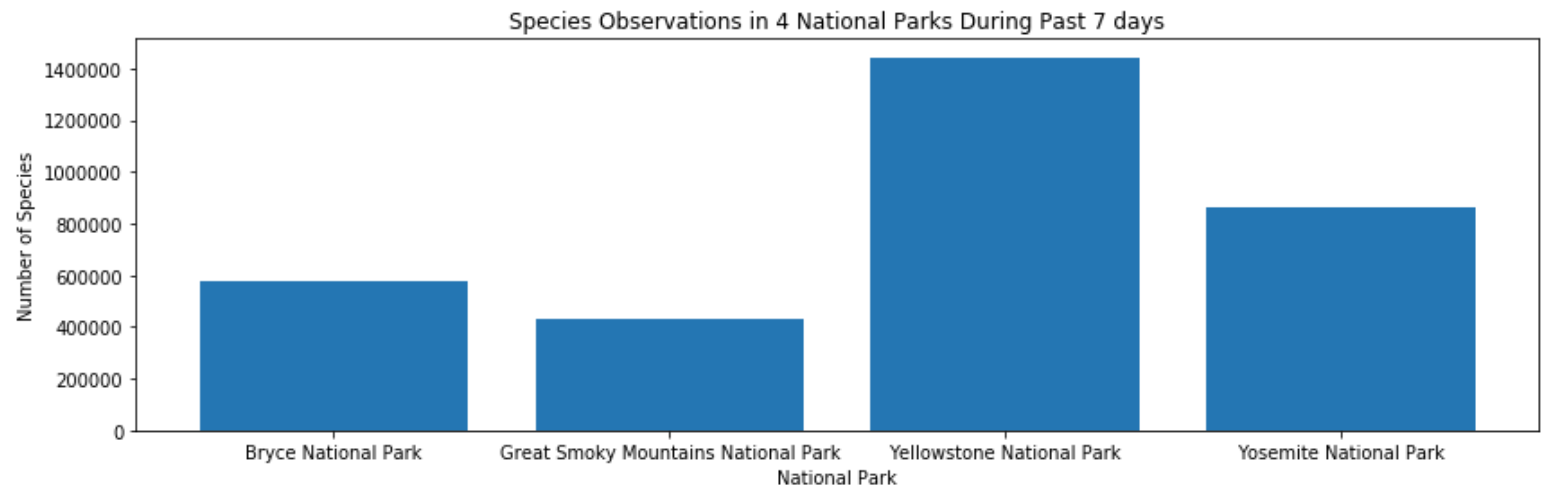
# National Park's Sheep Study

# Data Summary

Some scientists are studying the number of sheep sightings at different national parks.

Based on data received from four national parks, total number of 23296 sightings of different species was recorded at several national parks for the past seven days

Park Name	observations
Bryce National Park	576025
Great Smoky Mountains National Park	431820
Yellowstone National Park	1443562
Yosemite National Park	863332

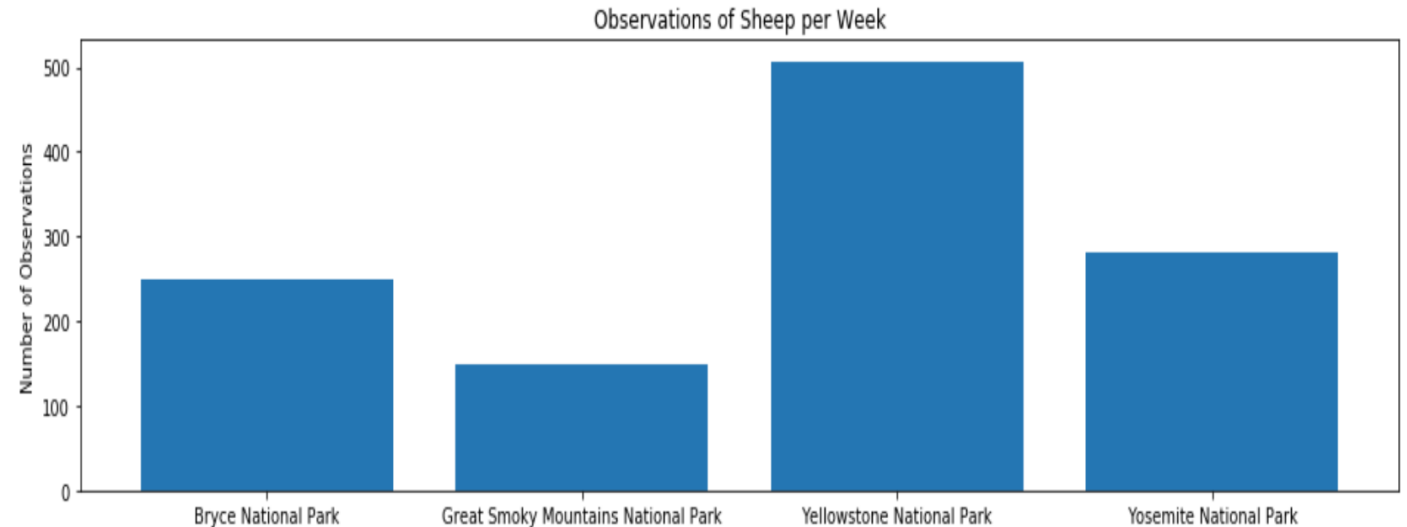


# Sheep Study

Some scientists are studying the number of sheep sightings at different national parks.

Table below shows total number of sheep observed in each of the four parks over the past seven days

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





# Foot and mouth disease study on Sheep in Yellowstone park

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## Current Status:

- 15 percent of sheep at Bryce National Park have foot and mouth disease

## Program Study:

- Objective:
  - Park rangers at Yellowstone National Park have been running a program to reduce the rate of foot and mouth disease at that park.
- Goal:
  - 5% point reductions in the number of infected sheep

# Sample Size Selection

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For 90% level of significance for the moth and feet disease test, scientists need to take a sample of at least 510 sheep in Yellowstone national park.

Based on the historical data on sheep observation in each park per week, approximately 2 weeks of sampling is required in Yellowstone park.